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VOL. 1

A WORLD BANK COUNTRY STUDY

CHINA
Socialist Economic Development

Volume I
The Economy, Statistical System, and Basic Data

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Volume I
The Economy, Statistical System, and Basic Data

Volume II
The Economic Sectors
Agriculture, Industry, Energy, Transport,
and External Trade and Finance

Volume III
The Social Sectors
Population, Health, Nutrition, and Education

A WORLD BANK COUNTRY STUDY

CHINA

Socialist Economic Development

Volume I

The Economy, Statistical System, and Basic Data

The World Bank
Washington, D.C., U.S.A.

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CURRENCY EQUIVALENTS

The Chinese currency is called Renminbi (RMB). It is denominated in yuan (Y). Each yuan is subdivided:

1 yuan = 10 jiao = 100 fen

Exchange rates used in this report are as follows:

1977	\$1.00	=	Y 1.828
1978	\$1.00	=	Y 1.661
1979	\$1.00	=	Y 1.541

WEIGHTS AND MEASURES

Chinese statistics are usually in metric units; in addition, mu and jin are often used:

1 mu = 0.1647 acres = 0.0667 hectares (ha)
1 jin = 0.5 kg

PRINCIPAL ABBREVIATIONS

BOC	-	Bank of China
CAAC	-	Civil Aviation Administration of China
MOA	-	Ministry of Agriculture
MOC	-	Ministry of Communications
MOE	-	Ministry of Education
MOF	-	Ministry of Finance
MOFT	-	Ministry of Foreign Trade
MOPH	-	Ministry of Public Health
MOR	-	Ministry of Railways
NMP	-	net material product
SCCC	-	State Capital Construction Commission
SEC	-	State Economic Commission
SPC	-	State Planning Commission
SSB	-	State Statistical Bureau

FISCAL YEAR

January 1 - December 31

TRANSLITERATION

The Pinyin system is used in this report.

Preface

This report is based on the findings of an economic mission comprising several teams, which visited China for periods of 4-5 weeks between October and December, 1980. The mission was led by Parvez Hasan (mission chief) and Edwin R. Lim (deputy mission chief), and also consisted of Ramesh Chander (statistics), Mats G. Hultin (education), Dean Jamison (population, health and nutrition), Adrian Wood (principal economist), Shu-Chin Yang (foreign trade), S. Josephine Woo (research assistant), Helen Kung (mission secretary), and the following teams:

Agriculture: David J. Turnham (team leader), Theodore J. Goering (agricultural economist), Wen-poh Ting (agriculturalist), and Henri Boumendil (irrigation engineer - consultant);

Energy: Bernard Chadenet (team leader - consultant), Darrel G. Fallen-Bailey (energy resources and technology), David P. Hughart (energy economist), Kuo-Chang Ling (power engineer), and Vatsal P. Thakor (power engineer);

Industry: Donald B. Keesing (team leader), Magdi Iskander (industrial economist), and H. Geoffrey Hilton (industrial engineer);

Transport: Vincent W. Hogg (team leader), Jacques Yenny (transport economist), Ernst G. Frankel (port specialist - consultant), Paul Banner (railway specialist - consultant), and Clell G. Harral (highway specialist).

In addition to the mission members, the following also participated in the preparation of the report: Nancy Birdsall was the co-author of Annex H (Population, Health and Nutrition); Sulekha Patel, Suan Ying, and Janson Chang assisted the mission members in research; Linda Mitchell edited the report; and Dianne Esson was responsible for its processing.

Hollis B. Chenery (Vice President, Development Policy) and Caio Koch-Weser (Chief, China Division) participated in the final two weeks of the mission.

During its stay, the mission was hosted by the following organizations in the Chinese Government: the Ministry of Finance, which coordinated the mission's overall activities; the State Planning Commission and the State Statistical Bureau, which worked mostly with the general economic team; the Ministry of Agriculture, with the agriculture team; the Ministries of Communications and Railways, with the transport team; the Ministry of Education, with the education team; the State Economic Commission, with the industry team; and the Ministries of Electric Power and Coal, with the energy team. In addition to the many officials of these ministries who worked closely with the mission during the two months, the following Chinese economists worked with the various teams: Zhu Rongji (State Economic Commission), Xing Guang (Ministry of Finance), Zheng Li (State Planning Commission), Zhao Renwei (Economic Institute, Academy of Social Sciences), Zhu Fulin (Ministry of Finance), Chen Lian (Agriculture Institute, Academy of Social Sciences), Hong Huiru (Industry Institute, Academy of Social Sciences), Gong Shaowen (Ministry of Agriculture),

He Enlin (Ministry of Railways), Luo Yunqin (Ministry of Communications), Cao Weigong (Ministry of Electric Power), and Gao Huan (Ministry of Education). Xing Guang, Zhao Renwei, Zheng Li and Zhu Fulin also prepared brief background papers for the general economic team. This list is far from exhaustive; the mission teams were also assisted by many others who are not mentioned above, including officials at the government agencies and institutions that the teams visited on field trips.

The mission teams travelled extensively outside Beijing. During the two months, the various teams visited two other municipalities, Shanghai and Tianjin, and seventeen provinces - Fujian, Gansu, Guangdong, Guizhou, Hebei, Heilongjiang, Henan, Hubei, Hunan, Jiangsu, Liaoning, Shaanxi, Shandong, Shanxi, Sichuan, Xinjiang, and Zhejiang.

To prepare for its work in the field, the mission commissioned a number of background papers on China's economy to be written by foreign scholars, including: Randolph Barker, Cornell University (agricultural development); Wlodzimierz Brus, Oxford University (socialist planning); P.C. Chen, Wayne State University (population and health); Mark Elvin, Oxford University (historical background); Shigeru Ishikawa, Hitotsubashi University (macroeconomic issues); Nicholas Lardy, Yale University (agricultural planning); Dwight Perkins, Harvard University (rural development); Thomas G. Rawski, Toronto University (industrial development); Ashwani Saith, Oxford University (brigade enterprises); Peter Schran, University of Illinois (agricultural statistics and prices); and Christine Wong, Mount Holyoke College (small-scale industries). These papers were generally completed during the summer of 1980 and were discussed with the authors prior to the mission's departure for China.

* * * * *

This report was first issued on June 1, 1981. It was reprinted on March 10, 1982, at which time changes were made in a few places, mainly to correct factual and statistical information. The present printing is the first to be released for public distribution.

The Economy

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- IBRD 15528R2 China: Road Network
- IBRD 15837R1 China: Major Crops

SUMMARY AND CONCLUSIONS

1. In recent years, within and outside China, two related questions have been debated: how well has China's economic development since the 1949 revolution served the Chinese people; and what have been the respective roles of (a) factors outside the Government's control, (b) the policies followed, and (c) the system of economic management itself? This first World Bank report on the Chinese economy is primarily an attempt to address these questions in the context of experience in other developing countries, and to discuss some of their fundamental implications for future policy. In view of the scale and difficulty of this task, and the limited time and resources available, the report should be regarded as no more than a preliminary step toward an understanding of China's economic progress and potential.

Retrospective

2. In geographical size and internal diversity, in the age and richness of its civilization, and in its recent political history, China is unique. This should constantly be borne in mind in reading the report, which for the sake of simplicity and brevity deals mainly with the past two or three decades, focuses largely on economic matters, and does not fully analyze interregional differences.

System and Strategy

3. China's economic system combines a largely urban state economy, similar to that of other socialist countries, with a rural commune economy of its own invention. The state economy is characterized by public ownership, centralization of economic decisions, strictly hierarchical control, and little reliance on markets or prices. To a greater degree than in East European countries today, people's jobs and consumption patterns are chosen for them by the state.

4. In the commune economy, land and most capital are owned and used collectively by production teams of 30-40 households, which generally correspond to small 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. They also pass down instructions from the planners: but in general, production and investment decisions in the commune economy are less subject to central direction than those in the state economy; and markets and prices play a larger role. Private household activities, moreover, account for about 30% of total agricultural production, and an even larger share of rural cash income.

5. Development efforts 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.

6. The 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, by the fact that the easiest advances in intensive cultivation had already been made, and by limited opportunities for international trade. 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.

7. 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 social services - has been based largely on local resources and initiative, with a strong emphasis on economy and technical improvisation. Industrialization, by contrast, has been based mainly on a massive infusion of centrally mobilized resources, with less concern for cost effectiveness, and using technology largely descended from Soviet designs of the 1950s.

8. 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. Up to 1957, economic criteria predominated and centralization increased. The Great Leap Forward (1958-60), however, was an attempt to accelerate economic advance through political will and local initiative. Its unfortunate effects led to a revival of economic planning and recentralization. But this was soon disrupted by the Cultural Revolution (1966-76), which emphasized egalitarianism and ideology at the expense of economic efficiency. In recent years, economic criteria have again predominated; but efforts to rehabilitate the planning system have been combined with reforms.

Growth and Poverty Reduction

9. Notwithstanding these twists and turns, 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. But because the share of services is much smaller than in other countries, agriculture still accounts for 34% of GDP and over 70% of employment - similar to the average for low-income countries. Around 85% of the population, moreover, lives in rural areas.

10. Although a phenomenally successful effort during the past decade to control the birth rate had reduced population growth by 1980 to only 1.2% p.a., over the whole period 1949-79 the population expanded at much the same rate (a little under 2% p.a.) as in other developing countries. But despite this, and despite the large weight of a 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 two years) 2.5-3.0% in 1957-79. Even the former rate is significantly above the average for other low-income developing countries (1.6% in 1960-78) - though even the latter is 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.

11. Because the system has been very effective at mobilizing domestic savings (at 1970 prices, the marginal saving rate in 1957-79 was over 40%), consumption has grown significantly slower than income. In real terms,

per capita consumption is estimated to have risen at an annual rate of about 1.9% in 1957-79, but (again because of a spurt in the last two years) at only about 1.3% in 1957-77 - barely above the average for other low-income countries (1.2% in 1960-78).

12. Because of the absence of individual income from property, the income share of richer groups in China is small. Moreover, unlike most other developing countries, where extreme poverty and considerable affluence often occur side-by-side, China is composed of communities within which there is comparatively little inequality. The income share of poorer groups, however, is not particularly large: this is partly because urban incomes are on average more than double rural incomes; but mainly because rural incomes, despite collective ownership of land and capital, are themselves quite unequally distributed (the share of the poorest 40% of rural people is below that of the richest 10%). This rural inequality, which may have increased over the past two decades, is primarily due to differences between communities in the quantity (per capita), quality and location of land. Poverty thus persists in some areas.

13. Nonetheless, and despite slow growth of the average level of consumption, China's most remarkable achievement during the past three decades has been to make low-income groups far better off in terms of basic needs than their counterparts in most other poor countries. They all have work; their food supply is guaranteed through a mixture of state rationing and collective self-insurance; most of their children are not only at school, but being comparatively well taught; and the great majority have access to basic health care and family planning services. Life expectancy - whose dependence on many other economic and social variables makes it probably the best single indicator of the extent of real poverty in a country - is (at 64 years)^{/1} outstandingly high for a country at China's per capita income level.

Agricultural Progress and Problems

14. Gross agricultural output grew in real terms at 2.1% p.a. in 1957-77, but at over 6% in 1977-80 (reflecting good weather in 1978 and 1979, a sharp expansion of fertilizer use, and improved economic incentives). The long-term trend rate thus appears to have been 2.5-3.0% p.a., with net output growing somewhat more slowly. Foodgrain output has grown more slowly than total agricultural output, and even in 1980 was on a per capita basis only 7% higher than in 1957.

15. This slow growth of agricultural production in relation to population nonetheless represents a considerable achievement, given the lack of scope for expanding the cultivated area. Despite the initially high level of development, the rate of multiple cropping has been increased to an average of 1.5, and the trend growth in yields per cropped hectare has been clearly higher than in other developing countries. This, and increased stability of yields in the face of weather changes, has been obtained by refinement of traditional labor-intensive cultivation techniques; by extensive irrigation (45% of the land is now irrigated), flood control and land improvement, much of which has

^{/1} The official Chinese estimate for 1979 is 68 years. See Table 3.23 (page 98) for an explanation of the adjustment made by the mission.

been done with commune labor; by improvement of seed varieties; and, more recently, by increased use of machinery and chemical fertilizer.

16. The institutional framework in agriculture is basically sound. But from 1966 to 1976, productivity growth was retarded by misguided application of the "grain first" policy, by excessive higher-level intervention in agricultural production decisions, and by political constraints on the cultivation of private plots. Relaxation of these policies has contributed to the agricultural resurgence over the past few years. So have rises in agricultural prices (though, despite a marked improvement over the past three decades, agricultural prices remain lower relative to industrial prices than in most other developing countries). The main remaining problems are technical. Fertilizer supplies are unbalanced in nutrient content, and in some places there is serious erosion, siltation or salinity. Agricultural research capacity has also lagged during the past decade, which is a particularly serious handicap since future progress will depend mainly not on greater supplies of modern inputs but on adaptation and diffusion of new seed varieties, and on more careful and balanced use of other inputs.

17. Partly because rural to urban migration is restricted, the agricultural labor force has been increasing by about 2% p.a., and rural per capita incomes have risen relatively slowly. Between 1957 and 1977, net output per worker dropped by 12%: despite improved agricultural terms of trade, reduced agricultural taxes, and expansion of commune and brigade industry, rural per capita incomes must have increased very little. In 1978 and 1979, there was a very rapid increase in agricultural production and rural incomes. Even so, for the whole period 1957-79, the growth rate of rural per capita income (1.6% p.a.) was well below that of urban per capita income (2.9% p.a.).

Industrial and Infrastructural Development

18. Industry - including mining and energy - has been the leading sector. Its net output grew in real terms at around 10% p.a. in 1957-79, and is now on a per capita basis (at Chinese prices and official exchange rates) close to three times the average for other low-income countries, though only slightly over a quarter of the average for middle-income countries. Special efforts have been made to spread manufacturing into remote regions and rural areas, with much reliance on small plants and older techniques; and in the energy sector, whose technology is generally outmoded, China has developed a technological lead in biogas and small-scale hydropower.

19. Almost the entire range of modern industries has been built up, but with particular emphasis on those making capital equipment. Thus although in many respects China's industrial structure is similar to other developing countries (the share of textiles, for instance, is quite close to that of India), the share of machinery and metal products is not much smaller than in the industrialized market economies - which is particularly striking in view of the low level of China's consumer durables production. As a result, China is now largely self-sufficient in capital goods (less than 10% are imported): this has been the result of deliberate policy; but it has contributed to isolation from the international mainstream of technological advance.

20. Despite this strong bias toward heavy industry, per capita availability of manufactured consumer goods has also expanded rapidly - at 7% p.a. in 1952-79. Production of cotton cloth, the largest single item, grew at

only 2% per capita p.a.; but the output of such things as bicycles, sewing machines, wrist watches, radios and cameras has greatly increased. Indeed, during 1957-77, when food availability increased very little, most of the increase in private consumption consisted of manufactured goods.

21. Productivity growth has been less impressive. Good progress was made in the 1950s: but since 1957, industrial output growth has been achieved mainly by increasing the quantity of inputs (capital, labor and materials), rather than by increasing the efficiency with which they are used. Moreover, the current level of efficiency in converting inputs into output is on average low. In addition, there are serious problems of product quality (the volume of useable output may well have grown more slowly than the production statistics suggest); the design of many industrial products is outdated; and the balance of capacity within and between subsectors is inappropriate to the present and likely future pattern of demand.

22. One increasingly important area in which Chinese industry is strikingly inefficient is its use of energy. Industry accounts for over 70% of a total of commercial energy use that on a per capita basis is nearly four times the average for other low-income countries. Energy consumption per dollar of GNP in China is about three times the average both for other developing and for industrialized market economies.

23. The low level of efficiency in Chinese industry is partly the result of technological isolation. But it is also a reflection of weaknesses in planning and in the economic system - in particular, inadequate contact between producers and users, and insufficient incentive for producers to use scarce resources economically or to introduce technical innovations.

24. In parallel with industry, the transport system has been greatly enlarged in the past three decades, mainly through building up a nationwide railway network oriented primarily toward freight - especially bulk commodities such as coal and steel. The resulting system is strikingly efficient in terms of traffic density and turnaround time, though handicapped by steam traction and much short-haul traffic (which in other countries would go by road). Inland water transport, important for centuries, has also been extended and modernized. Roads have been neglected: the network is of very low density and quality, especially in rural areas; and the vehicle fleet is small and of obsolete design. Human energy continues to be an important source of motive power.

