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REPORT AND RECOMMENDATION
OF THE
PRESIDENT OF THE
INTERNATIONAL DEVELOPMENT ASSOCIATION
TO THE EXECUTIVE DIRECTORS
ON A
PROPOSED CREDIT
TO THE
PEOPLE'S REPUBLIC OF CHINA
FOR THE
NORTH CHINA PLAIN AGRICULTURE PROJECT

May 26, 1982

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CURRENCY EQUIVALENTS

Currency Unit - Yuan (Y)

\$1.00 = Y 1.7 (October 1981)
Y 1.00 = \$0.59

WEIGHTS AND MEASURES (METRIC SYSTEM)

1 meter (m)	=	3.28 feet (ft)
1 kolometer (km)	=	0.62 miles
1 hectare (ha)	=	2.47 acres
1 million cubic meters	=	810 acre-feet
1 ton	=	1,000 kilograms (kg)
	=	2,205 pounds
1 kilogram (kg)	=	2.2 pounds

ABBREVIATIONS

ABC - Agricultural Bank of China
CAAS - Chinese Academy of Agricultural Sciences
MOA - Ministry of Agriculture
PMO - Project Management Office

FISCAL YEAR

January 1 - December 31

CHINA

NORTH CHINA PLAIN AGRICULTURE PROJECT

Credit and Project Summary

Borrower: People's Republic of China

Beneficiaries: Provinces of Shandong, Anhui and Henan,
Ministry of Agriculture

Amount: SDR 54 million (\$60 million equivalent)

Terms: Standard

Relending: The Borrower will pass the proceeds of the credit on to the provinces of Shandong, Anhui and Henan on the same terms as the IDA credit.

Project

Description: The project would provide drainage and irrigation facilities for about 200,000 ha in nine counties, located in the three provinces of Shandong, Anhui, and Henan in the North China Plain. It is designed to overcome the main agricultural constraints of soil salinity, waterlogging, and surface flooding. The project includes construction and improvement of main, lateral, sublateral and on-farm drains and irrigation ditches; construction of and equipment for pumping stations and tubewells; additions to existing rural electrification systems; construction and improvement of rural roads; provision of agrochemicals and agricultural machinery and equipment; establishment of orchards and wood lots; strengthening of research and extension services in the project areas; comprehensive soil and water studies; and a North China Plain Agricultural Study. The project would directly benefit some 280,000 farm families. This will be the first IDA assisted agricultural project in China. It entails no major technical risks but it would be implemented at a time of change in rural institutions and farmers' incentives. However, the basic strength of the county governments should protect the project from significant administrative problems.

Cost Estimates (\$ million):

	<u>Local</u>	<u>Foreign</u>	<u>Total</u>	<u>% of foreign exchange</u>
Civil works	61.7	3.5	65.2	5
Tubewells	18.7	7.5	26.2	29
Rural electrification & roads	6.1	2.8	8.9	31
Agricultural development	8.5	20.6	29.1	71
Technical assistance	0.2	1.5	1.7	88
Engineering and management	4.2	0.5	4.7	11
<u>Base cost</u>	<u>99.4</u>	<u>36.4</u>	<u>135.8</u>	<u>27</u>
Physical contingencies	11.0	4.4	15.4	-
Price contingencies	17.9	8.4	26.3	-
<u>Total</u>	<u>128.3</u>	<u>49.2</u>	<u>177.5</u>	<u>28</u>

Financing Plan (\$ million):

	<u>Total</u>
IDA	60.0
Provincial Government	39.0
Counties and communes	45.8
Production teams	<u>32.7</u>
	177.5

Estimated Disbursement (\$ million):

IDA FY:	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>
Annual	4	10	16	18	12
Cumulative	4	14	30	48	60

Rate of Return: 30%

Staff Appraisal Report: No. 3815-CHA, dated May 26, 1982

REPORT AND RECOMMENDATION OF THE PRESIDENT
OF THE INTERNATIONAL DEVELOPMENT ASSOCIATION
TO THE EXECUTIVE DIRECTORS
ON A PROPOSED CREDIT
TO THE PEOPLE'S REPUBLIC OF CHINA
FOR THE NORTH CHINA PLAIN AGRICULTURE PROJECT

1. I submit the following report and recommendation on a proposed credit to the People's Republic of China to help finance the North China Plain Agriculture Project. The credit, for SDR 54 million (\$60 million equivalent), would be on standard IDA terms.

PART I - THE ECONOMY

2. An introductory economic report, entitled "China: Socialist Economic Development" (No. 3391-CHA), was distributed to the Executive Directors on June 1, 1981. Country data are given in Annex I.

Development Objectives and Performance

3. China's economic system combines an urban state economy modelled after that of Eastern European countries, with a rural commune economy based on the country's own traditions as well as its socialist ideology. The state economy is characterized by public ownership, centralization of economic decisions, strictly hierarchical control, and relatively little reliance on markets or prices. In the commune economy, land and most capital are owned and used collectively by production teams of 30-40 households, which generally correspond to traditional villages (or neighborhoods of larger villages). Each team is part of a brigade, each brigade part of a commune: these higher level units organize land improvement projects, run industrial and other enterprises, and deliver education and health services.

4. Development efforts over the past three decades have consistently been directed toward two main objectives: first, industrialization, and in particular development of a heavy industrial base; second, elimination of the worst aspects of poverty. Chinese development strategy has also been shaped by two major constraints: first, an extreme shortage of cultivable land in relation to population; second, a high degree of international isolation.

5. These two constraints have sharpened the conflict between the two objectives. The prospective returns to investment in agriculture (the principal source of income for the poor) have been limited by land scarcity and by the fact that the easiest advances in intensive cultivation had already been made. Similarly the inevitable competition for capital and skilled manpower between industrialization and other means of poverty reduction has been aggravated by reliance since 1960 entirely on domestic resources and technological improvements.

6. The Chinese response to this dilemma has been to approach the two objectives in two different ways. Following an initial phase of institutional

change and property redistribution, poverty reduction - mainly through rural development and the provision of basic health and education services - has been based largely on local resources and initiative. Industrialization, by contrast, has been based mainly on a massive infusion of centrally mobilized resources, with little concern for cost effectiveness, and using largely Soviet technology of the 1950s.

7. Tension between these two approaches has contributed to sharp policy oscillations, as has a continuing debate on the role of political criteria in economic decisions and on the most appropriate degree of centralization. The country is only now recovering from the latest political upheavals - the so-called Cultural Revolution (1966-76) - during which extreme leftist views often predominated, and egalitarianism and ideology were emphasized at the expense of economic efficiency.

8. Notwithstanding these policy swings, which have engendered some dramatic economic fluctuations, there has been substantial progress toward the two main objectives. Industrialization has been very rapid, largely as the result of an unusually high rate of investment, virtually all of which has been financed by domestic savings. The share of industry in GDP (around 40%) is currently similar to the average for middle-income developing countries. However, agriculture still accounts for 34% of GDP and over 70% of employment - similar to the average for low-income developing countries. Around 85% of the population still lives in rural areas.

9. Over the whole period 1949-79 the population expanded at a little under 2% a year. Despite the tightly constrained agricultural sector, rapid expansion of industrial output has caused national income per person to grow fairly fast. With adjustments for international comparability, per capita GNP appears to have grown at an annual rate of 2.0-2.5% in 1957-77 and (because of a spurt in the last three years) 2.5-3.0% in 1977-80. Even the former rate is significantly above the average for other low-income developing countries (1.6% in 1960-78) - though the latter is still well below the average for middle-income developing countries (3.7%) and has not been high enough to pull China out of the low-income group.

Strengths and Weaknesses

10. China has clearly displayed an outstanding capacity to mobilize domestic resources - material, human and financial - in pursuit of comparatively well-defined national objectives. Given the shortage of land and initially high yields, agricultural growth since 1949 has been quite impressive. Yields of the major crops are now among the highest in the world though labor productivity remains low. Agricultural growth, at about 3% a year, has, however, been eclipsed by industrial growth at an average rate of more than 10% per year. Although a large minority of the population (around 200 million people) remains very poor, low income groups in China have been made better off in terms of employment, nutrition, health and basic education than their counterparts in most other poor countries. Partly as a result, but also

through an intensive political campaign in the 1970s, the population growth rate has been reduced in recent years to a remarkably low level (1.2% in 1980). Life expectancy - whose dependence on many other economic and social variables makes it probably the best single indicator of human welfare in a country - is (at 64 years) outstandingly high for a country at China's per capita income level.

11. The outstanding weakness of China's economy is inefficiency, both in converting inputs into outputs and in matching supply with demand. This is partly the result of technological backwardness, caused by two decades of international isolation. But it also reflects the virtual absence of medium-term planning since 1958, the lack of economic criteria in investment analysis, and serious weaknesses in the economic system - in particular, inadequate contact between producers and users, insufficient use of markets and price incentives, inadequate linkage between effort and rewards, and an overstaffed and cumbersome bureaucracy.

Recent Developments

12. Since 1977 there has been intense discussion within China concerning both the ends and the means of economic development. Though partly the result of political change, the debate has been fuelled by some important underlying economic considerations. Future growth will inevitably have to depend mainly on improving the efficiency of resource use. The benefits of technological isolation as a stimulus to improvisation have been overtaken by its costs in terms of backwardness and bottlenecks. And the remarkable progress made in industrialization and in meeting basic needs has not been matched by - and has created a demand for - a commensurately rapid rise in general living standards.

13. These considerations have prompted a set of reforms and attempts at structural adjustment, which together are likely to dominate Chinese economic development through the 1980s. The reforms are based on three general principles: (a) devolution of significant discretionary authority to the operating-level units; (b) reliance on material incentives to supplement planning and administrative directives in guiding the actions of these units; and (c) an expanded role for the market mechanism in resource allocation. But there is as yet no detailed and comprehensive blueprint for economic reforms, nor an internally consistent vision of the post-reform economy. Structural imbalances in the economy have proved more intractable than expected, and the adjustment process is now projected to last until the late 1980s.

14. Reform. In the commune sector, the role of the production team has been enhanced vis-a-vis higher level units. "Production responsibility systems" have been widely implemented, with tasks now contracted out to smaller groups within production teams, and even to individual households, thus strengthening the linkages between individual effort and reward. These working groups are assigned output or job quotas; they are rewarded for surpassing them but are at least partially responsible for any shortfall.

Rural marketing arrangements are being diversified, and emphasis is being placed on exploitation of local comparative advantage in cropping patterns and on indirect planning through procurement price adjustments.

15. Reform in the state-owned industrial sector appears to be less far reaching than that in the rural collective sector. Managers of the larger enterprises and higher level economic decision makers have shifted their focus to a considerable extent from physical output and gross output value to profits and other indicators of efficiency, and the expanded role of the market has made industrial producers more sales oriented than in the past. Larger enterprises that meet plan targets are allowed to retain around 10% of their profits to pay bonuses, improve worker amenities, and modernize and expand their capacity. They also have more control over what they produce.

16. The scope for collective and individual trades in urban areas has now been enlarged: employment in urban collective enterprises of all kinds grew at 11% in 1979 and 7% in 1980 (compared to 3-4% in the state sector). In 1980, the number of urban residents in individual occupations more than doubled.

17. To supplement and stimulate the state's unified distribution system, the number and variety of commercial channels has been increased, and joint ventures that cut across traditional administrative boundaries are now encouraged. Linked with the diversification of commerce has been some increase in the freedom of producers and traders to alter product prices. Some official prices have been changed, including upward revisions in prices of important raw materials like coal. Price changes are virtually always based on demand-supply considerations, but for important basic consumer goods from the agricultural sector (or those with a large agricultural raw material component), concerns about urban living standards limit upward price revision to accommodate increased production costs or changed market conditions. On the other hand, the increased production of consumer durables is slowly resulting in lower prices for consumers.

18. Innovative measures have been introduced in banking and investment financing. Where feasible, capital construction projects are being financed by loans rather than budgetary grants: in 1981, one third of all budgetary capital construction expenditures were to be in the form of loans, at 3% interest. Significant attempts have been made to rationalize the structure of interest rates since 1979; perhaps most important, substantial increases in loan rates have been instituted.

19. China's reform of its foreign trade system has ended the monopoly of the Ministry of Foreign Trade (now known as the Ministry of Foreign Economic Relations and Trade), so that ministries and even individual enterprises may now negotiate foreign contracts directly and also retain some of the foreign exchange their exports earn. Direct foreign investment (joint ventures), arrangements for compensation trade, and processing and assembly contracts are now being encouraged, and foreign exchange loans are available within China for larger enterprises with export prospects.

20. Adjustment. It is now felt in China that too low a priority was given in the past to raising living standards, and in particular that both the overall investment rate and the share of heavy industry in production and investment have been too high. The Government has accordingly taken steps to raise the share of consumption in aggregate demand and the share of consumer goods in aggregate production. It is reducing the share of investment in budget expenditures, and spending more on housing, education, health, agriculture and light industry. Both urban workers' incomes and agricultural procurement prices have been increased (the latter by an average of 36% between 1977 and 1980). Agriculture and light industry are being given priority in the allocation of materials, fuel and power, credit and foreign exchange.

21. In important respects, the Government has achieved its aims. It has raised the share of consumption in national income from 64% in 1978 to 70% in 1981. The structure of production has changed drastically away from producer goods toward manufactured consumer goods: the proportion of light industry (primarily consumer goods) in the gross value of industrial output rose from 43% in 1979 to an estimated 51% in 1981. Production of consumer durables soared in the past three years, while the output of most types of machinery and equipment declined substantially. Agricultural output rose by 28% in real terms from 1977 to 1981, though grain output declined by over 4% in 1980 and has not yet recovered to its unusually good 1979 level. Commerce and related services have burgeoned, absorbing large numbers of new entrants into the labor force (para. 16).

22. Macroeconomic Trends. In the context of these attempts at reform and massive structural change, economic growth has slowed somewhat. Bad weather was a major factor limiting the growth of gross agricultural output value in 1980, while industrial growth has been constrained by shortages of energy, particularly electric power. China's output of coal and crude oil has stagnated since 1979, that of natural gas since 1980. Electricity generation has grown at a much slower rate since 1978 than previously. Industrial growth has slowed after a burst of economic recovery in 1977/78. Gross value of agricultural output grew by nearly 6% in 1981, considerably higher than the growth rate in 1980, but substantially lower than the nearly 9% per year in both 1978 and 1979. Gross industrial output grew by 4%, also substantially less than the 9% a year in 1979 and 1980. National income in real terms is estimated to have grown by about 3% in 1981, compared to somewhat over 6% a year in the previous two years, and is projected to grow at 4% in 1982.

23. Foreign trade has expanded significantly. In real terms, merchandise exports rose by almost 26% between 1978 and 1979, and a further 18% in 1980, but much lower growth rates are projected for the coming few years. Merchandise imports (again in real terms) also rose by almost 26% between 1978 and 1979, but the rate of increase dropped to just less than 10% in 1980. Merchandise imports are projected to continue growing at less than 5% p.a. in real terms in the first half of the 1980s.

24. To some extent the Government in 1979 miscalculated the excess demand that would be created by its policies to increase personal income and consumption, combined with the inability of central authorities to cut back on aggregate investment. The resulting macroeconomic imbalance has in turn given rise to three significant problems over the past three years: (a) where prices have been allowed to reflect market conditions or have been used to raise incomes, unprecedented inflation - the overall index of retail prices rose by 5.8% in 1979, 6% in 1980, though it has apparently dropped to an estimated 2% in 1981; (b) where producer prices have been raised but the effects have not been fully passed on to consumers, burgeoning subsidies - their total cost to the Government has jumped from Y 7.8 billion in 1978 to over Y 32 billion in 1981; and (c) large state budget deficits of Y 17.1 billion in 1979 and Y 12.6 billion in 1980, followed by a smaller deficit of Y 2.7 billion in 1981 and a planned deficit of Y 3 billion for 1982.

25. Major shifts have taken place in the quantitative structure of China's state budget. The relative importance of industrial profits has declined (from 44.7% of total revenue in 1979 to 32.8% in 1981), while that of taxes has increased (from 48.7% of the total in 1979 to 57.5% in 1981). The increasing importance of taxes as a source of budgetary receipts is reflected in recent campaigns to crack down on tax evasion and other types of financial infractions. The decrease in enterprise profits turned over to the state can be attributed primarily to substantial increases in the cost of important industrial raw materials and stagnation or reduction in official prices of most manufactured goods, secondarily to reforms that allow enterprises to keep part of the profits they earn. Among expenditure categories, capital construction has dropped sharply since 1980 (declining from Y 51.5 billion in 1979 to Y 33.1 billion in 1981), as has spending on circulating capital and bank credit funds, and to a lesser extent defense. Appropriations for education, culture, public health, and science and administrative costs have risen steadily.

26. An innovation in Chinese budgetary policy, the issuance of Treasury Bonds, was instituted in 1981 to dampen the inflationary effects of the large budget deficit of the previous year. State enterprises, organizations, and local governments were given targets for the amounts of bonds they were supposed to purchase, apparently based on the size of their excess money balances. Treasury Bonds worth a total of Y 4.9 billion were sold in this way in 1981, mostly to local governments. The bonds pay 4% interest per year, with payment of interest and principal beginning only in the sixth year after issuance. In 1982 the central government hopes to sell another Y 4 billion worth of Treasury Bonds, but this year half of them are expected to be bought by individuals. Bonds issued to individuals will pay 8% annual interest, while those sold to organizations still pay only 4%.

Development Issues and Prospects

27. Although changes in the system of economic management as well as in the structure of the economy will undoubtedly continue, a difficult period of

transition lies ahead. After spending three decades pursuing a particular set of goals with particular instruments, the country will inevitably find it hard to switch to a path that is not only new for China, but also one that has been successfully followed by few other countries. Reform of the economic system will be especially difficult. The measures described above, though diverse in form, have a unity of purpose, namely to make the economy more efficient in the sense of both cutting costs and matching supply more closely with demand. But the attempt to reform parts of the economic system without a coherent overall program has also had some adverse consequences. The momentum of reform is being sustained in agriculture and in the administration, but it is now acknowledged in China that economic reform on the scale envisaged will require careful management and concomitant reform in other areas. Bureaucratic reform is under way but will likely be a lengthy and difficult process.

28. China's efforts to improve people's living standards will, in the coming decade, be subject to a tight set of interlocking constraints. Some of these are of long standing; they reflect the country's fundamental resource constraints, especially the shortage of agricultural land and the difficulty of increasing yields further. Others are of more recent origin, however, and largely reflect the price that the country must now pay for more than a decade of waste and economic mismanagement starting in the mid-1960s. They include shortages of trained manpower, energy, financial resources for new investment and foreign exchange.

29. The food problem facing China in the 1980s is likely to be similar to that in the past. Production will continue to be constrained because of the extreme shortage of new cultivable land and the limited opportunities that remain for increasing yields. Although substantial gains will probably be possible in the short and medium term through improved policies and management, the foodgrain balance will remain precarious and substantial food imports will have to be maintained.

30. In both the rural and urban areas, the country's effort to modernize the economy will be seriously constrained by the lack of trained manpower. Despite considerable progress in basic education, technical and higher education has been neglected and was severely disrupted during the Cultural Revolution. Current enrollment in both universities and technical and vocational schools is one quarter of the average for other developing countries. Many teachers in advanced education are underqualified, curricula are outdated, and scientific equipment is scarce.

31. The outlook for energy production has recently deteriorated. Oil output peaked in 1979 at 106 million tons and is likely at best to remain at about 100 million tons a year during the 1980s. Coal output (which contributes about 70% of total commercial energy) also declined in 1980, to 620 million tons, and is unlikely to exceed 730 million tons in 1985

and about 900 million tons in 1990, even if high priority is given to this subsector. Total primary energy production in the 1980s will thus not grow much faster than about 3% per year, with the growth rate in 1980-85 unlikely to exceed 2% - less than one quarter of the 1952-80 growth rate.

32. The prospects for economic growth in the 1980s will thus depend critically on reducing energy use per unit of output. In particular, the availability of oil for use as an industrial raw material will fundamentally influence growth prospects. The potential for energy savings is very large, as China is now among the world's most inefficient users of energy. In addition to substantial new investment, however, conservation will require fundamental reform of energy allocation procedures, incentives for reduced consumption and changes in relative prices, and indeed, a total change of thinking at the enterprise level on the way energy is used - all of which will be difficult and slow to implement.

33. The energy sector is already absorbing over 40% of industrial investment and very large capital outlays would be required in the first half of the 1980s to accelerate the growth of energy output in the second, as well as to replace energy-inefficient equipment and plants. Competing claims for investments in other sectors are considerable, especially those for badly needed urban housing and for relieving transport bottlenecks after two decades of neglect. The attempt to modernize the huge industrial sector built upon outdated technology will also require enormous investment outlays. Thus, notwithstanding the Government's effort to improve the allocation and use of its financial resources, a high level of investment will need to be maintained in the 1980s to build a sound foundation for sustained growth over the longer term. However, new investments are presently being caught between the Government's desire to reduce the saving rate (in order to accelerate the growth of consumption) and the claims of an enormous existing investment program. The Government is finding it difficult to decide among competing claims for financial resources, and has already had to face the political problems of large budgetary deficits and inflationary pressure.

34. The Government's attempt to foster a much more open economy than in the past is also likely to be impeded by a shortage of foreign exchange. Domestic bottlenecks in the supply of agricultural and industrial materials, together with the need to purchase foreign technology (in the form of software as well as hardware), will make continued expansion of imports essential to growth. The rate of growth of export earnings, however, depends critically on two uncertain parameters, namely the rate at which nontraditional manufactured exports can be increased and the degree of success in energy conservation. The former will be affected by the world environment of slow growth and protectionism. As to the latter, even if energy conservation is moderately successful (growth in energy use at, say, three-fourths of the GDP growth rate), oil exports will almost certainly disappear by the second half of the 1980s. Even if manufactured exports can grow by 9-10% a year in constant prices during the decade, declining energy exports will cause total foreign exchange earnings to grow by no more than about 2% a year in the first half of the 1980s and 7% a year in the second half.

35. Faced with these needs and constraints, the Government is considering expansion of its external borrowing. China's current liquidity position is strong and in recent years it has been able to attract large loan commitments on market terms. At the end of 1980, total external debt outstanding was estimated at only \$3.4 billion and debt service payments were under 5% of export earnings. The Government's current program of adjustment and reform, if successfully carried out, also augurs well for the country's future creditworthiness. But such a program will take time to implement. Meanwhile China's import needs, as a result of the decades of international isolation and technological stagnation, are enormous and the prospects for increased foreign exchange earnings are limited. China's access to concessionary capital is also limited: apart from what it might obtain from the Bank Group, concessionary capital is only likely to come from Japan and a few other bilateral donors and will likely average only \$500-600 million a year during the 1980s. Quantitative projections show that if China is to maintain reasonable growth and modernization and keep its debt service payments at a manageable level, then it needs to obtain the necessary foreign capital at an average interest rate substantially below the market rate. China also has a strong claim to concessionary lending because it is still one of the poorer countries in the world, with 200 million people below the poverty line.

36. Thus, for China, as for many other developing countries, the 1980s will be a difficult decade, and one whose problems will be compounded by errors made in the 1960s and early 1970s. But looking further ahead, China's economic prospects appear favorable. The already low population growth rate will slowly decline (probably to under 1% p.a. by the year 2000), easing the pressure on agricultural land. By 1990, most new entrants to the labor force will have received some secondary education, and the skilled manpower deficit will have been reduced. Further progress will have been made in tapping China's large energy potential, and in using it more efficiently. Continuation of recent manufactured export trends would generate sufficient foreign exchange for the Government to have more confidence in using foreign capital and be less concerned about its terms. If the country's immense wealth of human talent, effort and discipline can be combined with policies that increase the efficiency of resource use, China will be able, within a generation or so, to achieve a substantial increase in the living standards of its people. Whether this potential can be realized, however, will depend crucially on the success of the Government's program of reform and adjustment in the 1980s.