Adjustment and Reform

25. 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 depend mainly on improving the efficiency of resource use, rather than on (as in the past) massive mobilization of resources and fundamental institutional change. 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.

26. Although its precise form and direction are still the subject of conflicting opinions and pressures, there is a general consensus in China on the need for change. This has found expression in the past two or three years in many policy innovations. Some of these have been successful. But others have had less satisfactory - or unexpected - results. Thus although change must continue, a difficult period of transition lies ahead. A nation that has spent three decades pursuing a particular set of goals with particular instruments will inevitably find it hard to shift to a path that is not only new for China, but has been successfully trodden by few, if any, other countries.

Progress of Reform

27. One focus of the debate has been criticism of the economic system. Its record in mobilizing physical and human resources, and in reducing serious poverty, is outstandingly good. But the state economy is inefficient both in converting inputs into output and in matching supply with demand. Both problems have been aggravated in China by the virtual absence of medium-term planning since 1958, by technical weaknesses in annual planning and project appraisal, by the difficulty of achieving an appropriate balance of responsibilities between central and local government, and by prolonged inattention to such economic instruments as prices and loans - all of which have been partly the result of political turmoil. The commune economy, though fundamentally an efficient system, has been periodically handicapped by ill-considered instructions from above and by dilution of production team autonomy in production and income distribution decisions.

28. These shortcomings have prompted a set of reforms aimed at providing lower-level units with more freedom of maneuver, stronger incentives to seek efficiency and serve the needs of consumers, and better signals. Since 1980, a formal revenue-sharing system has given provincial governments somewhat more incentive and opportunity to increase revenues, reduce waste, and tailor expenditures to local needs. Many state enterprises are now allowed to retain around 10% of their profits, and to use this money to pay bonuses, improve worker amenities, and modernize and expand their capacity. They have also been given a little more control over what they produce; and the scope for private and collective production in urban areas has been enlarged. 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. The management of foreign trade - which has been expanding rapidly in the 1970s, after virtual stagnation in the 1960s - has been somewhat decentralized, and a number of initiatives have been taken to increase exports.

29. Linked with the diversification of commerce has been some increase in the freedom of producers and traders to alter product prices. Several moves away from the past practice of providing capital free of charge have also been made: most notably, budget allocations for much fixed and inventory investment are now in the form of interest-bearing loans. But there has been little change in the wage and labor allocation systems.

30. In the commune sector, the role of the production team is being enhanced, and the linkages between individual effort and reward are being strengthened. Rural marketing arrangements are being diversified, and emphasis is being placed on exploitation of local comparative advantage and on indirect planning through procurement price adjustments.

Future Directions for Reform

31. Though their implementation has not been free of problems (of which more below), these reforms are well focused on important weaknesses of the Chinese system of economic management. Thus far, however, they represent comparatively minor changes in a system that remains highly regulated and not very efficient. The ultimate destination of reform cannot possibly be settled at present. But there are four (interlinked) areas in which further reform deserves serious consideration.

32. The Price System. Partly because they have been used largely to generate government revenue, prices at present reflect neither relative costs nor relative scarcities. This has been made more of a problem by the recent reforms, since arbitrary prices are likely to lead profit-motivated enterprises and production teams to make socially suboptimal production and investment decisions, and in particular to waste scarce inputs and fail to produce a sufficient amount of scarce outputs. Provincial governments, with their newly increased interest in expanding profitable enterprises and closing those that operate at a loss, may also be influenced by wrong prices away from social cost effectiveness and the matching of supply with demand. But early decontrol of most prices, letting the pattern of rises and falls indicate scarcities and surpluses, would be undesirable, both because the resulting pattern of windfall gains and losses would partly reflect the many other rigidities in the system, and because rises in the prices of basic consumer goods could undermine a major strength of the Chinese system by reducing the living standards of poorer groups.

33. The alternative solution is to rehabilitate the old system through administrative changes in prices to bring them more into line with costs or underlying scarcities, as has already been done for some products. But this could not be done easily or quickly: the task would be not only vast, but greatly complicated by interdependence between prices, by the desirability of allowing higher profit rates on commodities in short supply and lower profit rates on commodities in surplus, and by the need to devise criteria other than the cost of production for pricing natural resources. Moreover, closer alignment of prices with costs (however accomplished) could result in a reduction of industrial and commercial profits, and would probably have to be accompanied by reform of the tax system to maintain state revenues. In addition, the "administrative" approach to price reform could itself face political objections because of price increases and redistribution of financial resources among ministries, localities and other units.

34. Price reform, by whatever means, is thus going to have to be a gradual process. But because it is crucial to the success of other reforms, and will indeed limit their pace, it cannot be neglected. The best approach to begin with may be a mixture of decontrol and change through administrative

means - for example, deregulating many producer goods prices, while retaining control of most consumer goods prices - but in any event giving priority to rectifying the most serious anomalies (e.g. the prices of energy and raw materials). In agriculture, too, a continuing mixture of direct planning and greater use of the price mechanism may be best, since regional price differences at present do not realistically reflect marketing and transportation costs, and since there has been insufficient opportunity as yet to measure the production response to prices. Both within and outside agriculture, more use could advantageously be made of two-tier pricing, which can provide substantial incentives at the margin with only a moderate impact on the distribution of income (and government revenues). In addition, although the prices used in actual transactions can be changed only slowly, the accounting (or shadow) prices used in production and investment decisions could and should be brought more rapidly into line with economic realities.

35. Investment Decisions. Although some decentralization of investment decisions to enterprises is a necessary concomitant of allowing more autonomy in production decisions, making retained profits the major source of enterprise investment funds would have serious disadvantages: current profits are an imperfect guide to the social returns on new investment, especially in China, where arbitrary prices generate an erratic pattern of profits. A possible alternative (especially for light industry and investments in modernization, product improvement and energy saving) may be to delegate a larger role to banks and investment companies, which could support the investment of communes and urban collectives, as well as channelling retained profits from state enterprises with low prospective internal rates of return toward better investment opportunities elsewhere.

36. Financial intermediaries, and indeed enterprises themselves, could and should appraise investment projects using shadow prices (established by central or local planners) for key inputs and outputs such as capital, labor, energy and cement. More generally, to increase the care with which investment projects are selected and implemented, charges for the use of capital should be extended, and the interest rate charged should be raised above that on long-term savings deposits. In addition, to combat the present tendency for localities and enterprises to enlarge their claims on central resources by starting as many projects as possible, such units should be made to bear a larger share of the costs from their own resources, and subjected to stiff financial penalties in the event of delays and cost overruns.

37. Especially in economic and social infrastructure and in heavy industry, most investment resources in China, as in many other countries, will continue to be centrally allocated. It is thus essential to improve the system of allocating investment funds, including the technical quality of project appraisal in the planning agencies. Without price reform, this will require extensive use of shadow pricing. It will also require better analysis of the interaction of major investment projects, which can be done only in the sort of medium-term planning framework that is currently lacking in China.

38. Foreign Trade. Institutional changes could contribute to securing the benefits of rapid export and import growth. Exporters, especially of

manufactures, should be given greater freedom to import materials and components where domestic substitutes are scarce or of poor quality; and administrative procedures should be streamlined. Most importantly, Chinese producers should be allowed to establish sustained and direct contact with (actual and potential) foreign buyers. Import allocation procedures also need reform, both to give economic criteria a greater role and to make the criteria in different sectors more uniform. (Imports of machinery and equipment should obviously also be based on better investment decisions.)

39. More generally, better choices are needed in all sectors between imports and domestic production, and between exports and domestic sales. In the longer run, individual producers and consumers should be given greater freedom to make export and import decisions - on the basis of rational prices. In the short to medium run, prior to price reform, the planners will also need to undertake cost-benefit analysis of foreign trade options using shadow prices. In both cases, it will be necessary to address the difficult issue of the appropriate relationship between domestic and world prices in a country of China's size.

40. Labor Allocation and Migration. The present system of allocating manpower and restricting population movement has important economic and social advantages, among which is the reduction of unemployment (and its attendant poverty) to very low levels. Thus any modifications should be gradual, selective, and carefully controlled. At the same time, it should be recognized that the present system also has important disadvantages, and that limited changes in it could be very beneficial.

41. First, the labor allocation system causes inefficiency in the use of manpower, the country's most valuable resource: thus the recently increased freedom for technical and skilled manpower to transfer from one organization to another should be extended. Second, most of the poorest people in China are in areas whose soil and water conditions are very adverse to agriculture, and whose remoteness gravely handicaps the development of commune industry. In some of these areas, natural obstacles to income growth are not insurmountable, but in many the high cost of development would make it cheaper (even taking the cost of urban or other infrastructure into account) to increase people's incomes by allowing some of them to move away, either to a city or to newly developed agricultural land.

Progress of Adjustment

42. 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 planned to reduce the share of investment in budget expenditures, and to spend more on housing, education, health, agriculture and light industry. Urban workers received promotions and bonuses which, in conjunction with employment creation, raised the wage bill between 1977 and 1980 by about 50%. Agricultural procurement prices were raised by an average of 36% between 1977 and 1980; this raise was only partly passed on to urban

consumers. Agriculture and light industry have been favored in the allocation of materials, fuel and power, credit and foreign exchange.

43. In important respects, as noted earlier, these measures achieved their objectives. In the three years from 1977 to 1980, in real terms, agricultural output rose by 22%, light industrial output by 44% (much more than heavy industry's 26%), and total net material product by 28%. Real consumption per capita increased between 1977 and 1979 by over 17%, with a considerable further increase between 1979 and 1980.

44. In other respects, the measures were less successful. The Government miscalculated their effects on the budget and on the balance between aggregate supply and demand, partly because it failed to achieve the planned reductions in investment (both within and outside the budget). There were large unplanned budget deficits in 1979 and 1980, coupled with strong inflationary pressure that was only partly suppressed by the price control system.

45. This led in early 1981 to an emphasis on further adjustment and economic stabilization. Price controls have been stiffened. On the demand side, the Government proposes to ease the pressure on resources by slashing state capital construction expenditure from around Y 50 billion in 1980 to Y30 billion in 1981. Efforts are also being made to ease some critical constraints on expansion of domestic production - most notably energy and agricultural raw materials for industry. Inputs in short supply are to be channelled to the most efficient plants, and the least efficient are to be closed down, while the cuts in industrial investment are to be focused not only on heavy industry (with the exception of energy and building materials), but also on projects that would aggravate existing shortages of energy and materials.

46. Although only limited information is available concerning the current financial situation and the Government's course of action, some of the proposed measures could have important disadvantages - even if it is accepted that the alternative of a temporary cutback in consumption would be politically infeasible. Thus, while substantial cuts in the existing investment program are badly needed (especially to increase the Government's room for economic maneuver in the medium term), a 40% reduction within a year may not be attainable. Even if attained, it could involve major costs in terms of the idling of resources and labor for which there is no immediate alternative use. In addition, since these cuts are apparently not being made in the context of an overall medium-term investment program, the costs in terms of future capacity constraints on production growth in particular sectors could be very great.

47. For these reasons, a less costly alternative (or at least a complement) to drastically cutting investment and restraining the output of useful commodities because certain inputs are in short supply might be to substantially increase imports of raw materials such as cotton, petroleum products, timber and metals. Larger imports of finished goods could also contribute to easing inflationary pressures. The Government is in fact apparently contemplating a modest rise in the trade deficit (through a reduction of export growth). But the large unused lines of foreign credit and negligible outstanding debt could permit a much more substantial short-term inflow of foreign resources. Such a purchase of (in effect) time for reform and adjustment could be well worth its cost in interest charges.

Reform, Adjustment and Planning

48. The current problems underscore the urgent need to restore and improve every aspect of economic policy making - short-term demand management, project appraisal, foreign trade strategy, medium-term investment planning, and the programming of system reform.

49. Reform versus Adjustment. In two respects, the recent reforms have made macroeconomic adjustment more difficult: greater freedom in price setting has made it harder to suppress inflation; and greater financial autonomy for production units and local governments has made it harder to achieve the desired reduction and redirection of investment. The Government's response has been to reimpose more central control of investment, public finance and prices.

50. But much of the apparent conflict between reform and adjustment is the result of trying to reform part of the economic system without addressing its other defects. Material incentives have been offered and greater autonomy given to peasants, workers and managers, while price reform - correction of the signals to which they are responding - has had to be much slower. Considerable funds have been put under the control of enterprises, communes, and local governments: but their use for socially desirable investment has been impeded by misleading price (and hence profitability) signals, by inadequate financial institutions, and by the absence of a national long-term plan.

51. Thus the appropriate response to the present problems may be increased attention to designing a balanced and integrated program of reforms for the next few years. This need not aim at more than a modest interim stage of reform. Nor need it imply that reform should be implemented quickly, which in fact seems inadvisable given the present structural imbalances, gross price distortions and weaknesses of financial institutions and instruments. But better account should be taken of the linkages between different aspects of reform, and of the need to progress on different fronts at a mutually consistent pace and in an appropriate sequence. It is also important to recognize that the current effort to regain central control of investment and prices could go too far: experience in both China and other countries suggests that the central planner is always "partially ignorant" and that attempts to plan everything directly and rigidly from above can result in gross inefficiency and sometimes even a breakdown of the system.

52. Finally, it should be emphasized that important complementarities exist between adjustment and reform. On the one hand, macroeconomic stabilization and improvement of structural balance would greatly facilitate the smooth implementation of reform. On the other hand, the increases in economic efficiency to be expected from reform could ease some difficult medium-term tradeoffs and choices. In addition, infrastructure projects apart, the reforms (including the devolution of some investment decisions to enterprises) should facilitate the matching of sectoral supplies and demands. More generally, a rigid system of central controls is much better suited to simple objectives, such as increasing steel or grain production, than to the new and more complex objective of raising living standards, which involves very many commodities and the subjective desires of innumerable households. Allowing consumer preferences to have a direct impact on enterprises' production decisions could thus make a major contribution to achieving the underlying purpose of adjustment.

53. Market versus Plan. The future of economic reform in China, however, does not lie simply in an expansion of the role of the market at the expense of the plan. Indeed, without more effective planning of macroeconomic variables and major investment decisions, many of the prospective benefits of reform will be lost.

54. The most fundamental need is for medium to long term economy-wide planning. Efforts to overcome immediate obstacles, without anticipating future obstacles, will lead to no more than a slow and uncertain advance toward long-term goals. It is thus necessary to make a plan that incorporates consistent and realistic decisions in several interrelated areas: balance between demand and supply, both in aggregate and in each sector, and allowing for exports and imports; balance between present and future consumption, as expressed in the aggregate investment rate; sectoral allocation of investment, taking account of indirect linkages between sectors; balance between public consumption (some of which is investment in human resources) and private consumption; and distribution of private consumption both between urban and rural households and between households at different income levels.

55. To draw up a plan of this kind, because it forces explicit choices, is always politically hard, but not technically too difficult. The principal technical (and indeed some of the political) problems arise in implementation, especially because of the size and unpredictability of the agricultural sector and the difficulty of forecasting other important variables. Part of the solution may lie in a "rolling" plan, that covers the coming five years but is annually or biennially revised in the light of actual developments. But what is chiefly necessary is to strengthen the planning process itself (both technically and politically), so that sound decisions can be quickly made and implemented when circumstances warrant a change in direction. This can be facilitated by close integration between the planning and budgetary processes.

56. Better planning, both economy-wide and sectoral, will require more and better training of planners, especially in modern empirical planning techniques. It will also require improvement of the statistical system. In addition to repairing past damage, there should be greater use of sample surveys, more information should be collected on costs and consumer expenditures, and relatively more resources should go into analyzing and presenting data in ways useful to economic planners. Wider dissemination of statistics could also contribute to constructive economic research and debate, and could help enterprises and communes to exercise their increased autonomy wisely.

Prospects and Options in the 1980s

57. The need for better planning is especially urgent because the Government's drive to improve living standards will in the coming decade be subject to a tight set of interlocking constraints. Some of these are of long standing - agricultural land, foreign exchange, trained manpower. Others are more recent - domestic energy production, and financial resources for new investments (which are being squeezed between the Government's desire to reduce the saving rate and the claims of an enormous existing investment

program). In many respects, however, the future looks promising: population growth is slow; better planning and system reform could substantially increase efficiency; and access to foreign markets, technology and capital is much improved. The challenge is therefore to harness this promise to ease the constraints on growth.