PART II - BANK GROUP OPERATIONS IN CHINA

37. China's change of representation in the Bank Group took place in May 1980. At that time, the country had already embarked on a program of economic adjustment and reform, though its extent and direction were - and remain partly - undefined. The Government, faced with several interlocking constraints on development, is still working on a Sixth Five-Year Plan for 1981-85 including a selective program of investments. Moreover, it has

recently begun to reorganize the bureaucracy, reducing the number of agencies and personnel, with a view to improving efficiency and coordination. It is against this background of uncertainty and change that the Bank has defined the objectives of its work in China and developed its initial work program.

38. In view of the particular circumstances of China, and the policy and economic transitions now under way, Bank lending to China should aim to further several broad objectives. First, the Bank should try to facilitate China's re-entry into the world community. The Bank's experience in a wide range of member countries can do much to mitigate the negative impact of China's lengthy isolation. Second, the Bank should assist China in removing the major constraints on development - energy, transport, other infrastructure, skilled manpower, and modern technology. Perhaps even more important, it can help the authorities to use these and other inputs more efficiently, by improving project analysis and investment control, as well as overall economic management and planning. Finally, the Bank should assist the Government in its efforts to reduce remaining poverty; in view of China's success in meeting the basic needs of most of its people, the priority is increased attention to raising rural earning power in the poorest regions of the country.

39. In the initial two years of the Bank/China relationship, considerable progress has been made in both economic and sector work and operations. The Bank has produced an introductory economic report on China's past development performance, economic system and future prospects. The report - comprising a main volume, a statistical annex and seven sector annexes - was distributed to the Executive Directors in June 1981. It has been translated into Chinese and the Government plans to distribute it widely among officials in China. Work on an initial operations program has proceeded satisfactorily and led, also in June 1981, to approval by the Executive Directors of the University Development Project. Signing of the \$100 million IBRD loan and \$100 million IDA credit was delayed until November 1981, when IDA resources became available; the agreements became effective in February 1982. Disbursements under this project are expected to begin shortly. A summary statement on the project is contained in Annex II.

Work Program

40. The Bank is following up on the Economic Report with routine economic and sector work. In addition, the Government and the Bank have agreed on a program of collaborative economic research, which will apply advanced analytical techniques, develop China's capacity for economic research, and broaden both the Bank's and China's understanding of the development process.

41. Work on many projects will have to be preceded by sectoral and intersectoral studies, some of which are already under way. An industrial development and credit study includes aspects of the financial system and assistance in developing improved project evaluation methods. A rural

credit study is reviewing the rural investment and financial systems, especially the operations of the Agricultural Bank of China. These studies would not only identify future projects, but may also suggest broader institutional and policy changes that could improve investment decision-making in China. A review of the health sector will focus on the rural health care delivery system and on health manpower development. Other studies, in areas such as port development, river basin development, and agricultural manpower planning and research, are expected to be undertaken in connection with the preparation and implementation of future projects.

42. The Bank's lending operations in the near term will concentrate on the Government's priority sectors. In energy, the Bank's efforts will help develop new reserves and to increase the supply of fuel and power. One petroleum project at the country's largest and most productive oilfield, Daqing, would mainly help develop new reserves and introduce enhanced recovery techniques, while another at Dongpu would comprise both development and exploration. Other operations are proposed to support hydroelectric power generation and the development of underground coal mines. In another key sector, transportation, operations would begin with the expansion and modernization of three ports; the port subsector is expected to play a vital role in China's efforts to speed development through the import of foreign goods and technology, as well as to increase export earnings. In the industrial sector, the Bank is assisting the Government in establishing a financial intermediary, the China Investment Bank, which will contribute to the expansion and modernization of light industry on the basis of systematic project evaluation. In agriculture, the proposed project would contribute to increased production by providing irrigation and drainage works for saline and waterlogged lands in the North China Plain, and a second project would help develop uncultivated land in Heilongjiang for the production of various grains. The Bank also proposes to support agricultural education and research, which together can provide much needed skilled agricultural manpower and the basis for further increases in yields. Another education project would support expansion of the TV university and a pilot program of basic colleges.

43. The Bank plans a significant expansion in the volume of its lending over the medium term. Based on government requests for project assistance over the next few years, the Bank expects to continue emphasizing the energy and transport sectors, followed by agriculture, education and industry.

44. To complement the Bank's efforts in economic and sector work and operations, the EDI has organized courses and seminars aimed at improving national economic management, sectoral planning, and project selection and implementation. EDI's FY82 China program covers national economic management, development banking, general project planning, and power and transport projects.

PART III - THE SECTOR

Past Developments

45. When the People's Republic was founded in 1949, the agricultural sector was suffering from severe dislocations associated with decades of warfare and civil disturbance. As a first task in agricultural development, efforts were made to reconstruct the economic infrastructure and establish a suitable institutional framework. Despite limited capital and technical resources, recovery was rapid. Development efforts during the First Five-Year Plan period (1953-57), which concentrated largely on land development and irrigation facilities, raised agricultural production to new record levels. However, production during the next several years was affected by bad weather and the disruptions of the Great Leap Forward movement to such an extent that crop output did not recover to 1957/58 levels until about 1964.

46. Measures taken during the 1960s to revive agricultural production included: the raising of procurement prices, intensification of research, and expansion of input supplies to producer goods industries to increase the production of chemical fertilizer, tractors, irrigation pumps and other equipment. The research effort resulted in the development of improved high-yielding varieties, especially rice and wheat. During 1966-76, achieving self-sufficiency in foodgrain production was the focus of agricultural policies. However, progress was slow because of the effects of the Cultural Revolution, which disrupted production and scientific research and training. Although there were substantial increases in the availability of such modern inputs as farm machinery, irrigation, and chemical fertilizers, the growth of agricultural production during the period was only 2.9% p.a., slightly below the long-term trend.

47. The new leadership that came to power in 1977 made a number of policy changes aimed at boosting agricultural production, including improved producer incentives, greater autonomy to the collectives and state farms in production and planning decisions, and expansion of private plots. These changes, coupled with a large increase in the supply of chemical fertilizer, and favorable weather conditions in 1978-79, resulted in a growth of more than 8% p.a. in agricultural output over these two years. Cash crop production (cotton, oilseeds) recovered sharply and growth of animal husbandry was also rapid. Agricultural output in 1980 was checked by poor weather conditions. However, an increase in cash crop and meat production helped raise overall agricultural output by 2.7%, so that the average growth over the three-year period 1978-80 was 6.7% p.a.

Development Plan for the 1980s

48. The development of agriculture continues to be accorded high priority by the Government. Although plans for 1982 and subsequent years have not been finalized, the share of agriculture in the state capital

construction budget is expected to increase from 14% in 1979 to 18% during 1980-82. Funding for agricultural support services, including research and extension, is to increase from 6.3% to 8% of total plan expenditures during the same period, while annual credit for agriculture is to increase from Y 13 billion in 1978 to about Y 26 billion by 1985.

49. Recent efforts to improve incentives to boost agricultural production will continue. The incentives include: (a) encouragement of household agricultural activities and individual enterprises through expanding the area of private plots, lifting restrictions on free markets, and widening the range of commodities for local trade; (b) encouragement of larger allocations to individuals out of the collective income; and (c) the creation of systems of subcontracting within state farms and collective agriculture, so that small groups or individual households gain additional income from production that is surplus to some agreed norm (but with penalties for failing to reach the norm).

The Agriculture Sector

50. Agriculture, including livestock, forestry and fisheries, provides sustenance to nearly 1 billion people and is the main source of livelihood for some 800 million rural workers and their dependents, and accounts for over 30% of the country's GDP. Farmers are organized into collective units under the commune system or work on state farms. Some production also comes from privately controlled household plots.

51. Agriculture in China is dominated by foodgrain production, which accounts for some 65% of total agricultural output and 80% of cropland. Despite the country's vast land area of about 960 million ha, only about 10.4% or 100 million ha are arable. The ratio of population to ha of arable land is just under 10. China thus accounts for less than 8% of the world's arable land but provides food for about 22% of the world's population. This has been possible because of the generally high standards of crop production. Farming is intensive, with very high inputs of labor, extensive use of chemical and organic fertilizers, and considerable development of irrigation and drainage.

52. The major foodgrains, rice, maize and wheat, accounted for about 45%, 18% and 17% respectively of total foodgrain production during 1977-79. Soybean, sorghum and millet together accounted for another 7%. Foodgrain production during the 1970s increased at an average of more than 3% p.a., but in recent years, gains in food output have not kept pace with the increase in demand due to growth in population and incomes and increased feedgrain requirements for livestock. The country imported 10.5 million tons of foodgrains in 1979 or about 3% of total consumption. Grain agreements with major supplier countries indicate that grain imports may range from 12-16 million tons for the next few years. Among the more important oilseeds in China are groundnuts, rapeseed, sesame seed, sunflower seed, and linseed. Oilseed production increased from 3.8 to 7.7 million tons during the 1970-80 period. Despite this growth, China imported 0.8 million tons of oilseeds in 1979 and levels of per capita oil availability remain low relative to requirements.

53. Cash crops include cotton, jute, sugarcane, tea, mulberry (for sericulture), fruits, vegetables and tobacco. Cotton, the most important, accounted for 4.9 million ha or 38% of the area sown to cash crops in 1980. The 1980 crop of 2.7 million tons of lint was a new record. However, production has been insufficient to meet domestic demand as reflected in the increasing levels of cotton imports in recent years. Imports in 1979 amounted to 480,000 tons. China is now the world's largest importer of cotton.

54. The forest cover in China increased from 8.6% of the total land area in the early 1950s, to 12.7% at present, or about 120 million ha. So far 28 million ha have been afforested. Timber output in 1979 totalled 54 million cu m, compared with 5 million cu m in the early 1950s. Annual fuel-wood utilization amounts to 120 million cu m, roughly two thirds of which is collected by the people. Wood still serves as an important energy source and timber products generally are in short supply.

Support Services

55. Agricultural Research and Extension. The Chinese Academy of Agricultural Sciences (CAAS), subordinate to the Ministry of Agriculture, has responsibility for a network of 31 national research institutes, which focus mainly on applied research, and for technical oversight and coordination of provincial research programs. Each province also has a local research network with a provincial academy of agriculture as the lead institution. Below the provincial level are prefecture- and county-level institutes, which have programs of research, demonstration and extension. Other agriculture-related ministries or specialized agencies also sponsor and coordinate research work.

56. Agricultural Credit. The Agricultural Bank of China (ABC) is responsible for providing credit for agricultural and rural development in China; it operates under the overall supervision of the People's Bank. In conjunction with the central and local governments, the ABC exercises general responsibility for the planning, allocation and distribution of credit funds (including government grants and subsidies) for agriculture and related activities. It had an outstanding loan portfolio of Y 47.6 billion at the end of 1980. About three quarters of the loans are short term (mainly used for production credit or working capital) at 5.76% p.a. interest, and the remainder medium term (mainly used to purchase agricultural equipment and machinery) at 4.32% p.a. interest.

57. Fertilizer. Though Chinese agriculture has long depended on organic fertilizer, the production and use of chemical fertilizer has increased over the past few years (with production almost doubling between 1976 and 1979, when it reached over 50 million tons). Nitrogenous fertilizer accounts for 80% of production, phosphate 19% and potassium 1%.

58. Seeds. A comprehensive system has been developed for producing seed, especially for cereals. Breeder seeds (produced by colleges, counties or research stations) are multiplied by county-managed seed farms. Stock seeds produced by the farms are sold to seed companies, which multiply and provide certified seeds.

Irrigated Agriculture

59. Major efforts to develop China's land and water resources were begun in the 1950s and were the main focus of rural investment during that decade. Huge projects for flood control, drainage and irrigation employing hundreds of thousands of workers were undertaken on the North China Plain and in other areas. Since 1949 some 86,000 reservoirs have been constructed, with a total storage capacity estimated at about 400 billion cu m. Total irrigation development is now estimated at some 45 million ha. This represents some 45% of the total arable area, in contrast to an estimated average of 17% for other developing countries. About 30 million ha are irrigated by pumping, of which some 11 million ha are irrigated by 2.1 million tubewells, 80% of them in northern China. Since 1949, protection from flooding along the major rivers, especially the Yellow River, has also been greatly improved. It is estimated by the Ministry of Water Conservancy that some 32 million ha (or nearly a third of the arable land) of formerly flood-prone lands are now protected by dikes.

60. Despite considerable progress in water resource development, large areas of the North China Plain still suffer from waterlogging, salinity, and drought. Waterlogging is a condition in which the water table rises so high that it saturates the root zone and damages the crop. It can arise in a variety of situations: in poorly drained, low-lying land; in areas where irrigation has been introduced without adequate drainage; or where the natural drainage systems are impeded by flood embankments, roads, etc. Water tables tend to rise in the rainy season and fall in the dry season and, in the absence of irrigation and drainage, crops can suffer from drought for much of the year and can then be damaged by waterlogging when it rains. Soil salinity occurs, or pre-existing soil salinity is worsened, where a high water table prevents downward percolation and water-borne salts become concentrated in the soil through evaporation. The Government estimates that some 6 million ha of land in the North China Plain are affected in varying degrees by salinity and waterlogging. With irrigation and drainage, these lands can be reclaimed and become highly productive for a wide range of crops.

Sector Development Issues and Strategy

61. Despite the generally commendable past performance, some major challenges remain in the agricultural sector. The gap between domestic supply and demand for food and fiber appears to be widening and therefore a major task is to reduce imports of grains and cotton. At the same time, efforts are needed to raise the incomes and living standards in rural areas. In the rice-growing areas most of the relatively easy gains in production through irrigation and the use of new high-yielding crop varieties and

fertilizers have been achieved, and further improvement in productivity will be harder and more expensive to achieve. In the North China Plain, improvement in irrigation and drainage can lead to significant gains in grain and cotton production. In the northern provinces, especially Heilongjiang, there are good prospects for raising grain and soybean production through land reclamation, improvements in mechanized farming to reduce harvest losses and the production of higher quality seeds. There is also scope for further development of agricultural support services through development of staff at all levels and upgrading of facilities. The role of the proposed project would be to promote measures to exploit the potential for further increases in grain and cotton production in the North China Plain.

PART IV - THE PROJECT

62. The project was prepared by the engineering and agricultural staff in the nine project counties with help from the provincial Land Utilization Bureaus, the Chinese Academy of Agricultural Sciences, and the Land Utilization Bureau of the Ministry of Agriculture. A Staff Appraisal Report No. 3815-CHA, dated May 26, 1982 is being distributed separately. Supplementary project data are provided in Annex III. Negotiations were held in Washington from April 19 to April 20, 1982, with a Chinese delegation led by Mr. Zhang Quan of the Ministry of Foreign Economic Relations and Trade.

Project Scope and Design

63. The project would be the first large-scale attack on soil salinity and waterlogging in China and would serve as a model for future development of the large areas of land in the North China Plain affected by salinity and waterlogging. The project would provide drainage and irrigation for about 200,000 ha, covering parts of nine counties in three provinces, and would also include agricultural inputs and support services to increase agricultural productivity. A population of over 1.2 million, or about 280,000 farm families, would benefit directly from the project through increased production of crops such as wheat, corn, cotton, oilseeds, and rice and through earnings from tree planting. The project would lead to annual foreign exchange savings of about \$70 million at full development.

64. Solution of the waterlogging or salinity problem in the project areas consists primarily of providing a system of open drains which would remove storm runoff and prevent a rise in the water table in the rainy season, and at the same time provide subsurface drainage and lowering of the water table in the dry season. With adequate water table control, the annual rainfall would be sufficient to leach the top 20 to 25 cm of the soil profile which is affected by salinity. However, where possible, the system of drainage should be combined with irrigation to maximize production. Drainage without irrigation is probably a marginal proposition because yields and cropping intensities would be seriously constrained by drought. With irrigation, the timing and amount of leaching can be controlled and the

land can be put into production within a year of completion of the physical works. Where irrigation can be provided from tubewells there is an added benefit in improved control of the water table.

65. The nine counties included in the project were chosen primarily because each one has a large pilot project where irrigation and drainage techniques have been tested to form a basis for large-scale developments. Each county also has a well designed and maintained main drainage system capable of disposing of runoff from the drains in the project areas. Six of the nine counties have waterlogging and salinity problems. The other three counties suffer from widespread waterlogging and drought but soil salinity is not present. The project also includes areas in danger of becoming saline because of rising groundwater levels caused by poor drainage.

66. In addition to the construction of drainage and irrigation works, the project would include components designed to enhance the project contribution to land and water development in the North China Plain. A comprehensive soil and water study would be carried out in each of the project areas to observe the project's impact on soils, water tables, water quality etc. At the same time, a program to monitor and evaluate the project's agricultural, economic and social effects would be carried out. The project also includes an agricultural study of selected areas in the North China Plain.

Principal Project Features

67. The project would include:
- (a) excavation to increase the capacity of some 70 km of river channels and 1,260 km of existing main and branch drains;
 - (b) construction of 3,200 km of lateral drains and 8,200 km of sublaterals;
 - (c) construction of new pumping stations for drainage and irrigation and installation of approximately 3,000 hp of pumping capacity;
 - (d) construction of about 8,450 tubewells, and procurement of pumps and motors for these wells and for about 4,010 existing wells;
 - (e) various works to improve water control at the field level consisting of land smoothing on about 60,000 ha, and field ditches and field drains to complement the drainage works and tubewells;
 - (f) additions of 700 km of 10 kV lines, 1,470 km of 380 V lines, and related substations and provision of transformers;
 - (g) construction and improvement of 130 km of rural roads;

- (h) procurement of agricultural machinery and construction equipment;
- (i) procurement of phosphate fertilizer and insecticides;
- (j) tree planting along field borders and establishment of orchards and wood lots;
- (k) a program to strengthen research and extension services in the project areas;
- (l) a comprehensive program of soil and water studies in each project area including technical assistance for the studies; and
- (m) an agricultural study of selected areas in the North China Plain to help formulate future agricultural development plans and to identify and prepare future projects.

Project Works

68. Drainage Works. Rivers and streams have been canalized to form the main backbone of the drainage systems in each of the project areas. In addition there is a fairly extensive system of branch drains. The aim of the proposed improvements of the river channels and main and branch drains would be to provide discharge capacity needed to handle surface runoff from a five-year storm.

69. Lateral drains in most parts of the project are too widely spaced to serve as adequate collectors of storm runoff and are not deep enough to have an appreciable effect on water table depths. As a result of these deficiencies, severe and prolonged flooding often occurs in the project areas and this leads to waterlogging and salinity. A major feature of the project would be to provide a much more effective system of laterals and sublaterals.

70. Tubewells. The project would provide for the construction of 8,450 new tubewells and installation of pumps and motors. About 11,130 tubewells have been drilled in the project areas to date and of these the project would provide 4,010 new pumps and motors to replace old and inefficient units. The completed wells would be equipped with centrifugal pumps and about 5,920 would be powered by 4 to 5 hp electric motors, and 6,540 by diesel engines. Thus, the project area would have a total of 19,580 tubewells. All well drilling is carried out by provincial or county drilling crews who have gained considerable experience over the past few years.

71. On-farm works. Field drains would be constructed to carry rainfall runoff to the sublaterals and laterals. The field ditches and drains would be built by each collective within the area it farms. Similarly, land smoothing would be carried out by the collectives in areas where needed to improve water control.

72. Rural Electrification. Each county already has rural electrification systems which reach varying proportions of the communes and brigades. To expand the system, the project would provide 700 km of 10 kV lines, 1,470 km of 380 V lines, 750 10 kV/380 V transformers for wells and 3 substations. Assurances have been obtained from the provincial governments that an adequate power or fuel supply would be made available for tubewells in the project areas (draft Project Agreements, Section 2.01(a)).

73. Rural Roads. About 130 km of the existing roads in the project areas of Mengcheng, Guoyang, and Suixi counties are narrow and unpaved, making them impassable after heavy rains. About 100 km would be asphalt-surfaced and 30 km would be earth roads.

Agricultural Development

74. Agricultural Machinery and Construction Equipment. The project includes machinery to provide for greater timeliness in farm operations, particularly during periods of peak labor demand at the time of plowing, sowing and harvesting. Double cropping is practiced over a major portion of the project area, and in view of the variations in the frost-free periods, timeliness of operation is important.

75. Fertilizer and Agrochemicals. The soils of virtually the entire project area are deficient in phosphate. Domestic production of superphosphate, while increasing, does not meet current demands, and shortfalls are expected in the project areas. Therefore, following completion of the drainage works, and after the salts have been leached from the soil, the project would finance an initial application of diammonium phosphate (DAP) as a soil amendment.

76. Tree Planting. Because of the need for fuel, construction materials and fodder, only a fraction of crop residues in the project area is currently returned to the soil. Tree planting would alleviate the shortage of rural fuel and construction materials and thereby encourage the recycling of crop residues. Commercial forest of mixed species would be planted. Short stature crops or creepers would be intercropped in the first 3 years after transplanting. Orchards would also be intercropped prior to maturity. Field border plantings and shelter belts would usually be established. The project would include nurseries for the production of about 35 million seedlings.

77. Research, Extension and Training. To meet the research and extension needs of the project, the facilities at county research and extension centers would be improved. The project would include construction of laboratories, dormitories and lecture rooms, and provision of different types of laboratory equipment. The project would also include the local training of extension staff from communes and brigades.

Soil and Water Studies

78. A comprehensive program of soil and water studies would be carried out in each of the project areas to observe the project's impact on soils, water tables, water quality, etc. The results of the study would guide the operation of the project and provide a basis for the planning and design of future drainage and irrigation projects in the North China Plain. The project would finance the program's equipment requirements and consulting services to assist the project authorities in setting up the program and for periodic technical review of the findings.

North China Plain Agricultural Study

79. The North China Plain contains some of the best land in China for wheat, corn, cotton and oilseeds and cropping intensities of 140 to 150% are achieved in many areas. There is still potential, however, in many parts of the Plain, to raise yields and production which in turn would increase farm incomes and reduce China's imports of foodgrains and cotton. The objectives of the study would be to: (a) identify the main physical, agronomic and financial constraints to higher crop production in selected areas of the North China Plain; (b) formulate agricultural development plans to overcome these constraints; and (c) identify and prepare future agricultural projects.

Implementation Schedule

80. The project works would be constructed in a period of four years beginning in October 1982. The emphasis in the first year would be on improving main and branch drains and constructing some of the new laterals and sublaterals. Construction of structures and pumping stations would proceed throughout the year. Tubewells construction and on-farm works would also be year round. Extension of power lines would proceed in phase with tubewell construction and most would be completed by 1985. Buildings would be constructed mainly in the first two years. Assurances have been obtained from the Government that by August 31 of each year, detailed work plans for the following year would be prepared for IDA review (draft Development Credit Agreement, Section 3.09).

Cost Estimates

81. The total cost of the project is estimated at about \$177.5 million of which \$49.2 million or 28% would be the foreign exchange component. The foreign exchange component is relatively low, because the earthworks, construction of structures and buildings, and tree planting would be carried out mostly by manual labor using mainly local materials. The foreign exchange costs are based on the estimated imported components of locally produced materials and goods, mainly materials and fuel.