Population and Human Resources

58. Largely because it is already very low, the birth rate is likely from now on to fall only gradually. But if the vigorous birth planning campaign is continued, population growth from 1980 to 2000 can probably be maintained at its currently low level of 1.2% per year. This will ease pressure on foodgrain supplies; it will be associated with a decline in the relative size of the school-age population, which will permit improvements in the quality and coverage of education; and in the 1990s, it could cause the absolute size of the agricultural population to decline, which would widen the range of rural development options.

59. In the 1980s, however, the working-age population will continue to grow at nearly 2% per year. The need to provide a commensurate volume of additional productive employment makes relaxation of the constraints on growth more urgent, and reduction of the investment rate less attractive. In particular sectors, it might also conflict with the need to increase efficiency: but this problem could be eased by allocating most new entrants to faster growing sectors, by increased intersectoral labor mobility, by continued use of labor-intensive techniques in both agriculture and industry, and by focusing the drive for greater efficiency on energy, materials and capital.

60. In health and nutrition, the current level of achievements and fiscal constraints together dictate a selective approach in the next decade. Some general improvements in the health care system could be effected at low cost; but the most urgent need is to consolidate the gains that have already been made, and to extend some state support to commune and brigade-level health posts in the poorest rural areas (both for reasons of equity and to strengthen the birth planning program). In nutrition, efforts should likewise be concentrated on bringing the poorest groups closer to the average - partly through increasing their incomes.

61. In education, the highest priority is to repair the damage done by earlier neglect and political upheavals to the supply of high and middle-level technical manpower. In 1979, only 0.5% of the labor force had a higher education, and only 0.9% a technical or vocational education; the shortages are most conspicuous in accountancy, economics, statistics and management science. The current university enrollment rate is one quarter of the average for other developing countries, the technical and vocational school enrollment rate one half. Many teachers in advanced education are underqualified, the curricula are outdated, and scientific equipment is scarce.

62. The Government accordingly plans to substantially increase university enrollment by 1990, as well as to improve its quality. This should be supplemented by rapid expansion of the already impressively developed system of nonformal tertiary education, with emphasis on upgrading the managerial and

technical skills of those already working in agriculture, industry and indeed education itself. The Government also proposes major expansion of technical and vocational schools: but this will require improvements in curricula and in linkages with prospective employers, and will be slowed by a shortage of qualified teachers. Planned improvements in the quality of primary and secondary schooling are to some extent necessary for the expansion of advanced education. But both they and planned increases in primary and secondary enrollment will, for financial reasons, probably have to be stretched over a longer period than is currently envisaged. Moreover, the planned expansion of advanced education itself may not be financially viable unless advantage is taken of the substantial scope for cutting unit costs.

Agriculture

63. The problems facing agriculture in the 1980s are similar to those in the past. On the demand side, foodgrain production and food security will continue to require high priority, especially because the food intake of a substantial minority of the population remains barely adequate. But competition for land will be sharpened by the new emphasis on raising living standards, which will require relatively greater supplies of both higher quality foods and agricultural raw materials for light industry. Population will be growing more slowly; but this will be partly offset by a rise in the proportion of adults.

64. As regards supply, the amount of land per worker has shrunk, and some of the factors that have raised yields remarkably rapidly in the past are unlikely to help so much in the future. The rate of expansion of the irrigated area will be slower; there is less scope for switching from low-yielding to high-yielding crops; and tight energy supplies will limit the rate of increase in the use of chemical fertilizer and other agricultural chemicals. Moreover, although there is no shortage of machinery, there are only limited opportunities for using it to increase yields rather than displace labor (although the latter might be desirable where working hours are currently very long).

65. On the positive side, however, substantial gains will probably be realized through improved policies and management. Especially important is the Government's present emphasis on stronger incentives and more producer autonomy, on greater specialization of output mix in line with local comparative advantage, and on agricultural research. Similarly, the effectiveness (including the nutrient balance) of the large amounts of chemical fertilizer that are now being applied could be substantially improved through local fertilizer trials and soil analysis, while upgrading of older irrigation systems and drainage programs in areas of salinity could also significantly increase production. The scope for improving average yields in maize and other coarse grains seems considerable, while average wheat yields (considering that the crop is largely irrigated) are still moderate; and for most crops, average yields could be raised appreciably by advances in the technically more backward parts of the country.

66. Thus output of grain could grow in the 1980s at 2.0-2.5% per year. Even so, the foodgrain balance will remain precarious: with output growth at

2.3%, and imports maintained at their 1980 level, the margin for raising foodgrain consumption standards above their 1980 level in 1990 would be under 7%. Total agricultural output should grow somewhat faster, probably at around 3% p.a. - though this will depend on rapid expansion and modernization in the other sectors of the economy that provide agriculture with inputs and technical knowledge, as well as a dynamic source of demand.

67. With the rural population growing by at least 1.0% per year, this agricultural output growth rate would in itself imply continued slow growth of rural incomes. As in the past, however, much faster growth of commune and brigade enterprise output is likely to boost rural income growth by perhaps another percentage point - although growth in sectors where small-scale use of energy and raw materials is inefficient will (and should) be retarded by the emerging nationwide shortages of these inputs. In addition, also as in the past, some of the faster growth of urban labor productivity could (and should) be transferred to rural people by increasing the relative prices of agricultural products: this could indeed further stimulate agricultural production; but it will be limited by the need to increase urban real incomes and to avoid further strain on the budget.

68. Measures to increase agricultural efficiency, growth of commune industry, and even (since many of them are net purchasers of food) increased agricultural prices will do least for the poorest rural groups, whose relative incomes could decline. To counteract this, increased state support for poor areas is needed to promote the development of agriculture and nonagricultural activities, and to provide more food and better social services. This, like general increases in agricultural prices, could be financed in part by progressive taxation of agricultural income or land. In addition, the rural poor might benefit from long-term regional development plans: these could address the special problems of particular localities, focus money and manpower on them, and promote coordination between different government agencies.

Energy Production

69. The outlook for domestic energy production has recently deteriorated. Oil output peaked in 1979 at 106 million tons and is likely to fall to about 100 million tons in 1985, with little prospect of an increase in the latter half of the decade. To prevent an even larger decline, immediate steps should be taken to improve reservoir engineering in existing fields and the effectiveness of exploration. Coal output (which contributes about 70% of total commercial energy) also declined in 1980, to 620 million tons. Although this decline was partly the result of a deliberate diversion of resources to seam development, and although new mines are under construction, output (and/or coal transport capacity) is unlikely to exceed 730 million tons in 1985 and about 900 million tons in 1990, even if high priority is given to the sector.

70. Total primary energy production in the 1980s will thus not grow much faster than about 2.8% per year, with the growth rate in 1980-85 unlikely to exceed 2.2% - less than one quarter of the 1952-80 growth rate. Electricity production, given existing capacity and projects under way, cannot grow during 1980-85 at more than 4-5% p.a., around one third of the 1952-80 rate. In the

latter half of the 1980s, there is more room for maneuver, especially in electricity generation. But the energy sector is already absorbing over 40% of industrial investment; and the capital outlays that would be required in the first half of the decade to markedly accelerate the growth of energy output in the second half, even if feasible in terms of specialized manpower and equipment, would be so large as to crowd out vital investment in other sectors.

71. Prospects for economic growth in the 1980s thus depend critically on reducing energy use per unit of output. This is doubly important in the case of oil, whose availability for use as an industrial raw material will also fundamentally influence growth prospects. With only moderate energy saving (and limited switching from oil to coal) GDP growth in the 1980s could well be no more than 4.5% p.a. - as compared with 6% in the 1970s - and oil exports of 17 million tons in 1980 would turn into oil imports of 17 million tons by 1990. Even this, it should be emphasized, would imply an elasticity of energy consumption-to-GDP growth of 0.75, substantially smaller than in the past.

72. High energy saving and switching (oil consumption 15-16% lower, and coal consumption 12-13% lower, than with moderate savings) would substantially enlarge the range of options available. For example, with GDP growth of about 4.5% p.a., oil imports in 1990 could probably be avoided. Alternatively, GDP growth could be 5.5% with oil imports in 1990 of about 14 million tons.

Industrial Energy Conservation

73. Because agriculture, commerce, households and transport are lesser users of energy, with relatively limited scope for conservation and interfuel substitution, the outcome will turn mainly on what is achieved by industry (including the energy sector itself). Altering the balance between heavy and light industry in favor of the latter has already contributed to a significant reduction in energy use, and will continue to do so until the middle of the decade. Thereafter, heavy industry cannot grow much slower than light industry, since it produces most of the inputs (capital and current) for light industry, agriculture and the service sectors.

74. Of greater and more enduring importance, therefore, will be cuts in energy use, and substitution of coal for oil, within industrial subsectors. In this regard, not much can be expected from light industry, whose unit energy consumption (after an initial round of economies) may actually need to increase during modernization: the bulk of the large potential for energy saving is in heavy industry, which accounts for about 60% of national commercial energy use.

75. Substantial savings could be obtained at negligible cost by minor operational improvements. Further savings, and substitution of coal for oil, could be achieved at moderate cost by limited equipment and technology improvements, including the replacement of many industrial boilers. Beyond that, major changes in some processes are called for; and in certain industries (most notably metallurgy), it will be both desirable and feasible to eliminate most small plants.

76. These measures could very substantially reduce energy use per unit of industrial output, at a capital cost far less than that of achieving an equivalent increase in energy supply. But to accomplish this will require thorough advance planning in each of the major subsectors, and the integration of energy conservation with other aspects of industrial restructuring and modernization. It will also require reform of energy allocation procedures. And it would be greatly facilitated by changes in energy prices (especially a large rise in the price of fuel oil), in conjunction with further reforms to increase the incentive effect of prices on users.

Other Industrial Issues

77. Industrial expansion in the next few years may be constrained not only by energy, but also by raw materials, foreign exchange, and finance for new investments. But in a broader sense, and over the longer term, the performance of the industrial sector - in economizing on energy, materials and capital, in earning foreign exchange, and in technological innovation - will itself largely determine the extent to which the main constraints on economic growth can be eased.

78. Expansion of light industry is already being held back by shortages of raw materials - industrial (petrochemicals and appropriate metals) as well as agricultural. These could be eased by restructuring the metallurgical industry and expanding the petrochemical-based industries, while substituting coal for oil to supply the needed feedstock. But the domestic supply of agricultural raw materials and oil will remain tightly constrained. Increased imports are thus both necessary and desirable. The situation could also be improved by further reforms to give stronger financial incentives to economize on material use, by eliminating inefficient plants, and by shifts in industrial structure toward subsectors that are less raw material-intensive (most notably electronics).

79. Economy in the use of industrial capital will be essential if sustained rapid growth is to be reconciled with a reduced aggregate investment rate and higher investment in nonproductive sectors. As with energy, a significant reduction in the use of capital per unit of output can be expected from the shift in emphasis from heavy to light industry. But there will also need to be substantial reductions within subsectors, and in this regard exhortation and administrative regulations are likely to prove less effective than the sorts of reform measures discussed earlier.

80. Given the shortage of foreign exchange, and the knowledge to be gained from exposure to world markets, expansion of manufactured exports must have high priority. The outlook is promising, given the abundance of skilled low-wage labor and the enormous potential for economies of scale. At present, moreover, China's manufactured exports are roughly 3% of gross manufacturing output; growth at even 15% in the 1980s would raise this share to only 7% in 1990. Furthermore, China's share of total developing country exports of manufactures is currently less than 6%. But at present, three fifths of China's manufactured exports consist of products other than machinery or

equipment sold to developing countries or European socialist countries. To achieve rapid growth, China must therefore increase its currently very small share of the richer markets, especially in the OECD.

81. On this basis, the volume of China's manufactured exports could grow in the 1980s at a rate of about 10% p.a., and quite possibly 15%. In the latter case, the value of manufactured exports in 1990 (in the prices of that year) could be over \$60 billion. This would substantially increase China's import capacity, both directly and through easing debt-servicing constraints on external borrowing.

82. Achievement of rapid export growth is contingent on sustained expansion of world economic activity and trade, including no substantial increase in protectionism in the industrialized market economies. But it will also require appropriate policies in China. Various institutional changes (see para. 38) are needed if Chinese manufacturers are to compete successfully in world markets. In addition, improvements need to be made in the design of both consumer and capital goods, whose styling (and to a lesser extent, performance) tends to be deficient or unsatisfactory by international standards. This calls for direct measures to strengthen Chinese design capabilities, and for greater exposure of Chinese designers and manufacturers to foreign processes, products, tastes and requirements.

83. More generally, the updating of industrial technology can produce major gains in productivity and product quality, both in industry and in the other sectors that use its products. It is being actively pursued in most industrial subsectors. But it could be accelerated and made more cost effective by stronger incentives for innovation, and by improving the quality of decisions on whether, when and how to purchase technology from abroad. Progress in new and rapidly changing technological fields could be assisted also by establishing more enterprises and organizations that cut across the administrative boundaries between industrial ministries.

Foreign Borrowing Options

84. Despite a real increase of 40-50% between 1977 and 1980, China's exports - \$18 billion in 1980 - remain only 6-7% of GNP. In 1980, energy (mainly oil) accounted for about a quarter of the total, and manufactures for about two-fifths, the remainder being primary (mainly agricultural) products. Oil exports will almost certainly decline in volume, and could disappear by the end of the decade, while slow agricultural growth will restrict primary export expansion to at best 4-5% p.a. Thus manufactured exports will have a critical influence: if they grow at a moderate pace (10% p.a.), total foreign exchange earnings would expand in real terms by about 5% p.a. over the decade; if they grow fast (15% p.a.), total foreign exchange earnings could expand at more than 8% p.a. over the decade, even allowing for the faster growth of domestic oil consumption (and hence faster decline of oil exports) that would be necessary to maintain a high GDP growth rate.

85. The need for imports will be great. Even if energy conservation is successful, substantial imports of other raw materials will be required to maintain a rapid rate of industrial growth. Pressure to increase consumption

and constraints on agricultural production are unlikely to permit any reduction of food imports. And a well-chosen program of capital goods imports could make a major contribution to modernization and the easing of constraints on growth in many sectors.

86. Faced with these constraints and needs, the Government must decide how much to borrow (or raise by other means) abroad. The report analyzes two possible options: a moderate borrowing scenario, in which the net resource inflow (gross borrowing minus debt service payments) in 1980 prices rises from \$1.2 billion in 1980 to \$2.7 billion in 1990; and a high borrowing scenario, in which the net inflow reaches \$6.8 billion by 1990. These inflows, though large in absolute terms (especially when allowance is made for debt repayments and international inflation), are modest in relation to China's size and world capital flows. The level of debt outstanding in 1990 even in the high borrowing case is less than 6% of the World Bank's projection of the total debt of all developing countries in that year.

87. In deciding among these and similar borrowing options - whose attractiveness will and should be influenced by the terms on which foreign capital is available - the Government must consider the need to keep the ratio of debt service payments to foreign exchange earnings low enough to maintain the confidence of lenders and thus avoid refinancing crises. Several illustrative cases are considered in the report. With moderate borrowing, even if the terms were on average rather hard, moderate export growth would cause the debt service ratio to be about 10% in 1995. With high borrowing on the same hard terms, and only moderate export growth, the debt service ratio would rise to 24% by 1995; but high export growth could reduce it to 14% (and in conjunction with somewhat softer terms, to 10%). These projections all assume that energy conservation is highly successful; if it were not, China's ability to service external debt would be reduced, both because foreign exchange earnings would be less and because a higher proportion of foreign exchange earnings would be preempted by essential imports such as oil and grain.

88. Provided that the debt service ratio can be kept within manageable bounds, the Government's borrowing decisions should depend on the value of the additional resources obtained in relation to the real cost of borrowing. In the long term, this is essentially a matter of comparing the marginal real return on domestic investment with the expected real rate of interest on external debt. But in short and medium term situations of disequilibrium and adjustment, such as China is currently experiencing, it may also be necessary to take account of (a) the social or political utility of additional present consumption, if this (temporarily) exceeds the value of marginal investments, (b) the prospective benefits from fuller use of installed capacity, where this would otherwise be constrained by the availability of fuel, materials and spare parts, and (c) the damping effects of increased imports on domestic inflation. All these considerations (as mentioned earlier - para. 47) suggest the desirability of some external borrowing specifically to ease the transitional difficulties of the next few years.