82. The cost estimates are expressed in June 1982 prices. A physical contingency of 15% has been applied to civil works and equipment costs. Expected price increases amount to 17% of the base cost plus physical

contingencies and are based on price escalation of the local component at 6% per annum and the foreign component at the following rates: 1982, 8%; 1983, 8%; 1984, 7.5%; 1985, 7%; and 1986-90, 6% per annum.

Financing

83. Of the total project cost of \$177.5 million, the IDA credit would finance \$60 million (34%). Since the foreign exchange component is small, the 34% is a reasonable contribution to the project total cost. The provincial governments would contribute \$39 million. The cost of on-farm works, about \$20.7 million, would be borne by the production teams. The remaining \$57.8 million would be provided by cash contributions from counties and communes (\$45.8 million) and labor paid for by collectives to construct drains, drill tubewells and plant trees.

Procurement

84. Civil works (\$66.3 million) and tubewell drilling (\$22.9 million) scattered over nine counties would be carried out by force account by provincial and county construction companies and drilling crews and employing labor from the collectives over a period of three to four years. This type of construction in China is efficient and low-cost, provides off-season employment for the rural population, and would not be likely to attract foreign contractors.

85. Phosphate fertilizer and agrochemicals (\$22.0 million) would be imported and therefore procured following international competitive bidding in accordance with Bank Group guidelines. Rural electrification equipment (\$6.3 million) would also be procured through ICB. A 15% preference margin, or prevailing customs duties, whichever is lower, would be extended to local manufacturers in the evaluation of bids. Tubewell pumps and motors (\$12.3 million) and farm equipment (\$3.4 million) would be purchased by collectives scattered across nine counties over a period of three to four years and, therefore, bulk procurement in large contracts would create problems in storage and distribution. Accordingly, the existing procedure would be followed whereby the production teams would purchase such equipment through county supply companies which act as agents for local manufacturers. In each province, there are manufacturers producing acceptable equipment at prices which are competitive with world market prices. Construction equipment (\$0.2 million) would also be procured locally since the small number of items involved would not justify setting up the after-sales service needed for imported equipment.

Disbursement

86. Disbursements for drainage, structures and well drilling would be 20% of the total cost; disbursement for pumps and motors would be 50% of total cost. Disbursement for agricultural machinery, construction equipment and rural electrification equipment would be 100% of ex-factory costs or 100% c.i.f. costs and at 100% of the c.i.f. costs for agricultural chemicals. Disbursements for force account works and pumps and motors would be against statements of expenditure supported by progress reports showing physical

quantities and unit prices. Agreement was reached with the Government on unit prices for the various project items (draft side letter). It is estimated that disbursements would be completed by December 1987, six months after completion of project works.

Accounts and Audits

87. Each county and provincial Project Management Office (PMO) (paras. 92 and 93) would maintain separate accounts in sufficient detail to record all expenditures for force account construction and earthworks and payment to county well drilling crews, equipment supply companies and consultants. The central PMO (para. 94) would collate the half-yearly progress report showing these expenditures both half-yearly and cumulative. For civil works, the expenditure would be broken down according to the major elements of main, branch, lateral, sublateral etc. Assurances have been obtained from the Government that the accounts for each province would be audited annually by independent auditors which are expected to be from the Provincial Bureau of Finance. The project's audited accounts would be submitted to IDA within six months of the close of each financial year (draft Development Credit Agreement, Section 4.01(c)).

Environmental Effects

88. The project would not lead to any basic change in land use. Drainage and irrigation would reduce salinity, waterlogging, drought and surface flooding, and improve the environment for crop production. The project would have no adverse environmental effects.

Organization and Management

89. The organization for implementing the project would be based primarily on the existing structure of the county governments and their relation to the provincial governments and central government agencies. However, to ensure the efficient channelling of funds and timely execution of the project, Project Management Offices (PMOs) have been set up at the county, provincial and central levels.

90. The design and construction of laterals and sublaterals would be the responsibility of the counties. Responsibility for the excavation of the main drains and design and construction of the branch drains would rest with the provincial governments.

91. The Agricultural Bank of China (ABC) would be responsible for channelling project funds from the central Government to the provinces, counties and collectives. The bank has an extensive network of branches at the provincial, county and commune levels. The provincial branches would disburse project funds to the provincial government agencies for project works undertaken by them and for expenses of the provincial Project Management Offices. Likewise, part of the project funds would be channelled

through the county branches for project works undertaken by county government agencies and for expenses of the county PMOs. The remaining project funds would be channelled through ABC's commune branches to farmers and collectives for the construction of tubewells, and purchase of tubewell equipment, agricultural machinery, fertilizer, agrochemicals and seedlings. These funds would be recovered on behalf of the counties/provinces from recipients in accordance with terms determined by the PMOs, which are likely to be the ABC's existing terms and conditions (para. 56).

Project Management and Coordination

92. The county governments would each establish a PMO to handle the day-to-day affairs of the project. In each county a senior official has been appointed as Project Manager to supervise the PMO operations. The PMO would comprise a General Administrative Office and four sections: engineering and construction, research and training, finance and materials supply, and monitoring and evaluation. It would be responsible for scheduling the work of the existing offices and bureaus involved, such as the Water Conservancy Bureau (mainly responsible for planning and design), and the various supporting bureaus such as Finance and Procurement. The county PMO would also prepare annual budgets for the project, maintain project accounts, monitor the operation and maintenance of irrigation and drainage systems built under the project, organize training for collective members, and monitor and report project progress. Supervising the county PMO would be a Project Committee, which would review the plans and programs of implementing agencies and the annual budgets and meet periodically to review progress.

93. To coordinate project implementation within a province, a provincial Project Committee would be set up in parallel with the existing committees in the provincial government. A Project Management Office, headed by a manager, would assist the committee in carrying out the functions of coordinating and supervising project implementation in the participating counties.

94. Project execution would be coordinated by a central Project Management Office attached to the Ministry of Agriculture. The office would be headed by a Project Coordinator. The central PMO would be responsible for administration of the project as a whole and for overall coordination with the Ministries and other central agencies involved. Assurances have been obtained from the Government that the central PMO would be adequately staffed at all times with experienced and qualified personnel, and that IDA would be consulted about any replacement of the Project Coordinator (draft Development Credit Agreement, Section 3.11).

95. A Central Project Committee, to be chaired by a Vice Minister of the MOA with representatives from other relevant Ministries concerned with the project, would be set up to deal with policy matters and interministerial coordination/cooperation, as well as liaise with other state commissions. The Project Coordinator and managers of the provincial and county PMOs and the technical staff of the PMOs at the different levels have already been appointed.

96. Monitoring and Evaluation. The central PMO, with the cooperation of the Economic Research Institute of the Chinese Academy of Agricultural Sciences (CAAS), and the county and provincial PMOs, would monitor and evaluate the impact and economic benefits accruing from the project. Benchmark surveys would be conducted in the project areas to determine the current conditions and levels of inputs and production. Crop statistics and physical and financial progress of the project would be collected by the county PMOs. Consultants would be provided under the project to assist in developing suitable techniques and procedures for monitoring and evaluation.

Agricultural Support Services

97. Agricultural Research and Extension. At the central level the CAAS, aside from its responsibility for providing support and guidance to provincial Academies of Agricultural Science and county-level research institutes, maintains a Saline Soils Improvement Station at Dezhou (Shandong).

98. Each county in the project has a county agricultural research institute and, under its supervision, research groups at the commune and brigade levels. The research institutes would verify and assess improved farming practices in different locations in the project areas. The main emphasis would be on varietal screening, fertilizer trials, pest and disease control and production of breeder seeds. The project would provide funds for strengthening and upgrading the research facility in each county. Additional training would also be provided for research and support personnel.

99. Around 100 personnel in each county are employed at the county or commune levels in extension work. At the county level, there is usually an agrotechnical extension station with stations for seed improvement, plant protection, agricultural machinery, animal husbandry, and forestry. The project would include the expansion of buildings and equipment for county level training of commune and brigade technicians and extension personnel in each county.

100. Seed. Provision of improved seeds in each county is the responsibility of the county seed company. Breeder seeds from the provincial Academy of Agricultural Sciences or the county agricultural research institutes are multiplied either by county-managed seed farms or else by commune production teams or scientific experiment teams under contract to the seed company. The Bureau of Seeds has established pilot projects in about 120 counties, and the provincial governments have set them up in about 200 counties. This seed improvement scheme would be extended to the project areas. Assurances have been obtained that only seeds certified by or on behalf of the MOA would be distributed by the seed companies under the project (draft Development Credit Agreement, Section 3.10).

101. Fertilizer. Domestic production of fertilizer has been given high priority by the Government and will continue to grow as a result of large plants that are already under construction. Five of these plants are in provinces where the project is located. Adequate nitrogenous fertilizer will be available from these plants to meet the needs of the project areas at full development. Domestic production of phosphatic fertilizers falls far short of requirements, hence imports will have to be expanded. Provision has been made under the project to import diammonium phosphate for application in deficit areas. Supply stations of the Supply and Marketing Cooperative are established at each commune and would be responsible for provision of fertilizer and other inputs to the production teams.

102. Agrochemicals. Higher standards of pest control, especially for cotton, will be needed to achieve the higher yields resulting from better water control. The project includes procurement of carbofuran and power sprayers for use in orchards and cotton. Expanding domestic production will be sufficient to meet requirements for other agrochemicals.

Consulting Services

103. The Government would employ consultants to assist in (a) the soil and water studies program (para. 78), (b) monitoring and evaluation (para. 96), and (c) the North China Plain Agricultural Study (para. 79). The services under (a) and (b) would best be provided by a consulting firm able to call on a wide range of experts on short-term assignment. The assignment would begin in early 1983 and continue over a period of four years. The consultant input is estimated at about 35 man-months. The North China Plain Agricultural Study would also require experts on short-term assignments to cover a wide range of disciplines, and again there would be advantages in having these services provided by a consulting firm with experience in basin studies. The estimated input is 52 man-months, and the assignment would begin in mid-1983. The use of consulting firms rather than individual consultants would be much simpler from the standpoint of administration, it would ensure that the work is properly coordinated and also give the implementing agencies access to a wide range of experts. Consulting firms would also help in purchasing field and laboratory equipment and in organizing and conducting overseas training courses for project personnel. The estimated overall man-month cost for specialists would be about \$12,000, inclusive of salaries, overhead, overseas allowances, travel, and living expenses while in China. An assurance was obtained that the Government would carry out the soil and water studies under agreed terms of reference and present a report on them to IDA for its review by December 31, 1986. Assurances were also obtained that the North China Plain Agricultural Study would commence by July 1, 1983 under agreed terms of reference, and that all consultants under the project would be selected in accordance with Bank Group guidelines (draft Development Credit Agreement, Sections 3.06, 3.07 and 3.08).

Operation and Maintenance

104. The county Bureau of Water Conservancy would be responsible for the operation and maintenance (O&M) of river improvements and main pumping stations. O&M of main and branch drains and their structures would be carried out by the communes under the direction of the Bureau of Water Conservancy which would inspect the project works periodically. Likewise, the production brigades would provide funds for O&M of lateral and sublateral drains and their structures under the direction of the commune. Production teams would operate and maintain on-farm drains and tubewells, and members would provide the labor and funds. The county Project Management Office would appoint persons in the communes and brigades to be in charge of O&M in the project areas.

Agricultural Production

105. The total cultivated area is about 178,000 ha. However, the total cropped area at present is estimated at some 245,000 ha, which represents a cropping intensity of 138%. Of this area, wheat, which is the most important foodgrain, accounts for some 93,000 ha; maize, 49,000 ha; soybeans, 24,000 ha; sweet potatoes, 24,000 ha; rice, 1,900 ha; and miscellaneous grains (primarily sorghum and millet), 14,000 ha. The most commonly encountered cropping system is wheat/maize, with winter wheat (or barley) grown from late October to early June and maize often sown in May between the rows of wheat before harvest. Rotation schemes generally feature three crops in two years. Single-cropped foodgrains, oilseeds and cash crops are usually sown in the spring from early- to mid-April.

106. Without the project, no significant change in cropping patterns is anticipated. Recent changes in relative crop prices, more attention to farm income levels, and decentralization of production planning have already led to significant increases in acreage in oilseeds, cotton and other cash crops, at the expense of reduced grain acreage and some decrease in overall cropping intensity. With the project, improved irrigation and drainage would lead to significant yield increases and this in turn would lead the farmers to reduce the area under foodgrains, and increase the area under cash crops. The acreage under sweet potato and maize would be cut back. Wheat, sorghum, millet and soybean would be maintained at present levels. Substantially increased acreage would be devoted to the oilseed crops and cotton because of their profitability.

107. On completion of project works, yields are expected to rise as follows: wheat from 1.4 to 2.2 ton/ha; maize from 2.1 to 2.9 ton/ha; rice from 3.0 to 4.2 ton/ha; and soybean from 0.9 to 1.4 ton/ha. Similar growth would be expected for oilseed: rape would increase from 0.4 to 0.8 ton/ha and peanut yields from 1.1 to 1.8 ton/ha. Cotton yields which currently suffer from poor drainage conditions and salinity, would rise from 0.5 to 0.7 ton/ha of lint. Total production of foodgrains with the project would increase 44% from 334,000 tons at present to 481,000 tons. The combination

of increased acreage and yields would triple oilseed production, from 7,000 to 24,000 tons, and increase cotton production by 74%, from 14,000 to 24,000 tons.

108. Because of higher crop yields with the project, the crop area required to meet subsistence and quota requirements would decrease, the supply of fodder would be augmented, and farm cash flow increased. Therefore, the project would permit considerable diversification into subsidiary farm production which would not occur without the project.

109. A higher proportion of increased crop residue and a greater proportion of grain production would be available for use as feed and fodder. The number of animals raised is expected to grow, resulting in greater supply of animal manure which would contribute to soil improvement and supplement chemical fertilizer as a source of plant nutrients required to attain target yields.

Markets, Prices, Farm Incomes and Project Charges

110. China's production of virtually all of the crops grown in the project area has been insufficient to meet domestic consumption requirements, and this has been reflected in increasing imports of these crops in recent years. The state has a near monopoly on crop procurement and determines all procurement prices. Until major price increases in 1979, procurement prices had remained at about the same level for more than a decade.

111. There are three tiers to the procurement price structure - quota, above-quota, and negotiated prices. Quota procurement prices apply to the annual quota responsibilities of each team or household. Above-quota prices apply to sales exceeding the quota, the targets for which are determined 1-2 months prior to the harvest of each crop. Negotiated prices apply to sales by individual farmers (out of the amounts retained by them or grown on private plots) to the state and occasionally to sales by production teams in excess of above-quota targets. They are individually negotiated and are equivalent to the prices prevailing on the free market.

112. The average farm-gate price of each crop used in the financial analysis of the project is a weighted average of quota, above-quota, and negotiated prices.

113. For the economic analysis of the project, all farm inputs and outputs were evaluated at projected 1986 economic prices expressed in mid-1982 constant prices. The economic prices at the farm gate are based on Bank Group commodity price forecasts, adjusted for quality, international and domestic transport, and processing costs. For crops which are not traded, economic prices are based on financial prices adjusted by the ratio of economic prices to financial prices of traded crops for the appropriate crop category (foodgrain, oilseeds, or fibers). For want of comparable world price data, products such as lumber or animals and all nontraded inputs are

evaluated at financial prices. However, as part of the sensitivity analysis, estimated local conversion factors were used to adjust local expenditures and revenues.

114. The traditional concept of farm income derived from an individually operated plot is not applicable in the project area, where the land is farmed collectively. To estimate farm family incomes, a notional farm budget has been prepared for a farm size of 0.7 ha which is the average area of land per farm family. The present average annual net farm income per capita in the project area is about Y 173 (\$102). At full development it would rise to Y 290 (\$171), an increase of 67%.

115. Cost recovery for the project would have several elements. Payment of unskilled labor (Y 28 million) for on-farm works, well drilling, tree planting and part of rural electrification would be the responsibility of the production teams. An additional portion of project expenditure (Y 57 million) would be recovered from repayments to ABC of project funds advanced to beneficiaries for purchase of machinery, tubewells, chemical fertilizer, agricultural chemicals, and commercial seed. Excluding indirect charges, the cost recovery index from these items would amount to 28%. Operation, maintenance and replacement costs for tubewell irrigation would be borne by the farmers. Irrigation fees paid for surface water deliveries would meet operation and maintenance charges for surface irrigation systems.

Benefits, Justification and Risks

116. The proposed project would increase yields on a total of 182,000 ha of cultivated land, by additional or improved irrigation on 153,000 ha; improved drainage on 139,000 ha; and improvement of 47,000 ha of Shajiang black soil. Wheat and maize would continue to be the principal crops, but 14,000 ha would be converted from foodgrains or wasteland into oilseeds or fiber crops. About 25,000 ha of wasteland would be brought into cultivation, forests or orchards. At full development, approximately 280,000 families, or 1.2 million individuals, would benefit directly from increased production. The annual demand for farm labor would increase by about 15 million man-days, equivalent to about 50,000 full-time jobs. The project would serve as a large-scale trial and demonstration of techniques for desalinization, which could subsequently be applied to the remainder of some 6 million ha of land affected by salinity and waterlogging. The project would meet the Government's objectives of increased production of food and fiber crops at a capital cost of about \$570 per benefited farm family, or \$800 per hectare. At full development, the project would result in a reduction in annual imports of grain worth \$27 million; soybeans worth \$4 million; oilseeds worth \$12 million; and fiber crops worth \$26 million, totaling \$69 million.

117. Distribution of Benefits. Members of the poorer teams within the project areas, that is, those which currently lack irrigation facilities or have a higher proportion of saline land, would receive the greatest benefits from the project. In the recent past, credit for other than current input

purchases has been largely unavailable to the poorer teams, whereas higher ability to repay has made it easier for better-off teams to finance further investment. With the project, additional funds would become available and inequity in the distribution of agricultural credit would be reduced.

118. According to national statistics on distributed collective income per capita (1979), 16% of production teams had distributions of Y 40 or less per capita, 11% of Y 41-50, 32% of Y 51-80, 16% of Y 81-100, and 25% of over Y 100. Of the nine counties included in the project, two would be classified in the bottom 16%, six in the second-lowest 11%, and one in the median category, based on the official measure of distributed collective income. Noncollective income represents about 60% of total distributed income in the project area, which probably exceeds the national average proportion, and helps to narrow the gap between incomes in the project area and the national average. On average, incomes of project beneficiaries fall at the bottom of the second quartile and many into the lowest quartile of the rural income distribution.

119. Economic Rates of Return. The project's economic rate of return is 30%.

120. Sensitivity Analysis. The sensitivity analysis indicates that the rate of return is moderately sensitive to failures to achieve the projected yield levels. Sensitivity to assumed values of other variables, including crop prices, construction costs, development period, and crop production costs is uniformly low.

121. Risks. The project areas have been carefully chosen to maximize the probability of success. Each has an existing main drainage system and each has a pilot area where the drainage, irrigation and land development techniques have already been successfully demonstrated. Therefore, no major technical problems in implementation are anticipated. The project would be the first IDA-assisted agricultural project in China and would be implemented at a time of change in rural institutions and farmers' incentives. However, the basic strength of the county governments should protect the project from any significant administrative problems.

PART V - LEGAL INSTRUMENTS AND AUTHORITY

122. The draft Development Credit Agreement between the People's Republic of China and the Association, the draft Project Agreements between the Association and the provinces of Anhui, Henan and Shandong, and the Report of the Committee provided for in Article V, Section 1(d), of the Articles of Agreement of the Association are being distributed to the Executive Directors separately.

123. Special conditions of the project are listed in Section III of Annex III. A condition of effectiveness is that China's State Council shall have approved the project, the Development Credit Agreement, and the Project Agreements.

124. I am satisfied that the proposed credit would comply with the Articles of Agreement of the Association.

PART VI - RECOMMENDATION

125. I recommend that the Executive Directors approve the proposed credit.

A. W. Clausen
President
By M. Qureshi

Attachments
May 26, 1982
Washington, D.C.

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

LAND AREA (THOUSAND SQ. KM.)	CHINA			REFERENCE GROUPS (WEIGHTED AVERAGES - MOST RECENT ESTIMATE) ^{1/2}	
	1960 /b	1970 /b	MOST RECENT ESTIMATE /b	LOW INCOME ASIA & PACIFIC	MIDDLE INCOME ASIA & PACIFIC
TOTAL	9597.0				
AGRICULTURAL	3196.0				
GNP PER CAPITA (US\$)	..	..	260.0	232.3	1136.1
ENERGY CONSUMPTION PER CAPITA (KILOGRAMS OF COAL EQUIVALENT)	650.1	500.2	834.6/j	499.4	1150.6
POPULATION AND VITAL STATISTICS					
POPULATION, MID-YEAR (THOUSANDS)	672865.0	815253.0	964505.0	..	..
URBAN POPULATION (PERCENT OF TOTAL)	..	12.0	13.2	17.3	40.8
POPULATION PROJECTIONS					
POPULATION IN YEAR 2000 (MILLIONS)			1239.1	.	.
STATIONARY POPULATION (MILLIONS)			1564.2	.	.
YEAR STATIONARY POPULATION IS REACHED			2070	.	.
POPULATION DENSITY					
PER SQ. KM.	70.1	84.9	100.5	153.6	373.1
PER SQ. KM. AGRICULTURAL LAND	214.0	263.0	297.8	360.3	2382.8
POPULATION AGE STRUCTURE (PERCENT)					
0-14 YRS.	..	..	32.3	37.4	39.8
15-64 YRS.	..	..	63.7	59.2	56.7
65 YRS. AND ABOVE	..	..	4.0	3.5	3.5
POPULATION GROWTH RATE (PERCENT)					
TOTAL	2.0	1.9	1.9/c	2.1	2.3
URBAN	..	..	3.0	3.4	3.8
CRUDE BIRTH RATE (PER THOUSAND)	34.0/d	33.6	17.9	27.7	29.7
CRUDE DEATH RATE (PER THOUSAND)	10.8/d	7.6	6.2	10.2	7.5
GROSS REPRODUCTION RATE	..	..	..	2.5	1.9
FAMILY PLANNING					
ACCEPTORS, ANNUAL (THOUSANDS)	..	..	..	..	..
USERS (PERCENT OF MARRIED WOMEN)	..	..	..	20.4	44.1
FOOD AND NUTRITION					
INDEX OF FOOD PRODUCTION PER CAPITA (1969-71=100)	..	..	120.0	107.1	123.7
PER CAPITA SUPPLY OF CALORIES (PERCENT OF REQUIREMENTS)					
PROTEINS (GRAMS PER DAY)	..	..	104.0/i	98.6	112.6
OF WHICH ANIMAL AND PULSE	..	..	62.8	56.9	62.5
	..	..	16.5	14.2	19.7
CHILD (AGES 1-4) MORTALITY RATE	..	..	..	14.6	4.8
HEALTH					
LIFE EXPECTANCY AT BIRTH (YEARS)	..	..	64.0	57.7	64.0
INFANT MORTALITY RATE (PER THOUSAND)	..	..	56.0	89.1	50.2
ACCESS TO SAFE WATER (PERCENT OF POPULATION)					
TOTAL	..	..	..	30.1	45.9
URBAN	..	..	..	65.8	68.0
RURAL	..	..	..	20.1	34.4
ACCESS TO EXCRETA DISPOSAL (PERCENT OF POPULATION)					
TOTAL	..	..	..	17.6	53.4
URBAN	..	..	..	71.0	71.0
RURAL	..	..	..	4.8	42.4
POPULATION PER PHYSICIAN	3009.8/d,g	1709.1/g	1162.1/g	3857.7	4428.7
POPULATION PER NURSING PERSON	2847.1/d,e	538.8/e	483.2/e	6411.8	2229.7
POPULATION PER HOSPITAL BED					
TOTAL	2142.5/d	737.8	499.2	1132.8	588.5
URBAN	..	..	172.1	322.3	579.6
RURAL	..	..	702.3	5600.5	1138.5
ADMISSIONS PER HOSPITAL BED	..	..	..	..	..
HOUSING					
AVERAGE SIZE OF HOUSEHOLD					
TOTAL	..	..	..	..	..
URBAN	..	..	..	..	..
RURAL	..	..	..	..	..
AVERAGE NUMBER OF PERSONS PER ROOM					
TOTAL	..	..	..	..	..
URBAN	..	..	..	..	..
RURAL	..	..	..	..	..
ACCESS TO ELECTRICITY (PERCENT OF DWELLINGS)					
TOTAL	..	..	..	..	..
URBAN	..	..	..	..	..
RURAL	..	..	..	..	..