89. Within the past year, the government has addressed the relationship between the cost of foreign borrowing and the returns to investment, and has postponed or cancelled import contracts for several large investment projects - some of which were extraordinarily ill prepared, even in engineering terms.

These cancellations have caused problems with potential suppliers, and financial penalties may have to be paid. Nonetheless, the apparently difficult decisions to cancel ill-prepared projects indicate that the management of foreign trade and capital may in future be based on economic considerations - a change that should be welcomed by potential exporters and lenders to China.

90. Looking further ahead, some key determinants of the optimal level of China's foreign borrowing, including the rate of growth of manufactured exports and the efficiency with which capital and energy are used, ultimately depend on reform of the economic system and improvement of economic management. But foreign borrowing could itself contribute significantly to the greater efficiency that is needed to accelerate growth.

Overview

91. China's options for the 1980s are constrained from several directions. But the Government has room for maneuver in two general areas. The first concerns the choice (via investment decisions) between present and future consumption. The second concerns the improvement of efficiency, especially in the use of energy, materials and capital, through better policies and planning, system reform, and exploitation of opportunities for foreign trade, borrowing and technology transfer.

92. The success of policies in the second area will substantially affect the Government's freedom of action in the first area. Using capital more efficiently, for example, would ease the tradeoff between present and future consumption. Energy and material conservation would likewise reduce the amount of foreign borrowing needed to attain any given growth rate. And faster growth would enable more help to be given to the poor without a slower increase in the living standards of other groups.

93. The actual outcome will of course depend not only on the Government's choices and policies, but also on unpredictable factors such as weather, success in oil prospecting, growth of overseas markets, and the availability of foreign capital on concessionary terms. But the range over which the Government's actions could affect the outcome is illustrated in the report by two tentative and informal scenarios, each of which may be thought of as corresponding to a particular set of policy choices in the areas discussed earlier. In the first (Moderate) case, agricultural policy, energy conservation and other measures to increase efficiency are only moderately successful, and exports and foreign borrowing expand at only a moderate pace. In the second (High) case, agricultural policy and measures to use energy, materials and capital more efficiently are much more successful, and manufactured exports and foreign borrowing expand rapidly.

94. The projected differences between these two cases in terms of output growth are considerable (although both compare quite favorably with the projected growth of other low-income countries). In the first half of the decade, in the Moderate case, the aggregate growth rate would be about 4% p.a., while in the High case it would be 5%. In neither case, however, is the rate as high as that attained in the 1970s, when energy and foreign exchange constraints were less pressing. In the second half of the decade, when these constraints should have eased somewhat, the growth rate in the Moderate case is 5% p.a., while in the High case, at 6%, it equals the rate achieved in the 1970s.

95. Future output growth is of course dependent upon investment. In the projections, in both cases, it has been assumed that the 1980 investment rate is on average more or less maintained throughout the decade, with the necessary cuts in the inherited investment program being offset by increases in new investment. But, despite the urgent need for investment in economic and social infrastructure, as well as for directly productive investment in industry (especially in restructuring and energy conservation), agriculture and services, it might be possible to maintain a lower investment rate. Such a reduction would have little effect on output growth in the first half of the decade. But it could reduce the growth rate in the late 1980s; and if the investment reduction were focused on infrastructure, the adverse effect on the growth rate would be even larger in the 1990s.

96. Clearly, the Government's choice of an investment rate in the 1980s should be determined by the priority it attaches to present as compared with future consumption (though the scope of this choice is constricted by the difficulty of increasing the volume of consumer goods available - either from domestic production or from imports). But, given any particular investment rate, the Government's desire to raise living standards will of course favor the various efficiency-increasing measures that underly the High case. On average over the decade, growth of per capita consumption in the Moderate case is below the rate achieved in the 1970s - though above the 1957-79 trend growth rate. In the High case, with significantly faster growth also of investment, per capita consumption growth in the 1980s averages 4.4%, which is above the rate of growth in the 1970s and more than double the 1957-79 trend.

97. Similarly, the Government's concern for the rural poor may be expected to favor the sorts of measures that underly the High case. With appropriate safeguards, especially as regards employment and consumer prices, and maintenance of the existing food security and social service framework, measures to increase efficiency are unlikely to reduce the real incomes of poor people in absolute terms. They might tend to increase relative inequality; but even this could be offset by well-designed anti-poverty policies; and the resources available to implement such policies would clearly be increased by greater efficiency in production and investment.

98. For China, as for other developing countries, the 1980s will be a difficult period, 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 very favorable. The already low population growth rate will slowly decline (probably to under 1% p.a. by 2000), easing the pressure on agricultural land. By 1990, the great majority of 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, while continuation of recent export trends would provide a foreign exchange-earning base large enough to permit greater confidence (and less concern about terms) in the use of foreign capital. Thus if the country's immense wealth of human talent, effort and discipline can be combined with policies that increase the efficiency with which all resources are used, China will be able, within a generation or so, to achieve a tremendous increase in the living standards of its people.

1. THE CHINESE INHERITANCE

A. Introduction

1.01 This report represents the first attempt by World Bank staff to study the economic development of the People's Republic of China. The resources devoted to this task, though large relative to the Bank's efforts in other countries, have clearly been very modest in view of the enormous scale and complexity of the task of studying an economy such as China's. Moreover, China today is in the midst of a re-examination of its development priorities and strategy. Even for economists in China, an accurate appraisal of the country's economic performance over the past three decades is still difficult, partly because major gaps remain in the available statistics, especially between the late 1950s and the mid-1970s, and partly because the impact of economic factors is difficult to disentangle from that of political and other factors.

1.02 For these reasons, the report should be seen only as an initial step in gaining a better understanding of China's economic problems and prospects. As an introductory report, it attempts to be as comprehensive as possible and to compare, to the extent feasible, the economic situation and level of development of China with those of other Bank member countries.

1.03 The report comprises a main report and nine annexes. For readers unfamiliar with the country, this first chapter of the main report very briefly outlines China's physical setting, main historical developments and economic heritage, and the situation up to the revolution in 1949.^{/1} The rest of the main report is primarily concerned with the development of China's economy after the early 1950s, when rehabilitation was largely complete and the basic framework of the new economic system had been established. Chapter 2 describes the main features of China's economic system, while Chapters 3 and 4 review the performance of the economy, beginning with the achievements in income growth and poverty reduction, and ending with a more detailed discussion of sectoral development and problems. The final two chapters analyze major development issues, Chapter 5 examining issues relating to the Government's current attempt to reform the economic system and adjust the structure of the economy, while Chapter 6 examines prospects and options for development in the 1980s.

^{/1} The historical review in particular is drawn from a number of sources (mostly the work of foreign scholars), some of which are listed at the end of this chapter.

1.04 Annex A provides a review of China's statistical system, including a brief description of the concepts and methodology used. Annex B contains basic statistical tables. Details of sectoral developments and issues are contained in seven Annexes. Annex C provides an analysis of developments in agriculture, including progress in output, technology and rural income, and of the evolution of major policies and institutions, as well as a discussion of current problems and future prospects. Annex D examines China's achievements in industry, outlines the organization and structure of the sector, and discusses current constraints on industrial progress. Annex E contains a brief survey of the energy sector, including descriptions of the coal, petroleum and electric power industries, and discussion of possible problem areas. Annex F describes progress in developing the transport sector and examines issues in its future development. Annex G describes the institutional framework of the external sector and examines the past trends and patterns of foreign trade and capital flows, and their future prospects. Annex H describes the policies and achievements in population control and health improvement. Annex I describes and analyzes education and training in formal and nonformal institutions, and reviews the Government's plans for education in the context of several major issues.

B. The Physical Setting

1.05 China occupies a central geographical position in continental Asia, bordering on virtually all the mainland nations of Asia except those of the Middle East. By land area, China, with 9.6 million square kilometers, is the third largest country in the world, being nearly half the size of the USSR and only slightly smaller than Canada. Northern China suffers from severe cold in the winter while southern China lies in the semitropical and tropical zones, with many provinces lashed by tropical typhoons in the summer. Unlike most other low-income developing countries, most of China is in the temperate zone, though its main population centers are farther south than those of, say, the United States or Western Europe.

1.06 China's large latitudinal span, combined with a complex topography, causes large variations in climatic conditions and thus agricultural potential among the different regions of the country. In fact, more than half of China's land area is accounted for by the largely desolate Qinghai-Tibet plateau, which covers an area of 2.2 million sq km and averages 4,000 meters above sea level, the Yunnan-Guizhou plateaus, and the steppe country and desert of Xinjiang and Nei Monggol (Inner Mongolia). Except for isolated valleys in the highlands of Xizang and a few oases in the deserts, these areas can only support marginal economic activities; they are thus sparsely populated, mostly by minority nationalities whose language and culture are very different from those of the Han nationality who mainly live in the rest of China. Indeed, if China is roughly halved along longitude 103° E (which runs through eastern Sichuan), over 90% of the population is located in the eastern half.

1.07 The eastern half of China is further divided by the Kunlun-Qinling chain of mountains, which runs west to east, at a latitude of approximately 35° N. This mountain range separates the tropical maritime air and monsoon

climate of southern China from the polar continental air and dry climate of northern China; thus it divides eastern China into two distinct parts, identified in the following description as the North and the South. The North is characterized by cold winters and hot summers, occasional snow and a 4-6 month growing season, while the South has cool winters, hot humid summers, little frost and a 9-12 month frost-free growing season. Rainfall is limited in the North (40-90 cm a year) and highly variable, while in the South rainfall amounts to 100-200 cm and is much more dependable.

1.08 The contrast between the North and the South extends also to the rivers dominating the two regions. The Huang He (Yellow River) in the North scours its way through easily eroded loess formations in its upper reaches and is silt laden in its lower course, carrying an estimated six times more sediment than either the Ganges or the Mississippi. Over the centuries the deposition of this silt has raised the river bed, so that in the last 800 km of its course to the sea, the Huang He flows either level with or above the surface of the surrounding plain. Thus flooding is only controlled through extensive dike work, navigation is limited by sandbars, and the heavy silt content of the water impedes any attempt to use it for irrigation. In contrast, the Chang Jiang (Yangtze River) still cuts through deep gorges for much of its length, but below these is by far the most important waterway in the country, linking the interior with the maritime routes of the Pacific. Thus the North historically has been poorer and often suffered from disastrous droughts and floods, with intensive water control intended primarily to alleviate the dangers of flooding, while the irrigated rice farming of the South is comparatively free of natural disasters. Even today, there is little double cropping in the North, while the cropping intensity is about 2 in nearly all southern provinces.

1.09 Even ignoring the vast but sparsely populated areas of Xinjiang and Xizang, the rest of China can usefully be considered as comprising several distinct economic regions, each of which would in other circumstances be among the largest economies in the world today.^{/1} Starting in the extreme north, Northeast China ^{/2} is largely a lowland plain roughly the size of France and the two Germanys combined. The land/population ratio is much more favorable than in the rest of eastern China, because the Manchu rulers of the Qing dynasty prohibited migration into the area, their traditional homeland, until the late nineteenth century and large-scale migration did not take place until the first third of this century. With a total population today of nearly 100 million, the region's average rural income is higher than that of any other region of China and is nearly 40% above the level for the country as a whole.^{/3}

^{/1} More detailed description of the different agricultural zones of China is contained in Annex C, Chapter 1. (Also see Map IBRD 15837R1, located at the end of Volume I.)

^{/2} Comprising Liaoning, Jilin and Heilongjiang. (Also see Map IBRD 15528R2, located at the end of Volume I.)

^{/3} Estimates of relative rural per capita income by region presented in this section are based on provincial per capita distributed collective income figures given in Annex B, Table 6.11.

This region also has the highest urbanization rate; it forms a heavy industrial base for China, with vast, though low quality, deposits of coal and iron ore. The Daqing oil field in the north currently produces about half of China's crude oil output.

1.10 The main geographical feature of the northwestern portion of northern China is the Loess Plateau,^{/1} an area of about 300,000 sq km where the original landscape has been completely covered by hundreds of feet of yellow wind-laid silt known as loess. Rainfall in the area is marginal for effective agriculture, and this original home of Chinese civilization has become an economic backwater. The Loess Plateau, with a total population of more than 24 million, is one of the poorest areas of China; more than half the rural population here receive an income that is about half the national average. Some of China's richest coal reserves are in this region, however.

1.11 East of the Loess Plateau is the North China Plain,^{/2} the delta land of the Huang He and the largest single agricultural area in China. With an area of half a million sq km, or 5% of all China, and a population of somewhat over 200 million, this is one of the most densely populated areas in the country and, indeed, the world. Both soil and climate lend themselves to dry farming of wheat, millet, sorghum, corn, soybeans and cotton, but millions of people continue to live under the threat of flood. The average rural income is slightly lower than that for China as a whole, with higher income in the rural peripheries of the Beijing and Tianjin municipalities offsetting the generally low income of the region.

1.12 In central China, in the upper reaches of the Chang Jiang, is Sichuan, which consists largely of a basin of nearly 200,000 sq km at an elevation of 300-900 meters that is surrounded on all sides by mountains, with those in the south low enough to let in the maritime air flowing inland in the summer, and those in the north high enough to stop winter winds from Siberia. Rainfall is high, averaging 100 cm a year, and the fertile soil and favorable climate have supported a highly productive agriculture and one of the most densely settled populations of China, currently close to 100 million people. Largely because of the density of the population, average rural income is about one fifth below the national average. The province also contains the two important cities of Chengdu and Chongqing.

1.13 East of Sichuan, rivers and lakes are the dominant physical and economic features of the low-lying middle reaches of the Chang Jiang.^{/3} This is one of the most intensely developed farming and fishing areas, with a total population of about 120 million. The average rural income is relatively high, at somewhat over 10% above the national average. Wuhan, the main city, is the industrial and communications center of central China.

^{/1} Covering parts of Gansu, Qinghai, Ningxia, Shaanxi, Shanxi and Nei Monggol.

^{/2} Comprising Hebei, Henan and Shandong, and including the municipalities of Tianjin (Tientsin) and Beijing (Peking).

^{/3} Roughly Hubei, Hunan and Jiangxi.

1.14 Even more productive is the Chang Jiang delta,^{/1} which contains China's largest city, Shanghai, and has a total population of about 140 million, including 6 million in the inner city of Shanghai. The rural population in the periphery of Shanghai enjoys a per capita income more than twice the national average; average rural income in the region as a whole is second only to that in the less densely populated region of Northeast China (though part of Anhui is poor). The dominant crop is rice, but cotton and wheat, as well as vegetables, fruits and milk, are also important rural products. The industrial sector is highly developed, not only in Shanghai and the urban areas, but also in many of the rural areas, which are the most industrialized in China. Industries and other nonagricultural activities account for half of the incomes of a significant proportion of the rural population.

1.15 The topography of China south of the Chang Jiang valley,^{/2} including the plateau area of Yunnan-Guizhou, and the southeastern coastal provinces, is mostly upland, with mountains, steep hills and dissected plateaus comprising over 80% of the land area. Economic activity and population, which totaled nearly 180 million in 1979, are concentrated in the numerous river valleys and on small flood plains, the largest of which is formed by the Zhu Jiang (Pearl River) delta, which contains the city of Guangzhou (Canton) and extends out to Hong Kong. The climate in most of this region is tropical or semitropical, and the southern part of Yunnan, together with Hainan island, is the only significant area for tree crops in China. Rural income is relatively high in the fertile valleys and deltas, but the average for the region as a whole is about a fifth below the national average. Guizhou, which is mountainous and has only small areas of level ground, is, in fact, probably the poorest of all provinces of China.^{/3}

1.16 More generally, despite the vast land area of China, population and economic activity are concentrated in the much more limited area of the great plains, the valleys of the mountains and hills, and the river deltas. In fact, the total cultivated area of about 100 million hectares is only 11% of the total land area and amounts to only 0.12 ha per capita of the agricultural population, a very low figure by international standards (Table 1.1). But yields per hectare are high enough to provide 97% of the country's food supply. This phenomenon of intense population density and highly productive agriculture is a heritage of the more than 4,000 years of Chinese civilization.

^{/1} Comprising roughly Anhui, Jiangsu and Zhejiang, and the municipality of Shanghai.

^{/2} Which includes Yunnan, Guizhou and Guangxi in the southwest and Fujian and Guangdong in the coastal south.

^{/3} Data for Taiwan are not included in this report.

Table 1.1: CULTIVATED AREA PER CAPITA OF THE
AGRICULTURAL POPULATION, 1978
(ha)

Japan	0.25
Netherlands	0.78
Egypt	0.15
Republic of Korea	0.14
Indonesia	0.16
Bangladesh	0.15
India	0.42
China (1979)	0.12

Sources: For China, Annex B, Tables 1.4 and 6.1; for the other countries, FAO, Production Yearbook, vol. 33, 1979.

C. Historical Development

1.17 The outstanding features of Chinese civilization are its age and its continuity. China has one of the world's oldest civilizations, with a starting date comparable to those of Mesopotamia and Egypt, and has about 4,000 years of written history. Unlike the world of the Middle East, the Mediterranean and Western Europe, China has had no great interruption to the continuity of its history and civilization over the past 2,000 years, and there has never been any internal division so complete and long lasting as those between the nation-states of Europe. Reflecting the historical continuity of its civilization, China today is remarkably homogeneous in language, culture and tradition. The Han people, who have a common written language though several distinct dialects, make up approximately 94% of the total population, while 55 other nationalities account for the remaining 6%.

1.18 From the valleys along the middle course of the Huang He, where the earliest Chinese developed the techniques of settled dry-field farming and the art of writing, Chinese culture spread first eastward towards the North China Plain and later towards the Chang Jiang basin in the south. Bronze melting and casting reached a fairly high level, but by about 500 B.C. bronze craftsmanship was gradually replaced by iron smelting, and farm tools such as axes and hoes were made with the new metal. Plowing with oxen was introduced and cultivated land extended. During the third century B.C. the first centralized Chinese state was established when feuding local kingdoms comprising various nationalities were unified under Qin Shihuang, the first emperor of the Qin dynasty. Although the Qin empire did not last long, the Han dynasty succeeding it maintained the unity of China for 400 years, until 220 A.D. Under the Han dynasty, iron smelting, silk weaving and other handicrafts expanded; many irrigation projects were put into operation; commerce and foreign trade developed; a number of important cities were established; and significant

advances were made in astronomy, medicine and paper making. A succession of dynasties marked the four centuries following the Han dynasty. In the north, minority nationalities drove as far south as the Huang He valley and, following repeated wars, settled and gradually became integrated. During this period China's population began to shift from the north to the south (a process that was not reversed until the thirteenth century), thus providing the major stimulus to the economic development of the south.

1.19 In the seventh century, China was reunited under the Tang dynasty, which was succeeded by the Sung dynasty 300 years later. The more than six centuries of the Tang and Sung dynasties, covering roughly the period 600 to 1300 A.D., undoubtedly formed the most creative period of Chinese civilization in art, literature and science, as well as in economic technology. One of the achievements of this time was its algebra, which included a general technique for solving numerical equations containing any power of a single unknown, and the preliminary steps towards a theory of determinants. Anatomical knowledge increased in precision through the use of dissection, and pharmaceutical knowledge grew in scope and systematization. A well-known practical achievement of this period was the conversion of gunpowder from a material for fireworks into a true explosive. The art of printing, invented in the ninth century, helped to create the foundation for a nationwide community of scientific discourse. This was also a period of technologically creative economic growth, the underlying driving force being the transfer of techniques developed in ancient northern China into the resource frontier area south of the Chang Jiang. There were also notable technological changes in farming, especially as regards seed types, water management and local specialization. Economic transformation resulted in an integrated transport network of inland waterways, monetization of the rural economy, formation of local marketing networks, and a notable degree of urbanization in the most advanced areas. From the tenth to the thirteenth century, China advanced to the threshold of a systematic experimental investigation of nature; in armaments, to the technique of mass production; and in textiles, to the creation of the world's earliest mechanized industry. During this period, there is little doubt that China's was the world's most literate and numerate society and its economy the most advanced.

1.20 The existence in late Sung China of some of the essential concepts of the industrial revolution, namely reproducing the actions of the human hand by machine and operating multiples of such mechanical units simultaneously from a single power source, turned out, however, to be a seed that failed to germinate. Early in the twelfth century nomadic nationalities in the north forced the Sung dynasty to move its capital south of the Chang Jiang. Towards the end of the thirteenth century, the Mongols under Kublai Khan finally placed all China under their rule. About a century later, in 1368, the Han people established the Ming dynasty, which lasted until 1645, when the Qing dynasty of the Manchus succeeded it. In the next two and a half centuries, China was ruled by people of a less developed civilization, whose efforts to maintain political control probably stifled further development of Chinese civilization. Indeed, when European contacts with China intensified during the middle of the nineteenth century, the Qing dynasty was already in a state of decline and in the hundred years that followed, Chinese history was marked by peasant uprisings, civil war, foreign aggression and foreign domination over much of its territory. In 1911 the revolution led by Sun Yat-sen overthrew

the Qing dynasty and founded, in 1912, the Republic of China. The following decades were marked, however, by the war of resistance against the Japanese and by nearly continuous civil wars which did not end until the founding of the People's Republic on October 1, 1949.

1.21 The economy of China grew substantially between the fourteenth and twentieth centuries, especially during the sixteenth and eighteenth centuries. However, two features distinguish this growth from that of the earlier Sung and Tang dynasties, and from the modern economic growth in the West following the industrial revolution and in post-Meiji Japan.

1.22 First, in China since the fourteenth century, the level of technological change was in no way comparable to that of the industrial revolution in the West, of the technically derivative growth in nineteenth and twentieth century Japan, or indeed of the economic revolution in Tang and Sung China. Economic growth in the five centuries before the Opium War with the British (mid-nineteenth century), which resulted in the forced opening of China to the West, was accompanied by few major changes in technology. It was largely the result of spatial expansion, intensified use of labor on the farm, and more specialization based on commercialization. Specific sources of growth were the extension of the domestic market into remote parts of the country; a long period of internal stability soon after the establishment of the Qing dynasty; and the introduction of new crops from the Americas such as maize, peanuts, potatoes and tobacco, most of which could be grown on poorer quality soils. Thus economic growth was characterized by an increasingly complete exploitation of available land resources without large discontinuous change in technology.

1.23 Second, economic growth was accompanied by a substantial growth of population, which, although the evidence is inconclusive, probably prevented a long-term rise in per capita income, and possibly caused it to fall. The Chinese population, which in the more than a thousand years before the Ming dynasty had apparently fluctuated around 60-80 million, as periods of growth alternated with periods of population decline (caused by war, civil disturbances and natural calamities), grew rapidly by premodern standards after the fourteenth century, reaching nearly 600 million by the middle of the twentieth century. This growth was mainly the result of the prolonged periods of peace and order between the early years of the Ming dynasty and the early nineteenth century. The date at which rapid growth began is not known with any degree of certainty, but current estimates put the total at 60-80 million in about 1400 A.D., and somewhat over 400 million in the middle of the nineteenth century, immediately before the Taiping revolution. Thus the long-term average growth rate was about 0.4% a year in the 450 years before 1850 and about 0.3% a year in the following hundred years, with especially rapid growth in the eighteenth century.

D. Implications of China's Economic Heritage /1

Constraints of Prior Achievements

1.24 The reason for China's failure to initiate modern economic growth before the middle of the twentieth century, either through a technological revolution of its own or through the effective use of foreign technology, must lie partly in China's own prior achievements. A long period of peace and internal stability had allowed the population to expand to the point where pressure on available resources was increasingly acute. The continuous improvement of traditional techniques had pushed the economic technology prevailing in most of the country to a level beyond which further progress was not possible without a fundamental breakthrough into mechanized, large-scale industry. Exploitation of available resources was almost total and the return to investment under traditional technology was low and probably falling.

1.25 The phenomenon of a high level of premodern development imposing severe constraints on further growth is nowhere more evident than in the agricultural economy of China. The growth of the Chinese population after the fourteenth century was apparently not matched by a corresponding expansion of the cultivated area.^{/2} By the nineteenth century at the latest, virtually all arable areas in inner China were being farmed, and even with the expansion of farming into the northeast and other border provinces in the twentieth century, the total area of farmland grew more slowly than population. Thus the situation of falling farm sizes in the main populated areas and acute pressure for expansion into less fertile and upland areas, which has characterized agricultural development in some African and most Southeast Asian countries only in recent years, was already being experienced in China centuries ago. Intensive farming, moreover, created a remarkably high level of land productivity by premodern standards. Over many centuries, the significant investment of labor in altering the land by terracing, irrigation and drainage - and the careful use of human and animal manure to continuously replenish the soil's fertility - had made possible, perhaps from as early as the seventeenth century, an output of 2.3 tons of paddy rice per ha, an achievement that compares, for instance, with the 1970s yield of 1.7-1.9 tons in India, Bangladesh, Thailand, and the Philippines. As in most developing economies, however, traditional agriculture in China had reached equilibrium at a very low level

^{/1} This section concentrates mostly on technological factors, though these only partly explain China's failure to modernize in the nineteenth and early twentieth centuries. Political and social factors may well have been more important. But the brief review below aims to help the reader in understanding the fundamental economic constraints under which China's economy has been developing over the past three decades. To this end, it has largely ignored political and social factors removed by the 1949 revolution, or soon thereafter.

^{/2} A Western study estimates the fall in the cultivated area per person between 1400 and the latter part of the nineteenth century as 20-40%. (D.H. Perkins, Agricultural Development in China, 1368-1968, Edinburgh University Press, 1969, pp. 216-240.)

of per capita output. To a greater extent than in probably any other country, the advanced and sophisticated farm practices in China meant that continued growth of farm output would be increasingly difficult to achieve within the framework of traditional technology. Perhaps more than any other single factor, the increasing difficulty of feeding a growing population has continued to shape the course of China's economic development and limit the choice of policies since 1949.

Comparison with Pre-industrial Europe and Japan

1.26 By about 1800, most of Europe was technologically ahead of China and the gap widened sharply in the following 150 years. Japan's economy was at a roughly comparable stage of development to China's by about 1850, but over the next hundred years, it too left China far behind. By the middle of the twentieth century, China and India, another advanced society that failed to modernize economically, were among the poorest countries of the world. Why this happened is clearly extremely complex; but a few factors can be identified that may explain in part China's inability to develop in the same way as Europe and Japan.

1.27 China's huge size and its legacy of political and cultural unity have both favorable and unfavorable implications for modern economic growth. The tradition of unity and cohesion undoubtedly facilitated the mobilization of the population for the pursuit of national goals; the PRC's success over the past 30 years in mobilizing the masses for development seems hardly possible without this tradition. The legacy of a highly organized economy also makes possible the complex form of economic management and centralized control that exists in China today. The literary tradition of Chinese society endowed the country with a large number of skilled people experienced in managing complex organizations. In all these respects, China in the middle of the twentieth century was much better endowed than most developing countries.

1.28 A comparison of pre-industrial Europe with China suggests, however, that it may have been the diversity of Europe rather than the homogeneity of China that was conducive to industrialization and modern economic growth. The pluralistic institutional structure of Europe stimulated dynamic and individualistic innovation as well as the introduction and diffusion of new technologies and ideas to an extent unknown in China for centuries. Even the centralized feudalism of Tokugawa Japan permitted a considerable degree of local autonomy. In contrast, the political condition of Qing China, with a vast population of a superior civilization ruled by a minority group (Manchus), apparently resulted in an overwhelming preoccupation with control at the expense of efficiency, and intellectual rigidity and homogeneity of thought as the price of stability. Indeed, Chinese leaders over the past few centuries have been confronted with a recurring dilemma: effective control and the preservation of unity seem to require strong restraint on independent centers of initiative in thought and economic action, but economic progress demands the mobilization of popular enthusiasms, energies and talents. The conflicting needs for centralized control and for local initiative and enthusiasm have proved difficult to balance.

1.29 In the middle of the nineteenth century, China and Japan were both highly productive irrigated rice economies operating in a situation of high population density on cultivated land, with probably about the same level of per capita income, although literacy was probably even higher in Japan.^{/1} In the following century the state in Japan played a crucial role in the country's first steps towards technical modernization and the creation of modern transport infrastructure, and was a major factor in initiating a sustained period of economic growth. In contrast, modern economic growth was not initiated on a wide scale in China partly because of the succession of weak and incompetent governments, whose problems were seriously exacerbated by foreign aggressions. Only after 1949 was the Chinese Government able to assume an effective development role.

1.30 Moreover, China's cultural unity and strength, its long history of technological superiority to all foreigners, and its geography (as a subcontinent) created a resistance to foreign ideas and institutions, which contrasted with Japan's historical practice of borrowing technology from abroad. In the late fourteenth century, for instance, a ban was imposed on all nonofficial overseas trade and Chinese of commoner status were forbidden to use foreign goods. Early in the fifteenth century, a ban was also imposed on coastal shipping; shortly afterwards the navy had deteriorated, though for a time it had been the best in the world. Although the pattern of repression and toleration of foreign trade varied over time, with periods of active maritime incursions into south and southeast Asia, government policy was a major reason why China did not develop a long-distance, ocean-going fleet to parallel those of the Europeans. During the Qing dynasty, for instance, foreign contact was viewed by the rulers as a possible source of political disruption. Thus, while the stimulus of world exploration played a major role in the process of economic change in pre-industrial Europe, and the effective absorption of foreign technology launched modern economic growth in both late Tzarist Russia and Meiji Japan, a predominantly inward orientation characterized the economy of China.

E. Economic Situation Before 1949

1.31 In the early twentieth century, despite the high level of land productivity, extreme poverty - associated with a precarious balance of land and population, and with a sizeable group of landless and near landless peasantry - was characteristic of many areas of China. Absentee landlords and rich farmers, accounting for only 12% of the landholding population, owned almost half of the total cultivated area in the 1930s, while about 60% of the population owned only 24%, with an average farm size of 0.42 ha. Quite minor

^{/1} In the 1930s, about half of all males in China over seven years of age had received at least four years of formal education, but very few females had. The overall literacy rate was about 20%.

aberrations in weather (flood, drought) could upset the food balance and plunge vast numbers of peasants into near starvation./1

1.32 During the first half of the twentieth century, the rural sector accounted for three quarters of the population, had an agricultural product that constituted two thirds of the economy's net output, and was also engaged in handicrafts, trade and traditional transport. Within agriculture, the pattern of land use, reflecting the acute population pressure, had developed through the centuries to yield maximum calorific value per unit of land. About 90% of farmland was in crops, close to 70% of this in grains. There was little room for pasture and for raising livestock other than scavenger animals such as ducks and pigs, and meat formed a very small part of the diet. A complex hierarchy of regional, intermediate and local, mostly periodic, markets existed, but transactions were mostly of a local character, with long-distance trade largely limited to higher value, luxury goods. Water transport along the coasts and the inland network of rivers and canals, especially in the south, permitted a high level of commercialization wherever they reached, dating back to as early as the Ming dynasty. But the high cost of traditional land transport and the relative self-sufficiency in basic grains of much of rural China, as well as inadequate commercial institutions, limited commerce in most parts of the country to a large number of horizontally independent cells.

1.33 Although modern industrial development was not insignificant before 1949, its contribution was very small relative to the vast size of the economy and development was confined largely to a few geographical areas. In the

/1 Writing in 1931, the historian R.H. Tawney described the situation then as follows:

"It is difficult to resist the conclusion that a large proportion of Chinese peasants are constantly on the brink of actual destitution. They are, so to say, a propertied proletariat, which is saved - when it is saved - partly by its own admirable ingenuity and fortitude, partly by the communism of the Chinese family, partly by reducing its consumption of necessaries and thus using up its physical capital ...

"It is true, however, that, over a large area of China, the rural population suffers horribly through the insecurity of life and property. It is taxed by one ruffian who calls himself a general, by another, by a third, and, when it has bought them off, still owes taxes to the government; in some places actually more than twenty years' taxation has been paid in advance. . . . There are districts in which the position of the rural population is that of a man standing permanently up to the neck in water, so that even a ripple is sufficient to drown him. The loss of life caused by the major disasters is less significant than the light which they throw on the conditions prevailing even in normal times over considerable regions." R.H. Tawney, Land and Labor in China (London, George Allen and Unwin Ltd., 1932).

northeastern provinces a favorable resource/population ratio permitted rapid economic growth and significant industrialization. In the rest of China industrial development was confined almost exclusively to the so-called treaty ports such as Shanghai, which had large areas under the jurisdiction of foreign governments; here the growth of modern industry and supporting services such as banking and commerce was the result of close contact with foreign enterprises and the world market. The economic link between these cities and the vast hinterland was weak, and most of China's economy was still dominated by traditional activities. As shown in Table 1.2 below, even in 1952 when recovery from the long period of warfare was largely complete, China was poorer and less industrialized than the USSR and Japan around 1930 and even contemporary India, although agricultural yields were relatively high.