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

	CHINA			REFERENCE GROUPS (WEIGHTED AVERAGES - MOST RECENT ESTIMATE) ^{/a}		
	1960	/b	1970	/b		
				MOST RECENT ESTIMATE		
				LOW INCOME ASIA & PACIFIC	MIDDLE INCOME ASIA & PACIFIC	
EDUCATION						
ADJUSTED ENROLLMENT RATIOS						
PRIMARY:	TOTAL	102.0	103.0	93.0/ ^f	85.9	99.8
	MALE	..	..	..	94.4	100.6
	FEMALE	..	..	..	64.5	98.8
SECONDARY:	TOTAL	..	..	51.0	38.0/ ^{aa}	53.5
	MALE	..	..	..	34.6/ ^{aa}	58.4
	FEMALE	..	..	..	18.0/ ^{aa}	48.6
VOCATIONAL ENROL. (% OF SECONDARY)						
		..	..	..	3.8	21.1
PUPIL-TEACHER RATIO						
	PRIMARY	..	..	25.1	32.8	34.2
	SECONDARY	..	..	19.1	19.9	31.7
ADULT LITERACY RATE (PERCENT)						
		..	..	66.0	52.8	86.5
CONSUMPTION						
PASSENGER CARS PER THOUSAND						
	POPULATION	..	..	..	1.7	12.7
RADIO RECEIVERS PER THOUSAND						
	POPULATION	..	..	..	35.3	174.1
TV RECEIVERS PER THOUSAND						
	POPULATION	..	..	..	3.7	50.6
NEWSPAPER ("DAILY GENERAL INTEREST") CIRCULATION PER THOUSAND POPULATION						
		..	..	..	14.6	106.8
CINEMA ANNUAL ATTENDANCE PER CAPITA						
		..	..	..	3.4	4.3
LABOR FORCE						
	TOTAL LABOR FORCE (THOUSANDS)	234602.4/ ^{d,h}	339960.5/ ^h	403163.1/ ^h	.	.
	FEMALE (PERCENT)	..	..	..	29.3	37.4
	AGRICULTURE (PERCENT)	..	..	71.0	69.8	50.2
	INDUSTRY (PERCENT)	..	..	17.0	14.1	21.9
PARTICIPATION RATE (PERCENT)						
	TOTAL	37.0/ ^d	41.7	41.8	39.7	40.2
	MALE	..	..	..	51.5	49.8
	FEMALE	..	..	..	23.3	31.1
ECONOMIC DEPENDENCY RATIO						
		..	..	0.9	1.1	1.1
INCOME DISTRIBUTION						
PERCENT OF PRIVATE INCOME RECEIVED BY						
	HIGHEST 5 PERCENT OF HOUSEHOLDS	..	..	..	..	..
	HIGHEST 20 PERCENT OF HOUSEHOLDS	..	..	..	..	..
	LOWEST 20 PERCENT OF HOUSEHOLDS	..	..	..	..	..
	LOWEST 40 PERCENT OF HOUSEHOLDS	..	..	..	..	..
POVERTY TARGET GROUPS						
ESTIMATED ABSOLUTE POVERTY INCOME LEVEL (US\$ PER CAPITA)						
	URBAN	..	..	..	134.1	248.6
	RURAL	..	..	..	111.6	193.7
ESTIMATED RELATIVE POVERTY INCOME LEVEL (US\$ PER CAPITA)						
	URBAN	..	..	..	..	249.8
	RURAL	..	..	..	..	234.3
ESTIMATED POPULATION BELOW POVERTY INCOME LEVEL (PERCENT)						
	URBAN	..	..	..	41.7	21.2
	RURAL	..	..	..	51.7	32.2

.. 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.
- ^{/aa} China included in total only.
- ^{/b} Unless otherwise noted, data for 1960 refer to any year between 1959 and 1961; for 1970, between 1969 and 1971; and for Most Recent Estimate, between 1976 and 1979.
- ^{/c} Latest estimate of annual growth of population is 1.2%.
- ^{/d} 1957; ^{/e} Including barefoot doctors; ^{/f} Net enrollment, with a gross enrollment ratio of 158; ^{/g} Excluding traditional medical doctors.
- ^{/h} Including military personnel and those awaiting permanent jobs, most of whom are in temporary jobs.
- ^{/i} Between 1977-79 per capita supply of calories was estimated to have increased by 16.5%.
- ^{/j} Country estimate is 644 kilogram of coal equivalent.

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 "Capital Surplus 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.

LAND AREA (thousand sq.km.)

Total - Total surface area comprising land area and inland waters.
Agricultural - Estimate of agricultural area used temporarily or permanently for crops, pastures, market and kitchen gardens or to lie fallow; 1978 data.

GNP PER CAPITA (US\$) - GNP per capita estimates at current market prices, calculated by same conversion method as World Bank Atlas (1977-79 basis); 1960, 1970, and 1979 data.

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

POPULATION AND VITAL STATISTICS

Total Population, Mid-Year (thousands) - As of July 1; 1960, 1970, and 1979 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 1979 data.

Population Projections

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

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

Year stationary population is reached - The year when stationary population size has been reached.

Population Density

Per sq. km. - Mid-year population per square kilometer (100 hectares) of total area; 1960, 1970 and 1979 data.
Per sq. km. agricultural land - Computed as above for agricultural land only; 1960, 1970 and 1978 data.

Population Age Structure (percent) - Children (0-14 years), working-age (15-64 years), and retired (65 years and over) as percentages of mid-year population; 1960, 1970, and 1979 data.

Population Growth Rate (percent) - total - Annual growth rates of total mid-year populations for 1950-60, 1960-70, and 1970-79.

Population Growth Rate (percent) - urban - Annual growth rates of urban populations for 1950-60, 1960-70, and 1970-79.

Crude Birth Rate (per thousand) - Annual live births per thousand of mid-year population; 1960, 1970, and 1979 data.

Crude Death Rate (per thousand) - Annual deaths per thousands of mid-year population; 1960, 1970, and 1979 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 1979.

Family Planning - Acceptors, Annual (thousands) - Annual number of acceptors of birth-control devices under auspices of national family planning program.
Family Planning - Users (percent of married women) - Percentage of married women of child-bearing age (15-44 years) who use birth-control devices to all married women in same age group.

FOOD AND NUTRITION

Index of Food Production per Capita (1969=100) - Index of per capita annual production of all food commodities. Production excludes seed and feed and is on calendar year basis. Commodities cover primary goods (e.g. sugarcane instead of sugar) which are edible and contain nutrients (e.g. coffee and tea are excluded). Aggregate production of each country is based on national average producer price weights; 1961-65, 1970, and 1979 data.

Per capita supply of calories (percent of requirements) - Computed from energy equivalent of net food supplies available in country per capita per day. Available supplies comprise domestic production, exports less exports and changes in stock. Net supplies exclude animal feed, seeds, quantities used in food processing, and losses in distribution. Requirements were estimated by FAO based on physiological needs for normal activity and health considering environmental temperature, body weights, age and sex distribution of population, and allowing 10 percent for waste at household level; 1961-65, 1970, and 1977 data.

Per capita supply of protein (grams per day) - Protein content of per capita net supply of food per day. Net supply of food is defined as above. Requirements for all countries established by USDA provide for minimum allowance of 60 grams of total protein per day and 20 grams of animal and pulse protein, of which 10 grams should be animal protein. These standards are lower than those of 75 grams of total protein and 23 grams of animal protein as an average for the world, proposed by FAO in the Third World Food Survey; 1961-65, 1970 and 1977 data.

Per capita protein supply from animal and pulse - Protein supply of food derived from animal and pulse in grams per day; 1961-65, 1970 and 1977 data.
Child (ages 1-4) Mortality Rate (per thousand) - Annual deaths per thousand in age group 1-4 years, to children in this age group; for most developing countries data derived from life tables; 1960, 1970 and 1979 data.

HEALTH

Life Expectancy at Birth (years) - Average number of years of life remaining at birth; 1960, 1970 and 1979 data.
Infant Mortality Rate (per thousand) - Annual deaths of infants under one year of age per thousand live births.

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 practicing physicians qualified from a medical school at university level.

Population per Nursing Person - Population divided by number of practicing male and female graduate nurses, practical nurses, and assistant nurses.

Population per Hospital Bed - total, urban, and rural - Population (total, urban, and rural) divided by their respective number of hospital beds available in public and private general and specialized hospital and rehabilitation centers. Hospitals are establishments permanently staffed by at least one physician. Establishments providing principally 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. For statistical purposes urban hospitals include WHO principal/general hospitals, and rural hospitals local or rural hospitals and medical and maternity centers. Specialized hospitals are included only under total.
Admissions per Hospital Bed - Total number of admissions to or discharges from hospitals divided by the number of beds.

HOUSING**Average Size of Household (persons per household) - total, urban, and rural**

A household consists of a group of individuals who share living quarters and their main meals. A boarder or lodger may or may not be included in the household for statistical purposes.

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

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

EDUCATION**Adjusted Enrollment Ratios**

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

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

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

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

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

CONSUMPTION

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

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

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

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

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

LABOR FORCE

Total Labor Force (thousands) - Economically active persons, including armed forces and unemployed but excluding housewives, students, etc., covering population of all ages. Definitions in various countries are not comparable; 1960, 1970 and 1979 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 1979 data.

Industry (percent) - Labor force in mining, construction, manufacturing and electricity, water and gas as percentage of total labor force; 1960, 1970 and 1979 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 1979 data. These are based on ILO's participation rates reflecting age-sex structure of the population, and long time trend. A few estimates are from national sources.

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

INCOME DISTRIBUTION

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

POVERTY TARGET GROUPS

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

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

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

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

Population: 977 million (mid-1980)
GNP per capita: US\$290 (1980)

CHINA - ECONOMIC INDICATORS

	Annual Growth (%) at Constant Prices							
	1957-70	1970-77	1978	1979	1980			
Production								
Gross Output								
Agriculture	2.2	3.4	9.0	8.6	2.7			
Light industry	8.3	7.8	10.8	9.6	18.4			
Heavy industry	11.6	9.3	15.6	7.7	1.4			
Net Material Product (NMP)	5.2	4.8	12.4	7.0	6.9			
Prices								
	1957	1970	1977	1978	1979	1980		
Retail price index (1970=100)	92.2	100.0	102.7	100.0	101.9	108.0		
NMP deflator (1970=100)	90.7	100.0	99.6	100.4	105.1	106.5		
Exchange rate (Y/US\$)	2.46	2.46	1.83	1.66	1.54	1.50		
National Accounts								
	Amount 1979 (\$ billion)	Shares of GDP (%)				Average Annual Growth (%) at Constant Prices		
		1957	1979	1985	1990	1957	1970-79	1980-85
GDP	254.1	100.0	100.0	100.0	100.0	/a	/a	4.2
Agriculture	79.7	..	31.4	28.5	26.2	1.6	3.2	3.0
Industry	110.9	..	43.7	45.9	47.4	12.1	8.9	4.6
Services (incl. constr.)	63.5	..	25.0	25.6	26.4	3.5	4.3	4.5
Consumption	177.4	76.4	69.8	72.1	72.1	2.7	5.4	4.3
Investment	79.0	23.2	31.1	29.0	29.0	9.8	6.8	4.2
Exports GNFS	13.99/b	3.7/b	6.0/b	6.5	7.2	1.6 /b	8.0/b	2.1
Imports GNFS	17.27/b	3.5/b	7.0/b	7.6	8.3	2.3 /b	9.4/b	4.2
National savings	76.7/c	23.6/c	30.2/c	28.1	27.5		..	6.0
Public Finance						As % of GDP		
		1957	1979					
Current revenues (excluding foreign borrowing)		28.7	27.3					
Current expenditures		15.1	17.0					
Surplus (+) or deficit (-)		+13.6	+10.3					
Capital expenditures		13.7	15.6					
Foreign borrowing		0.7	0.9					
Other Indicators						1957-79 1980-85		
GNP growth rate (%)		5.4/d	4.1					
GNP per capita growth rate (%)		3.5/d	2.9					
Energy consumption growth rate (%)		8.3	3.1					
ICOR		5.4	7.2					
Marginal savings rate		0.42	0.39					
Import elasticity		0.95	1.04					

/a NMP basis.

/b Goods only.

/c GDS.

/d Based on the official real NMP index (as are all figures for past NMP and GDP growth in this data sheet). At Indian prices, GNP is estimated to have grown at 4.6% and GNP per capita at 2.7% during 1957-79.

Population: 977 million (mid-1980)
GNP per capita: US\$290 (1980)

CHINA - EXTERNAL TRADE

Indicator	Amount (million US\$ at current prices) 1979	Annual Growth Rates (%) (at constant 1980 prices)																																																																																																										
		Actual				Projected																																																																																																						
		1977	1978	1979	1980	1981	1982	1983	1984	1985																																																																																																		
<u>External Trade</u>																																																																																																												
Merchandise exports	13,987	2.1	10.1	25.7	18.0	1.2	1.8	2.4	3.0	2.5																																																																																																		
Energy	2,727	-15.7	-18.1	-21.2	-25.6	-44.5																																																																																																		
Other primary	4,770	4.0	4.0	4.0	4.0	4.0																																																																																																		
Manufactures	6,490	9.7	9.7	9.7	9.7	9.7																																																																																																		
Merchandise imports	17,266	1.1	32.6	25.6	9.8	4.2	4.2	4.2	4.2	4.2																																																																																																		
Food	3,229	5.0	5.0	5.0	5.0	5.0																																																																																																		
Petroleum	0	0	0	0	0	0	0	0	0	0																																																																																																		
Machinery and equipment	4,351	4.0	4.0	4.0	4.0	4.0																																																																																																		
Others	9,686	4.0	4.0	4.0	4.0	4.0																																																																																																		
<u>Prices</u>																																																																																																												
Export price index	100.0	105.0	112.7	121.8	131.0	142.1																																																																																																		
Import price index	100.0	103.7	111.4	120.7	130.1	140.0																																																																																																		
Terms of trade index	100.0	101.3	101.2	100.9	100.7	101.6																																																																																																		
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/a Market and nonmarket.

Population: 977 million (mid-1980)
GNP per capita: US\$290 (1980)

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

Indicator	Actual				Projected		
	1977	1978	1979	1980	1981	1982	1985
<u>Balance of Payments</u>							
Exports of goods and services	21,056	23,174	31,954
of which: Merchandise f.o.b.	8,050	9,745	13,987	17,900	19,037	20,785	28,334
Imports of goods and services	23,224	26,033	37,335
of which: Merchandise c.i.f.	7,627	11,399	17,266	20,968	22,691	25,383	36,083
Net transfers	427	528	626	680	704	760	944
Current account balance	911	-447	-1,528	-1,189	-1,464	-2,099	-4,437
Private direct investment	150	200	350
MLT loans (net)	2,110	1,600	1,957	4,136
Official	2,270	2,628	3,446
Private	-671	-671	641
Other capital /a	-1,624	585	0	0
Change in reserves ("-" = increase)	-509	785	-673	703	-870	-58	0
International reserves	7,382	8,252	8,310	8,310
of which: gold	5,120	5,120	5,120	5,120
Reserves as months imports	2.9	4.2	3.8	2.7
<u>External Capital and Debt</u>							
Gross disbursements			
Concessional loans			
DAC			
OPEC			
IDA			
Other			
Nonconcessional loans			
Official export credits			
IBRD /c			
Other multilateral			
Private			
External debt							
Debt outstanding and disbursed	3,400/b			
Official	/b			
Private	/b			
Undisbursed debt			
Debt service							
Total service payments			
Interest			
Payments as % exports GNFS			
Average interest rate on new loans (%)			
Average maturity of new loans (years)			

/a IMF finance may substitute (on similar terms) for some of the official inflows shown above, especially during 1982-85.

/b Total cannot be allocated between official and private. For projection purposes, the entire end-1980 stock of debt is assumed to have been private.

STATUS OF BANK GROUP OPERATIONS IN THE PEOPLE'S REPUBLIC OF CHINAA. STATEMENT OF BANK LOANS AND IDA CREDITS
(as of March 31, 1982)

<u>Loan or Credit Number</u>	<u>Year</u>	<u>Borrower</u>	<u>Purpose</u>	<u>\$ million</u>		
				<u>IBRD</u>	<u>IDA</u>	<u>Undisbursed</u>
2021 1167	1981	People's Republic of China	Univ. Develop- ment	100.0	100.0	200.0

B. STATEMENT OF IFC INVESTMENTS
(as of March 31, 1982)

None.

C. PROJECTS IN EXECUTION

Loan No. 2021 University Development Project \$100.0 million loan
Credit No.1167 and \$100.0 million credit of November 4, 1981;
Date of Effectiveness: February 4, 1982; Closing
Date: June 30, 1986.

Implementation is behind schedule because the nonavailability of IDA funds delayed loan/credit signing by almost five months. The loan/credit agreements were signed in November 1981 and became effective in February 1982. Good progress has been made since then, and the first stage of equipment procurement (almost half the total) has already begun. Disbursements will in turn be delayed by half a year.

PEOPLE'S REPUBLIC OF CHINA
NORTH CHINA PLAIN AGRICULTURE PROJECT

Supplementary Project Data Sheet

Section I: Timetable of Key Events

- (a) Time taken by the country to prepare the project : 6 months
- (b) The project was prepared by : The Government and IDA
- (c) Date of first presentation to IDA : July 1980
- (d) Date of first mission to consider the project : November 1980
- (e) Appraisal mission : October 1981
- (f) Completion of negotiations : April 1982
- (g) Planned credit effectiveness: October 1982

Section II: Special Association Implementation Actions

None.

Section III: Special Conditions

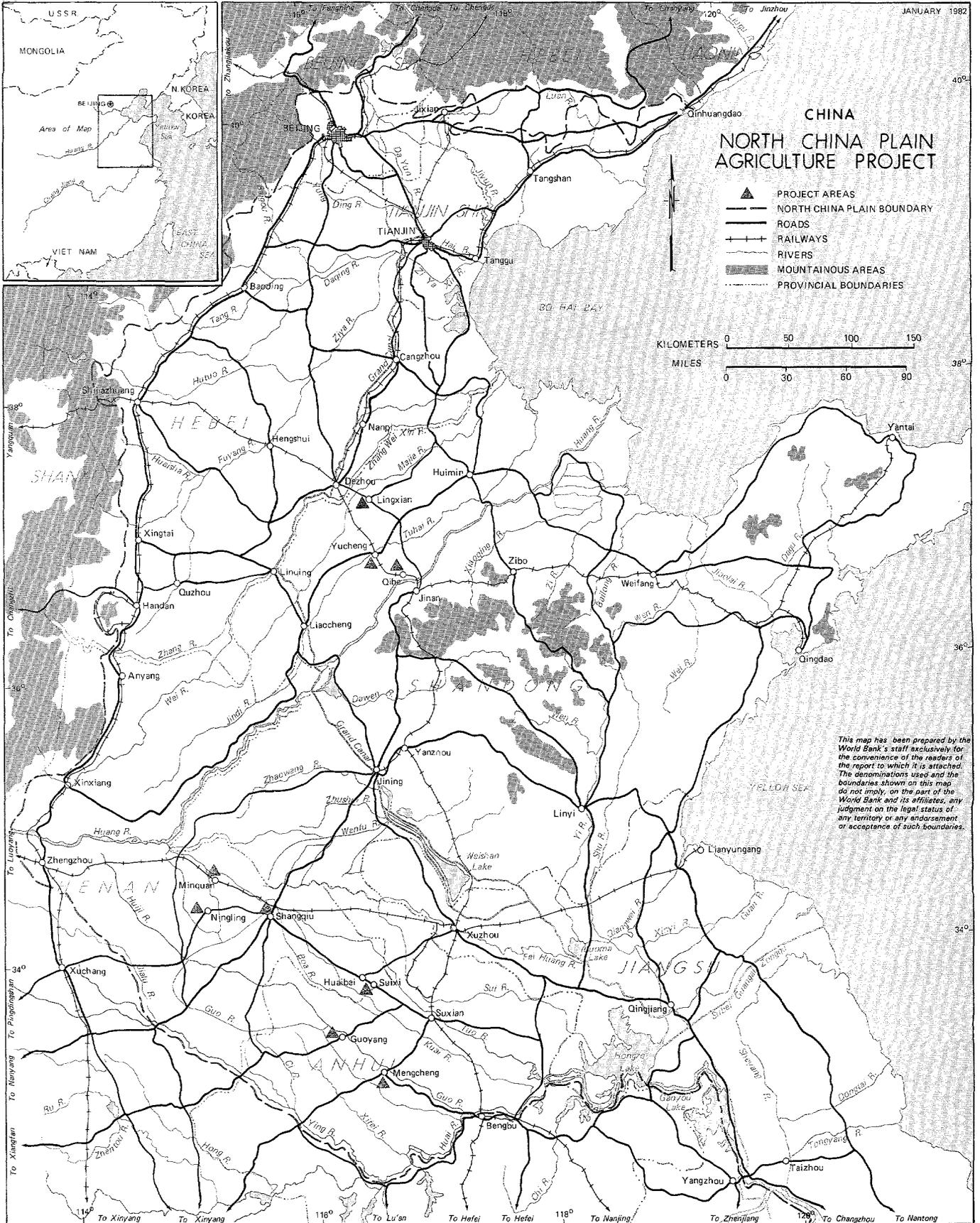
A. Conditions of Effectiveness

The Borrower's State Council shall have approved the project, the Development Credit Agreement, and the Project Agreements.

B. Other Conditions

- (a) the provincial governments would ensure that adequate power or fuel supply is made available to the project areas (para. 72);
- (b) by August 31 of each year, detailed work plans for the following year would be prepared for IDA review (para. 80);

- (c) the county and provincial PMOs would maintain separate accounts for the project. These would be audited annually by auditors which are expected to be from the Provincial Bureau of Finance. The project's audited accounts together with the auditor's report would be submitted to IDA within six months of the close of each financial year (para. 87);
- (d) the central Project Management Office would be adequately staffed at all times with experienced and qualified personnel. IDA would be consulted about any replacement of the Project Coordinator (para. 94);
- (e) the soil and water studies would be carried out and a report presenting the main findings would be submitted to IDA for review not later than December 31, 1986 (para. 103); and
- (f) the North China Plain Agricultural Study would commence by July 1, 1983 (para. 103).



This map has been prepared by the World Bank's staff exclusively for the convenience of the readers of the report to which it is attached. The denominations used and the boundaries shown on this map do not imply, on the part of the World Bank and its affiliates, any judgment on the legal status of any territory or any endorsement or acceptance of such boundaries.