Table 1.2: INTERNATIONAL COMPARISON OF CHINA'S LEVEL OF DEVELOPMENT IN 1952

	USSR around 1928	Japan around 1936	India 1950	China 1952
GNP - million (1952 \$)	35,000	22,600	22,000	30,000
GNP per capita (1952 \$)	240	325	60	50
Population - million	147	69	358	575
Birth rate (per 1,000)	44	31	38	37
Death rate (per 1,000)	20	18	24	17
Number of persons dependent on agriculture per acre of cultivated land	0.20	1.60	0.60	1.90
Paddy rice yield (ton per ha)	2.2	3.6	1.3	2.5
Wheat yield (ton per ha)	0.8	1.9	0.7	1.1
<u>Industrial Output Per Capita</u>				
Coal (kg)	273	604	97	96
Pig iron (kg)	22	29	5	2.8
Crude steel (kg)	29	n.a.	4	2
Electric power (kw)	0.01	0.10	0.01	0.005
Cotton spindles (units)	0.05	0.17	0.03	0.01
Cement (kg)	13	63	9	4

Source: Compiled by Alexander Eckstein and published as Table 7, p. 214 in his China's Economic Development (University of Michigan Press, 1975). Recently available estimates of total population, death and birth rates in 1952 have been substituted for Eckstein's figures.

1.34 In addition to the fundamental problems of underdevelopment, the present Government, when it gained control of the country in 1949 and established the People's Republic, was faced with enormous shorter term economic problems. The economy had suffered greatly from more than two decades of continuous warfare, beginning with almost continuous wars between warlords and different political factions in the 1920s, followed by the war of resistance against the Japanese from 1937 to 1945, and finally the civil war. By 1949, this had sharply curtailed agricultural and industrial production and disrupted the transport and distribution systems, with its greatest impact on the modern sector. According to official estimates, heavy industrial output in 1949 was 30%, while consumer goods and agricultural output was about 70% of the previous peak levels. Moreover, the Soviet army, which had entered northeastern China shortly before the end of World War II to join the military operations there against the Japanese, had dismantled and carried off a large number of industrial installations from the region. Declining production, combined with large government deficits, also led to extreme inflation; in Shanghai, for instance, wholesale prices rose 7.5 million times between 1946 and 1949.

1.35 In a remarkable first decade of economic management, the PRC Government not only stabilized the economy, controlled inflation and restored production and distribution within a few years, but also successfully implemented revolutionary and far-reaching reforms in all segments of the economy and society. By the second half of the 1950s, however, longer term constraints to development were once again apparent, and recurring issues, such as centralization versus decentralization, agriculture versus industry, and the role of foreign technology, were again the subject of major policy debates.

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2. THE ECONOMIC SYSTEM

A. Evolution of the System

2.01 China's present economic system is the product of a series of institutional changes, mainly during the 1950s. In rural areas, the first stage (1949-52) was land reform, aimed mainly at redistributing the means of production from the very rich to the poor. Land and property were expropriated from landlords and rich farmers and then distributed among the landless poor, farmers with very small holdings, and those whose land had been expropriated. This was followed, in quick succession, by the organization of mutual aid teams, elementary cooperatives, advanced cooperatives, and finally (between 1958 and 1962) People's Communes. Between 1952 and 1957, traditional handicrafts and small-scale industry and services were organized into cooperatives, most of which were subsequently absorbed into communes or reorganized into larger urban collectives. By the late 1950s, moreover, public ownership had been extended in stages to cover virtually the whole modern sector of industry, transport and services, and most of today's central planning apparatus had been created, together with a highly centralized and unified budgetary system and a rationing system for basic necessities.

2.02 Although the institutions created in the 1950s remained largely intact over the following two decades, economic policies have fluctuated dramatically, largely as the result of an unresolved debate on two issues: first, the relative roles of economic and political criteria in economic decisions; and second, the appropriate degree of centralization in the management of a vast economy. The period of the First Five-Year Plan (1953-57) saw increasing centralization and planning. But in 1958, the Great Leap Forward movement was launched, whose object was an accelerated transition to communism. This movement disrupted implementation of the Second Five-Year Plan (1958-62) and contributed to economic chaos. It was followed by a period of rehabilitation and adjustment, during which efforts were made to strengthen the authority of the central government and agencies, as well as the use of economic criteria in resource allocation. In 1965, preparation of the Third Five-Year Plan (1966-70) began.

2.03 This, however, was disrupted by the decade-long Cultural Revolution. During most of that decade, many enterprises virtually ceased operations, scientific research and regular higher education almost came to a standstill, the legal system was abolished, and economic planning was severely disrupted. Leading cadres and professional staff at economic agencies and institutions were sent to the countryside for manual labor, and many intellectuals were persecuted. The State Planning, Economic and Capital Construction Commissions, and the Statistical and Price Bureaus, were merged and reduced to a skeleton staff. Overt concern for production, economic efficiency or profitability was condemned, management was largely taken over by "revolutionary committees," and (for practical as well as ideological reasons) economic and administrative units at all levels sought self-sufficiency. Although the administrative allocation of a substantial quantity of goods, services and factors of production continued, allocation decisions became more and more arbitrary and subjective as central management became increasingly ineffective.

2.04 Although several attempts were made in the early 1970s to resume economic planning, rehabilitation of the economic management apparatus at all levels began only after 1976. Even in 1980, many of the planning and statistical agencies had not yet achieved the staffing levels of the mid-1960s. Efforts to restore the former system have been combined with wide-ranging reform experiments.

2.05 Thus central planning, in the sense of central coordination of the use of economic resources in the context of a medium- to long-term plan, has clearly been practiced only infrequently in China since the transformation of the economic system was completed in the late 1950s. This must be recognized in analyzing both the performance of China's economy since the 1950s and the issue of system reform in the 1980s. The rest of this chapter describes the basic system as it existed up to 1979. Current attempts at reform will be discussed in Chapter 5, after a review of the economy's performance in Chapters 3 and 4.

B. Instruments of Management and Control

2.06 Basic policy in China is determined by the Communist Party, on the principle that the Party provides leadership for the state (the administrative organs of government), and the state manages the economy. Party leadership is exercised both centrally (through the influence of the Politburo and the Central Committee Secretariat on the State Council/¹ and its subordinate ministries and bureaus) and locally (through Party committees, and Party members at all levels of state government and in communes, factories and other institutions). Although Party members comprise only 6-7% of the adult population, they occupy most of the responsible jobs.

2.07 China's economic management system is, by international standards, extraordinarily centralized and characterized by strict vertical control, with relatively few horizontal linkages. Commands flow constantly downwards, and information (including large quantities of statistics) upwards. The response of units at the bottom to changes of policy at the top is remarkably quick and uniform.

2.08 The sheer size of the country, however, means that the Government has to be composed of several levels, among which administrative responsibilities have to be divided (although this division is often complicated by the principle of "dual leadership," whereby a local specialized agency is responsible both to the local government and to the corresponding specialized agency in a superior level of government). The typical arrangement consists of three governmental tiers, which for simplicity will be referred to below as the

¹ The highest level of the Government, currently comprising the Premier, 13 Vice-Premiers and approximately 40 ministers.

center, the province and the county./¹ The average province has a population of about 35 million; Sichuan has the largest population, with each of its 212 counties containing nearly half a million people.

Annual Plan and Flows of Goods

2.09 What is produced, by whom, and the uses to which it is put are all matters that in the Chinese economy are predominantly the subject of administrative decisions. These decisions are centrally coordinated through an annual plan, consisting of several parts, including a production plan, a material allocation plan, a wage and labor plan, etc. At the center, preparation of the plan is the responsibility of the State Planning Commission, while implementation is supervised by the State Capital Construction Commission (large capital construction projects) the State Economic Commission (industry and transport) and the State Agriculture Commission. (Similar institutions exist at the provincial level.)

2.10 The core of the annual plan is a set of interlocking material balance tables, one for each major commodity, specifying sources (production, imports and stock depletion) and uses (intermediate inputs, investment, consumption and exports) - all in physical units. The planning bureau in each province and county prepares a similar local plan. County plans are guided and integrated by the provincial planners, provincial plans by the State Planning Commission.

2.11 Beneath the general planning umbrella, responsibility for commodity flows is divided among several agencies, chiefly according to the nature of the goods concerned. Most industrial producer goods come under the jurisdiction of the State Material Supply Bureau or (mainly for more specialized items) the relevant industrial ministries. The Food Ministry deals with grain and edible oil, the Commerce Ministry with nonstaple food, other consumer goods and services, and a few producer goods such as wire, paint and gasoline. The supply and marketing cooperatives handle nonfood agricultural output, producer goods for agriculture, and sales of consumer goods in rural areas./²

¹ Four complications may be noted: (a) between the province and the county is an intermediate tier called the prefecture, though in most provinces the prefectures appear to act more as regional agencies of the provincial government than as a separate level of government; (b) some province and prefecture level units with large ethnic minority populations are called autonomous regions; (c) three large municipalities have provincial status and are divided into districts rather than counties; and (d) within provinces, some municipalities have prefecture or county status.

² The Commerce and Food Ministries, the supply and marketing cooperatives, and two smaller bodies (the Aquatic Products Bureau and the General Pharmaceuticals Bureau) are collectively referred to as "the commercial departments."

2.12 Each of these agencies has subordinate or counterpart units at the provincial and county levels, and in each case the division of responsibilities between the various levels of government is broadly similar. Goods regarded as of national importance - around 1,000 in number - are initially allocated at the national level among provinces and centrally controlled organizations. The relevant provincial agency then allocates these goods (together with the output of small, provincially controlled enterprises, which is exempted from the national allocation process) among counties and provincially controlled organizations; it does the same for a further range of goods regarded as of lesser importance. Likewise, the relevant county agency then allocates (among communes and county-controlled organizations) its allotment from the province, the output of small county-controlled enterprises, and an additional range of goods regarded as of minor importance.

2.13 For each type of good, and at each level of government, the allocation procedure is again similar. For example, the communes, county-controlled enterprises, construction units and departments individually submit requisitions for the coming year to the relevant county agency, which prepares a draft allocation on the basis of preliminary information about the availability of the good concerned from provincial and local sources. This draft is discussed and revised at a conference of local users and producers; it then becomes the basis of the county's requisition from the province, which in turn is discussed at a provincial conference. The process culminates, for important goods, in national conferences of user and producer representatives, where vigorous formal and informal negotiations are followed by revision and finalization of lower level allocation plans.

2.14 The channels through which goods are actually distributed, once their allocation has been determined, vary somewhat. Large allocations (more than one railroad car in volume) and specialized equipment are handled by direct bilateral transfer between producer and user. Smaller allocations of more standardized items flow through a network of wholesale and retail organizations: thus, for example, urban consumers shop at general and specialized stores under the control of the food and commerce bureaus, while the local material supply bureaus control specialized outlets for metal products, machinery and electrical equipment, building materials, and so on. The distribution process is also monitored by the (central and local) economic and capital construction commissions.

2.15 The conduct of foreign trade is equally centralized. Each of a number (currently 16) of foreign trade companies under the control of the Ministry of Foreign Trade has a monopoly on the import and export of a specific group of goods. Annual plans for trade are drawn up by this ministry and the State Planning Commission; in accordance with these plans, the companies either procure goods domestically and sell them abroad, surrendering the foreign exchange earned to the Bank of China, or procure goods abroad on behalf of enterprises and organizations that have been issued licenses for such imports. A parallel system exists at the provincial level, although these transactions are dominated by the central companies and their branch offices in the provinces.

The Budget and Flows of Money

2.16 State Budget. The principal instrument of financial control over the economy is the state budget, through which about 30% of GDP flows. Provincial and county governments, which have their own budgets, collect more than 80% of all revenues and carry out 50% of all expenditures (Annex B, Tables 4.3 and 4.9). In form, however, the state budget is consolidated, with county budgets incorporated into provincial budgets, which in turn are incorporated into the state budget. In substance, there has likewise consistently been strong central control, not only over tax rates and policies, but also over the level and composition of local expenditures.

2.17 The precise degree of central control over provincial budgets has varied almost annually since the 1950s, in an attempt to find the right balance between two sets of conflicting requirements. On the one hand, the central government wishes to maintain substantial control, especially over investment, and to avoid large disparities in expenditure levels among provinces. On the other hand, incentives are needed for provincial governments to improve revenue mobilization, economize on expenditure and adapt their expenditure patterns to local needs.

2.18 During periods of decentralization (such as 1958, 1970 and 1980), the basic principle has been to allow each province to retain a predetermined proportion of the revenues it collects, which then determines its total expenditure, and to give the provincial government substantial freedom in deciding the composition of its expenditure. (These devolutions of fiscal authority have usually been accompanied by a parallel devolution of authority over state enterprises.) At most times, however, the central government has maintained control over both the total and the composition of provincial revenue and expenditure, and there has been little connection between revenues and expenditures in particular localities (except that in many years the provinces have been permitted to retain a proportion of their above-plan revenues or expenditure savings as discretionary funds). Even during periods of decentralization, moreover, the extent of local discretion has remained circumscribed, especially over investment, as the central government has continued to set tax rates and to issue guidelines on the composition of expenditure.^{/1} And at all times the central government has retained ultimate control through its power to determine the nature of the system itself.

2.19 An important and consistent feature of the Chinese budgetary system has been the much smaller share of revenues retained by rich, industrialized provinces than by poor, backward ones (Annex B, Table 4.4). In 1980, for instance, the high-income municipalities of Shanghai, Beijing and Tianjin retained 11%, 37% and 31% of their revenues, respectively, while relatively rich provinces such as Liaoning in the northeast retained only about 50% of all revenues other than industrial and commercial taxes, which from such

^{/1} In recent years, however, the proportion of state capital construction expenditure financed by extrabudgetary funds (i.e. discretionary funds of local governments and state enterprises) has risen from 13% in 1970 to 21% in 1979. See Annex B, Table 2.5.

provinces are entirely remitted to the center. Middle-income provinces, in contrast, retained a fixed proportion of industrial and commercial taxes and 100% of other revenues, while lower-income provinces, including all border provinces populated mostly by minorities, not only retained all their revenues, but also received subsidies from the central government. Xizang (Tibet), for instance, received in 1980 a subsidy equivalent to Y 239 per capita.

2.20 Another distinctive feature of the Chinese budget (Table 2.1) is that enterprise profits are the largest single source of revenue - partly because profit margins are high, but also because enterprises have generally been obliged to remit virtually all their profits to the state. The second biggest source of revenue is an industrial and commercial tax, which accounts for three quarters of all tax receipts. More generally, industry and commerce serve as the main revenue gatherers: the only agricultural tax - effectively a combination of production and land tax - now accounts for less than 3% of total revenue.

Table 2.1: BUDGET REVENUES
(Y billion)

	1957	1965	1977	1979
Enterprise profits /a	14.4	26.4	40.2	49.3
Industrial and commercial tax	11.3	16.5	40.1	47.3
Agricultural tax	3.0	2.6	2.9	3.0
Other revenues	2.3	1.8	4.2	10.8
<u>Total</u>	<u>31.0</u>	<u>47.3</u>	<u>87.4</u>	<u>110.3</u>

/a Including depreciation.

Source: Annex B, Table 4.1.

2.21 On the expenditure side, a distinctive feature - indeed the feature that makes the budget so important as a means of economic control - is the large amount of investment. Over the past two decades, grants for fixed and working capital formation have accounted for about half of total budgetary expenditure (Table 2.2). They have financed most investment in industry and commerce, as well as in infrastructure, and a significant part of that in agriculture.

2.22 Control of investment has been shared between the Ministry of Finance and the State Planning Commission. Disputes have been settled by higher organs, such as the State Council. The plans have usually envisaged more investment than could actually be financed. In most years, therefore, the total amount of investment requested has been cut back in the budgetary process, but in accordance with the order of priority among projects established in the plan.

Table 2.2: BUDGETARY EXPENDITURES
(Y billion)

	1957	1965	1977	1979	(% of total in 1979)
<u>By Type</u>					
Fixed investment <u>/a</u>	12.4	15.8	31.8	55.8	(43.8)
Working capital	2.1	2.8	6.6	5.2	(4.1)
Other	15.9	28.0	46.0	66.3	(52.1)
<u>By Sector (current and capital)</u>					
Economic expenditure	16.3	25.4	49.4	76.2	(59.9)
Health, education, other social	4.6	6.3	11.9	17.5	(13.7)
Defense	5.5	8.7	14.9	22.2	(17.4)
Administration	2.3	2.6	4.5	6.3	(4.9)
Other	1.7	3.6	3.6	5.1	(4.0)
<u>Total</u>	<u>30.4</u>	<u>46.6</u>	<u>84.4</u>	<u>127.3</u>	(100.0)

/a Capital construction plus renovation and expansion of existing enterprises.

Source: Annex B, Tables 4.5 and 4.6.

2.23 Banking System. The other main instrument of financial control over the economy is the banking system, of which the core is the People's Bank of China. The People's Bank has an immense network of branch offices; but it is administratively highly centralized - provincial and county governments, for example, have no control over its operations in their localities. In addition to the normal functions of a central bank, it has three main roles: first, it is the conduit for gathering and disbursing most budgetary funds except capital construction grants; second, it functions as a normal financial intermediary, taking deposits at interest from households and institutions and making loans, mainly short-term advances to producing and trading organizations, which supplement (and in aggregate, substantially exceed) their budgetary allocations of working capital; and third, it monitors other extra-budgetary flows of money. The last is important because most flows of goods involve monetary transactions. Even where physical allocation is strictly governed by the plan, enterprises and most other organizations pay for their inputs and are paid for their output; they keep accounts; and they must prepare financial plans corresponding to their physical plans. These financial plans must be approved by the People's Bank, which (since inter-organizational financial transfers must be made through its accounts) is also well placed to oversee their implementation.

2.24 Two other banks - the Agricultural Bank and the Bank of China - are specialized banks under the leadership of the People's Bank. The Agricultural Bank accepts deposits in rural areas and extends short-term credits to

communes and their subordinate units. The Bank of China handles all external transactions of the economy and implements the foreign exchange plan. A fourth bank - the Capital Construction Bank, under the leadership of the Ministry of Finance - does not at present act as a financial intermediary but is essentially a conduit for capital appropriations from the ministry to state enterprises and organizations; it also helps supervise the use of these funds.

2.25 Centralized financial surveillance and control have been a crucial element of economic management - more important, perhaps, than physical control. But not all flows of money are directly controlled, even outside the household sector. Counties, for example, levy fiscal surcharges (10% of the agricultural tax, 1% of the two main industrial and commercial taxes) that do not enter into the consolidated budget and may be spent more or less at their discretion. Similarly, state enterprises have long had some discretion in their use of the bonus, depreciation, major repair and welfare funds - and sometimes also a small fraction of profits. Communes, likewise, have usually been able to decide how to allocate their collective savings with only general guidance from above.

The Price System

2.26 Flows of goods are, of course, linked to flows of money by prices. Heavy reliance on administrative direction has caused prices to play only a limited allocative role; even household expenditure patterns have been shaped partly by rationing. But prices have had a major impact on various aspects of income distribution. First, they are one of the main determinants of industrial and commercial profits, and hence of the share of budget revenues in national income. Second, the relative prices of agricultural and industrial goods affect the living standards of farm as compared with nonfarm households. Third, the relative prices of different consumer goods affect the pattern of living standards among households with varying money incomes.

2.27 Virtually all prices have been set by the Government, through a hierarchy of price bureaus. The central Price Bureau maintains a book specifying which prices are subject to central, and which to provincial and sub-provincial, control. Broadly speaking, the division of responsibility is parallel to that for flows of goods outlined above. Thus the prices of agricultural and industrial goods of national importance (and accounting for around two thirds of total production) are subject to central control, as are transport tariffs on major national routes. The prices of other goods, local transport tariffs, and charges for social services are controlled by provinces or counties.

2.28 Under the central price determination procedure, particular ministries or departments submit proposed prices for the goods and services under their jurisdiction to the price bureau (and in important cases also to the State Council) for vetting. More specifically, these are the factory or farm-gate prices (for consumer goods, also the wholesale and retail prices) of specific varieties in specified major producing areas. In other areas, the prices of these goods are set by local price bureaus, which add transport costs to the national benchmark prices. As a result, and with the exception of a few manufactured consumer goods (including matches, salt and books), even "centrally" determined prices are not nationally uniform.

2.29 Local price bureaus set prices for other varieties of major commodities and for the output of small, locally controlled enterprises. The division of this responsibility - and of the responsibility for setting the prices of less important commodities - between the provincial and county price bureaus is a matter of provincial discretion and varies from province to province. But there are regular consultations between the price bureaus of neighboring provinces, and indeed also between the central and provincial bureaus concerning prices that are nominally under local control. In addition, since many prices are strongly affected by industrial and commercial tax rates (which are set centrally), there is close consultation between the price bureaus and the Finance Ministry.

2.30 The principles on which industrial and commercial prices are set are generally of a cost-plus character. In determining centrally controlled prices, the average cost of production in each major producing area is supposed to be supplemented by a profit margin large enough to permit most or all of the enterprises in that area to make a profit. Provincial price bureaus follow similar guidelines and, when the national benchmark price plus transport costs is below the cost of production in local enterprises, are even permitted to set a higher price for the output of the latter.

2.31 In the setting of agricultural prices, the major considerations are concern about "equal value exchange" as well as practical concern about rural living standards. Only recently, however, have attempts been initiated to study the cost of production of agricultural commodities and its evolution over time. But interprovincial differences in procurement prices - and also in the retail price of food - have deliberately been kept small: the range between the provinces with the highest and lowest prices is not supposed to exceed 10%.

2.32 Domestic prices have been insulated from world prices, and the exchange rate has played a very limited economic role. Foreign trade companies sell imported goods to local enterprises at the state-determined domestic price of a similar, locally produced good, with due allowance for quality difference. Only for goods for which there are no domestic equivalents - currently about 20% of imports - are the domestic selling prices determined by converting the foreign price at the official exchange rate and adding import duty, taxes and fees. For exports, selling prices abroad are determined by world market conditions, but trading companies buy from domestic suppliers at domestic prices.

2.33 Since Chinese prices of most agricultural and mining products converted at the official exchange rate are below world prices, exports of these commodities are generally profitable to the trading companies. So are most imports, since Chinese industrial prices at the official exchange rate are well above world prices. But for the same reason, the companies suffer substantial losses in the export of manufactured goods.

C. The Commune Economy

2.34 The commune economy, involving some 53,000 People's Communes, virtually comprises the rural economy. There are also state farms, which function in most ways as state enterprises; but these account for only 4.5% of the country's total cultivated area, mainly in the northern border provinces.

Organization and Management

2.35 The basic institutions of the commune economy are presented in Table 2.3. As in all developing countries, the family is the basic consumption unit and an important production unit. Early attempts to destroy the traditional family system by organizing communal mess halls and nurseries, and by distributing income directly to individuals, were quickly abandoned. Since then, restrictions on migration have held rural families together, while government policy (in rural areas) explicitly requires children to be responsible for aged parents. The family (or, more often, the extended family) owns the house in which its members live and cultivates the private plot surrounding it.

Table 2.3: RURAL INSTITUTIONS

Institution	Average number of people in unit	Responsibility
Family	4-5	Private plots, distribution of consumption among individuals
Production team	150 (30-40 families)	Management of agricultural production, ownership of land, income distribution among families
Production brigade	1,100 (7-8 teams)	Primary schools, cooperative health services, small-scale industries
People's Commune	15,000 (13-15 brigades)	Secondary schools, health clinics, small-scale industries, marketing, services, civil administration

2.36 The economic activities of the family include work on the private plot, which has usually been 5-7% of total cultivated land (currently about 8%); husbandry of small animals, especially pigs; collection of animal manure, the

main source of fertilizer, for collective and private use; and a wide range of sideline activities (such as hat making, basket weaving, knitting, tailoring and pottery). The importance of these family activities is greater than the estimated 30% of total agricultural income they represent, since in most communes they provide most families with the bulk of their cash income. They also provide most of the small amount of vegetables and meat that peasant families consume.

2.37 The team (a small village or traditional neighborhood within a larger village) is the basic production unit. It effectively owns all the land its members farm and the tools they use (except for large machinery). Though formal decisions are made by an elected team leader, the team in fact makes most production decisions, and bears the consequences of such decisions, collectively.

2.38 Above the teams in the rural hierarchy come the communes and brigades, which own and rent out the large machinery, and are responsible for activities requiring large-scale operations or management and technical skills not available to the production team. The brigade plays a role in the delivery of social services to the rural population (see paras. 2.74 and 2.76), and in organizing irrigation and farmland construction work that requires several teams to act together. It also manages enterprises engaged in a wide range of activities, from pig raising to, in some suburban communes, assembling electronic components for the export market.

2.39 The commune is responsible for providing the next level of social services, and for organizing larger or technically more complex construction projects and more capital-intensive industrial enterprises. Commune and brigade enterprises between them have, since 1970, become an important source of income for the rural sector. But they are concentrated in the communes around major cities and in the coastal provinces, where commune incomes are high enough to support investment in nonagricultural activities and where demand for the products of such activities exists.

2.40 The commune is also responsible for all aspects of civil administration in the villages within the commune area. In fact, its importance lies mainly in its dual role as the lowest level of the state apparatus and the highest level of the rural collective system. It collects taxes and procures farm products for the state; it passes down plan guidelines for production and land use; and it delivers public services, spreads new agricultural technology, and disseminates political information.

2.41 Thus rural China has a multi-level management system, within which the division of responsibility for economic and social activities among the various institutions is determined, in principle, by the complexity of management required and the optimum scale for the activity.

Income Distribution and Support

2.42 Apart from income from family activities, virtually all incomes are distributed through the production team. Of total gross output (sales plus retained production), production costs represent about 32% (or more in richer

teams that use machinery and greater quantities of purchased inputs). Of the balance, some 50% is distributed as collective income to team members. The residual, about 18%, represents collective withholdings, including taxes, cash and grain reserves, and a small welfare fund. Cash and grain reserves are used for working capital, for relief after poor harvests, and for team investments and contributions to higher level investments within the commune. Cash for investment, however, is quite limited, especially in the poorer teams, and labor contributions have been far more important.

2.43 Distributed income (cash and grain) is allocated to individual households within the team according to household accumulations of work points. Work points are based on specific formulae or criteria that conform to guidelines but allow some latitude for team decisions. Most work point systems are based on hours worked, but are also differentiated according to the quality of work performed. Many teams combine this basic system with task-related and piecework elements during certain seasons. The assessments may be revised at periodic team meetings, for example, when a new crop is introduced or a new sideline activity is established.

2.44 Work points can also be accumulated through participation in activities managed at the brigade or commune levels - for example, rural infrastructure construction projects whose benefits do not accrue directly to the worker's team. In these cases, the appropriate body (brigade, commune) will transfer the value of work done to the team's account, with the work point accumulations of individual members being set by the team. In most communes, wages earned by workers in brigade and commune enterprises are paid to the workers' teams, and the workers are paid from the team's total income according to their work points, including points for work done in these enterprises. But where brigade and commune enterprises are on a large scale, the tendency is now to pay cash wages to workers, with some supplementary payments to their teams.

2.45 Thus in principle, income is distributed according to labor contributions. But three important features of the system, designed to provide a minimum level of consumption for all team members, modify this principle. First, a portion of the production team's grain output - usually 60-70% - is distributed equally among all team members (on an adult equivalent basis) for subsistence. The value of this produce, known as the "basic consumption grain," is deducted from the value of work points earned by the family; a family whose total work points are valued at less than the grain it received during the year thus becomes indebted to the team. Although debts can remain outstanding for some years, pressure exists to repay them, since those debts are effectively loans from other team members. This problem is obviously most serious, and occurs most often, in teams where average incomes are not much above the subsistence level.

2.46 Second, a collective welfare scheme exists to provide assistance to families in persistently difficult circumstances, e.g. elderly people with no children. This is financed by the welfare fund of the team or the brigade, to which each team contributes a small proportion of its net income each year.

Finally, the Government has always attempted to maintain a floor consumption level among the poorest teams, usually 200 kg (unprocessed grain) per capita per year in rice producing areas and 150 kg in other areas. Production teams whose basic grain distribution per capita is below these minima are entitled to buy an amount that is usually adequate to make up the difference. Loans to provide the necessary money are also made available and, for very poor teams, a proportion may be given free as social relief.

Planning and Control

2.47 The commune economy is remarkably isolated from the rest of the economy, and the relevant linkages are tightly controlled by the Government. The most striking aspect of this is the restriction of migration from the commune. Unless a commune member has been recruited specifically for a job elsewhere - these opportunities are very rare and usually in mining or the army - it is not possible for him to move his residence away from his commune.

2.48 The state's control over the sector is mainly through the supply and marketing system. A large proportion of above-subsistence output is procured by the state according to fixed quotas and prices, the proportion varying with the degree of importance attached to the product. About 50 million tons of grain, for instance, accounting for about 15-20% of total output, have recently been procured in three forms: (a) agricultural tax paid in kind (10 million tons in 1979); (b) quota procurement at a price determined by the state (about 25 million tons), whereby the production team is required to deliver a fixed amount each year; (c) above-quota procurement either at a fixed price 50% above the quota procurement price, or at a negotiated price. The total grain thus procured apparently accounts for 90% of total marketed output, since free market sales (resumed only in 1979) are estimated to be about 5 million tons. The proportion of less important products marketed through the state system is variable, but generally smaller for food products.

2.49 Virtually all nonagricultural products consumed by the commune's population are obtained through the material allocation system described above, and the allocation of agricultural inputs to the countryside - chemical fertilizers, diesel fuels, machinery - as well as consumer goods is a component of the annual planning exercise. Credit is provided by the Agricultural Bank, which in 1979 had a loan portfolio of some Y 41 billion, mostly in short-term production credits. The state also manages an extensive research and extension program under which the demonstration and popularization of new technologies are handled mainly by "peasant technicians" at the commune and lower levels.

2.50 The state-managed marketing and supply system, the control of prices and the tight-knit organizational structure of the commune together constitute a powerful apparatus for agricultural planning. Such a broad array of instruments permits the use of various strategies and combinations of policy approaches. Agricultural production plans are usually prepared at the county and higher levels only, and for aggregate commodity groups such as grains. Indicative or indirect planning, which relies mainly on material incentives and economic levers (such as relative prices and credits) and

accords considerable discretionary power to lower level units in determining the pattern and level of production, is at one end of the spectrum of policy approaches. At the other is direct physical planning - or planning by directive - whereby detailed physical output and acreage targets are assigned to the production units (production brigades and teams). In practice, agricultural planning in China has used elements from both approaches, with the balance definitely tilted towards direct planning in the decade before 1976.

D. The State Economy

2.51 Apart from the communes, the economy is dominated by organizations owned by the state. Private business - including self-employment - is now limited to a small number of service workers. Collectives, which employ a fifth of the urban labor force, are nominally owned by their members (and pay tax on their profits rather than remitting them to the state); but for most practical purposes they are now indistinguishable from state-owned enterprises. More generally, although the state sector spans many different economic activities - farming, industry, construction, transport, commerce and services - the way in which these activities are organized is fundamentally similar.

Production

2.52 The internal arrangements of state enterprises and other economic organizations are on the surface quite conventional. Each enterprise is headed by a director, supported by a chief accountant and a chief engineer, beneath whom there is a normal managerial hierarchy with little scope for formal worker participation. Less conventionally, not only the director but also all managerial personnel are appointed from outside, by whichever level of government controls the enterprise - most commonly a province or county. In addition, the Party committee and secretary often exercise an important leadership role.

2.53 The activities of each economic organization revolve around its annual plan - sometimes subdivided into periods as short as 10 days - which in turn is one element of the larger local and national plan. The organization's plan has usually been summarized in a set of physical and financial targets: value (at constant accounting prices), mix and quality of output; quantities and cost of inputs (including labor); working capital use; investment and innovation; and (for enterprises) profit. Additional directives have specified input sources and the channels through which output (including above-target output) is to be disposed of, as well as the prices to be paid or charged. Profits have been remitted to the state; all fixed and some working capital has come in the form of grants from the state; other working capital has been provided by the People's Bank.

2.54 What distinguishes these enterprise plans and targets from those common in businesses in other countries is the degree of external influence and the amount of detail involved. Combined, these factors have tended to allow enterprises, manipulated by the planners and watched over by the economic and capital construction commissions, very little independence. Each organization's relationship with its economic environment has been tightly

structured, with information flowing to and from it through vertical channels, and with little scope for establishing independent horizontal linkages with other economic organizations. But this picture of enterprises without entrepreneurship requires qualification in two respects.

2.55 First, the enterprise's management has a hand in the formulation of its plan. To what extent is something that has probably varied widely, both over time and among enterprises. But at the least each organization is the primary source of information about its own capacities and requirements. Also, for the larger enterprises, there must be some scope for negotiation of targets with the state bureaucracy, in addition to participation in allocation conferences (para. 2.13).

2.56 Second, the enterprise plan does not fulfill itself, but requires the exercise of managerial skill and effort, especially in dealing with the consequences of defects in the system. For example, the plan may have provided for insufficient inputs; or the planned inputs may not have been available because designated suppliers could not fulfill their own plans. Managers have thus had to exercise initiative - bringing pressure to bear on the bureaucracy, arranging informal barter deals with other organizations, building up stocks, or developing the capacity to make troublesome inputs in-house (sometimes by quietly diverting money and materials destined for current production or repairs).

2.57 The issue of managerial motivation has thus been important. Unlike the system in the USSR, and despite episodic attempts to tie employee bonuses in general to enterprise performance, the Chinese system offers few direct financial incentives for managers to achieve or surpass plan targets. Instead, greater reliance has been placed on nonmaterial rewards (praise and promotion) and to a lesser extent on penalties (criticism and demotion), which have relied for their effectiveness partly on the internal commitment of managers to the service of Party and state. Moreover, emphasis has in principle been placed not on myopic fulfillment and overfulfillment of targets, but rather on understanding and acting to further the broader objectives of the system.

Labor and Wages

2.58 Employees of state organizations - who, together with members of urban collectives, are referred to as "workers and staff" - are paid according to centrally prescribed wage scales. These scales, which have remained almost unchanged since 1956, vary from place to place (as the result of early efforts to establish uniform nationwide real wages in the face of regional cost-of-living differences), among industries and occupations in the same place, and within industries according to both the size of the enterprise and the level of government that controls it. The scales for industrial workers all have eight grades with a wage range (from the highest to the lowest grade) of about three to one. There is a 16-grade scale for technicians and engineers, a 26-grade scale for government administrators, and so on, with the widest wage range of the order of 15 to 1.

2.59 Young people joining the labor force tend to be paid below the standard scale for the first two or three years, but once on the scale are usually promoted to the second grade within a year or so. Subsequent movement up the scale has in principle been dependent on individual skill and performance, but in practice, since the late 1950s, all movements up the pay ladder have been prohibited except those authorized (for specified numbers or categories of workers) by the central government (promotion in responsibility or position has been permitted). Such exceptions occurred in 1963 and 1972 (when promotion was confined to workers with long service in grades 2 and 3), and in each of the years from 1977 to 1979.^{/1}

2.60 In urban collectives, the original idea that workers would share their enterprise's income has long been superseded by the payment of ordinary wages. The applicable scales are not centrally prescribed, but they must be approved by local labor bureaus and have usually been related to, though somewhat below, those in state organizations.

2.61 Both in state organizations and in urban collectives, wages are only part of total remuneration. Except in public administration and social services, a sum equal to 10-12% of the total wage bill has been available for bonuses, which have been distributed among individual workers in a variety of ways - but not always according to work performance (by contrast with the USSR, piecework payment systems are rare). The workers' welfare fund (another 11% of the wage bill in most state organizations) finances pensions, sickness and disability benefits, construction of housing, and in some instances provision of education and health facilities. But there are no paid vacations, apart from seven public holidays a year (and one day off per week).

2.62 Most labor is allocated by central and local labor bureaus, aided (in the case of college graduates) by the Ministry of Education and the State Planning Commission, and (in the case of technical and vocational school graduates) by the localities, ministries or enterprises that run the schools. An annual labor plan, subject to approval by the planning agencies at each level, specifies the disposition of new entrants to the labor force among different organizations and enterprises. It also specifies the permitted amount of migration, if any, from communes to urban areas and (in the past) the number of urban youths to be settled in communes. Managerial appointments are handled by a separate hierarchy of personnel bureaus.

2.63 Each enterprise and organization is obliged to employ the number of people specified in the plan (which in principle is based on standard labor input coefficients but in practice also reflects a desire to provide jobs). Employing organizations have likewise had little choice about whom to hire - in general they have simply had to take whomever the labor bureau sent. And once taken on, it has been virtually impossible to discharge a worker, no matter how unsatisfactory his conduct.

^{/1} In 1977, promotion was permitted for 40% of workers plus those with long service in the lowest two grades; in 1978 for 2%, with preference given to underpaid workers in high positions; and in 1979, again for 40%.

2.64 For individuals, although their schooling and on-the-job performance are obviously important determinants of their employment prospects, entry into the labor force is a particularly crucial juncture. For at this point they are allocated to a particular enterprise or organization in which they can expect to spend the rest of their working lives. Technical and professional staff are sometimes transferred from one place to another in the service of the same organization. But inter-organizational transfers, though possible in principle, have been extremely rare.

2.65 In general, then, there has been no labor market: labor allocations and wage levels have been determined by an administrative process. But the process has not been completely arbitrary. Within the education system, and once employed, people have some choice about what they do; labor bureau job allocations are occasionally refused. As a result, despite an overall surplus of labor, shortages are experienced in unattractive jobs (commerce, cooking and coal-mining, for example). Moreover, although such shortages are partly a reflection of rigid wages, the overall wage structure exhibits some of the features observed in market economies: wages are higher in heavy industries than in light industries, and in large enterprises than in small enterprises; and technicians are paid more than manual workers.

Income Support

2.66 In principle, all able-bodied urban adults of working age (including women who wish to work) are provided with employment - a policy reinforced by restricted rural-urban migration and at times by compulsory urban-rural migration. Many of those above working age (60 for men, 55 for women) are provided with pensions by their former employers or in recognition of war service - occupational pensions vary with length of service, but can be as high as the pre-retirement wage. Likewise, many of those who are unable to work through sickness or disability are provided for financially through the welfare funds of their employers.

2.67 For those who fall outside these categories, and who are not adequately supported by their families, there is, as in rural areas (para. 2.46), a social relief system financed through the state budget and administered by county-level governments. The available funds are parcelled out (on the basis of informal surveys of need) among street committees - the lowest level of urban political organization - which in turn distribute the money among needy individuals.

2.68 The amount allocated for social relief and (government employees') pensions in the budget is small - about 2% of total expenditure, or Y 2 per capita in 1979. But this greatly understates the total budgetary cost of income support. Enterprise pension and welfare outlays, for example, reduce profits and hence budget revenues - as does the maintenance of a level of employment higher than is strictly necessary for production.

2.69 The same is true of subsidies, which are another important element of urban income support. The prices of necessities - including basic food, clothing, and housing - are kept steady and low. Part of the cost of this

policy is borne by commune members via low agricultural procurement prices. The remainder is borne by the budget via reduced profits (or low tax rates) at one or more points in the production and distribution chain. To offset this budgetary burden, however, high prices (with consequent high profits or tax rates) are charged for less essential consumer goods.

2.70 Partly because their prices have been kept low, necessities have been rationed. Although there is a considerable stock of private urban homes (mainly small, traditional dwellings), most city housing is publicly owned and administratively allocated - some by enterprises and other organizations to their own employees, the rest by local government. Grain, cotton and edible oil, as well as products derived from them, have likewise always been rationed - as have meat and other nonstaple foods in most years. Grain rations vary according to age and occupation - being larger for those in strenuous manual jobs - while cotton rations vary according to region - being larger in the colder northern provinces. The ration system also provides a convenient means of regulating mobility: ration tickets can be used only in the city where they are issued.

E. Education and Health Services /1

2.71 In both urban and rural areas, the overwhelming majority of the population has easy access to primary and secondary education and basic health services. This is accomplished by a mixture of conventional and unconventional techniques of organization and financing.

Education System

2.72 The central Ministry of Education has overall responsibility for educational planning and policy. It develops curricula and textbooks, and is responsible for the supply of primary and secondary teachers. It also directly controls 35 (out of a national total of 633) institutions of higher education. Other central ministries control a further 206 universities and colleges, which mainly provide preservice training for their future employees.

2.73 Provincial education bureaus control the remaining 392 institutions of higher education, and supervise primary and secondary education through the county education bureaus. Again, however, other organizations have educational responsibilities, since most technical and vocational schooling, and much nonformal and adult education, is provided by enterprises, communes or specialized institutions under their control.

2.74 In rural areas, primary schools are organized at the brigade level and located within walking distance of most pupils' homes. To attend secondary school, however, a rural pupil must usually commute to (or board in) the

/1 See also paras. 3.76-3.100 and 4.91-4.108.

county town. Access to both primary and secondary education is easier in urban areas. However, in both urban and some rural areas, designated "key" schools, which are specially favored in the allocation of resources, recruit pupils selectively, through competitive examinations, from a wider-than-usual area. Kindergartens are mainly organized by enterprises in urban areas and by brigades or teams in rural areas.

2.75 An annual education plan and budget, covering enrollment, staffing and expenditure, is drawn up following much the same procedure as for other plans. County education and planning bureaus draft local plans, which are reviewed, coordinated and forwarded to the center by the provincial bureaus. A national conference is held to finalize the plan, which is subsequently passed back down the hierarchy, the details of its implementation being settled by provincial and local conferences. In principle, there are also longer term educational plans.

Health Care System

2.76 The rural health care system has three tiers. At the brigade level, there are usually one or two auxiliary health workers in each production team and (in 68% of brigades) a brigade medical station staffed by two to three "barefoot doctors," whose responsibilities include sanitation, immunization and vaccination, maternal and child health (MCH) and elementary curative care. The brigade station is also responsible for referring serious cases to the next level of the system, the commune health center, which is usually staffed by middle-level practitioners of Western medicine or practitioners of Chinese medicine, with some supporting personnel. Commune health centers in relatively well-to-do areas have in-patient facilities and are equipped for minor surgery. They also organize the training of barefoot doctors, provide out-patient curative care, and refer cases beyond their competence to the top level of the system.

2.77 At this level is the county general hospital, which is staffed by physicians with college training in both Western and Chinese medicine, and equipped with operating theatres, x-ray and laboratory facilities. In addition to curative care, the general hospital provides regular courses for commune health center staff. Also at the county level are an anti-epidemic station, which is responsible for preventive health and infectious disease control, and a MCH hospital. Both these units also provide support to the lower echelons of the system, with the anti-epidemic station playing an important role in the supervision of barefoot doctors.

2.78 In urban areas, volunteer health aides, organized at the street committee level, are involved in sanitation and preventive health care. Many enterprises have clinics for their employees, but local clinics open to the public also provide curative and MCH care. Both are supervised by general and MCH hospitals, and by anti-epidemic stations.

2.79 Health care activities at the county level are supervised by provincial health bureaus, which are in turn supervised both by the provincial government and by the central Ministry of Health. This ministry has broad

responsibility for health policy, for preparation of an annual plan, and for coordination with related ministries and agencies, including those concerned with the production of pharmaceuticals and medical equipment. In addition, the Ministry of Health devotes about one third of its resources to research.

Family Planning

2.80 At the center, family planning is the responsibility of a special commission of the State Council. Planned birth offices exist at every level of the administrative hierarchy, down to the commune and street committee levels, and in large enterprises. At the working level, however, the provision of family planning services is closely coordinated with the health care system. In rural areas, in particular, female barefoot doctors are frequently trained to insert IUDs as well as to provide other types of contraceptives. Commune health centers also insert IUDs, as well as providing operations for male and female sterilization, and abortions.

Finance

2.81 Both education and health services are financed from a blend of state, collective and private sources. The state budget provides most of the money for universities and colleges, and for the construction of most urban schools and the salaries of most urban teachers. The state also pays the entire salaries of about half of the rural teachers and gives the rest a small (Y 10-15) monthly allowance. In addition, both urban and rural schools receive a small sum (Y 1-2.5 per pupil per year) from the budget to help cover other recurrent costs.

2.82 General hospitals and other county-level health facilities are likewise mainly financed through the state budget, which also finances about half the salaries in commune health centers and sometimes provides them with additional money or equipment. The price of Western pharmaceuticals is held down, at some cost to the budget, and vaccines and contraceptives are provided free. The training of barefoot doctors is also subsidized.

2.83 In rural areas, the collective financing of education and health services is sometimes in cash (from the welfare funds of the brigade or team), sometimes through productive activities undertaken by pupils or staff, and sometimes in the form of direct labor (e.g. when a new building is constructed). More important, however, is the practice of paying most health workers and about half the teachers wholly or partly in work points. Since these represent a claim on the collective income of the health workers' and teachers' teams, and since this income is earned by the other members of the team, this practice is a form of local taxation.

2.84 In urban areas, the most important form of collective financing is the subsidized education and health services provided by many enterprises and organizations to their employees (although in state-owned enterprises this could be viewed as an indirect burden on the budget). In addition, some schools run their own enterprises, manned partly by pupils, whose profits supplement the schools' other resources.

2.85 Charges are usually levied on the users of education and health facilities; some of the funds so collected are retained by the unit concerned, and some remitted to the budget. In both urban and rural schools, pupils must pay tuition fees (Y 2-4 per year) and also for their own textbooks and writing materials (about Y 10 per year), although in cases of financial hardship the school or the state will absorb these costs. Patients at brigade medical stations, commune health centers and county hospitals are likewise charged for attendance, for medicine and for the room and board costs of in-patient care. Family planning services and supplies, however, are free, as are most preventive health services.

2.86 Overall, it is estimated that about 60% of the cost of education is borne by the budget, about 30% collectively, and about 10% privately. The corresponding figures for the cost of health care, apart from medicine, are similar. But the cost of medicine is close to two thirds of the total, and a substantial portion of this is borne privately.

3. GROWTH AND POVERTY REDUCTION

3.01 This chapter, the first of two reviewing past progress and current problems, begins with an overview of Chinese development strategy. The remainder of the chapter assesses the success of this strategy in achieving its objectives and reviews some of the problems and possibilities it has created for future development. It first looks at population trends, then examines the growth, sources, uses and distribution of national income. It concludes with a discussion of basic education, health and nutrition. The next chapter presents a more detailed analysis of the growth and current problems of specific sectors.

A. Development Strategy

3.02 Despite political upheavals and changes of tack, Chinese 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.

3.03 Chinese development strategy has also been shaped by two major constraints. First, an extreme shortage of cultivable land in relation to population, and initially high yields (per unit of land). Second, a high degree of international isolation. Until its abrupt withdrawal in 1960, the USSR provided a considerable amount of trade, capital and technical assistance. But for almost the entire period, China has had limited contact with Western markets, capital and technical knowledge.

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

3.05 The Chinese response to this dilemma has been to approach the two objectives in two different ways. Following the initial phase of institutional change and property redistribution, poverty reduction - mainly through rural development and the provision of basic social services - has been based largely on local resources and initiative, with a strong emphasis on economy and technical improvisation. Industrialization, by contrast, has been based mainly on a massive infusion of centrally mobilized resources, with less concern for cost effectiveness, and using technology largely descended from Soviet designs of the 1950s.

3.06 The two approaches have of course overlapped. The central government, for example, has administered a food distribution system to help areas hit by bad harvests, and has assisted in the diffusion of the knowledge needed for rural development. Conversely, local resources and ingenuity have contributed to industrialization through the establishment of commune enterprises.

3.07 There have also been considerable policy oscillations. The Great Leap Forward (1958-60), for example, was an attempt to harness political will and local initiative to accelerate economic advance. By contrast, the Cultural Revolution (1966-76), which intended to reduce differences between social groups and between rural and urban areas, was marked by antipathy toward material progress and economic efficiency.

B. Population

3.08 No account of growth or poverty in China can overlook the near-doubling of the population since 1949 (when it was already over 500 million). As in other developing countries (but to a greater degree, see Table 3.2), the death rate has fallen rapidly. But the crude birth rate, after declining in the 1950s, rose to a peak of 38 per thousand in the mid-1960s, when population was growing at nearly 3% a year (Table 3.1). The average annual population growth was a little under 2% from 1949 to 1979, which is similar to the average rate in other developing countries.

Table 3.1: POPULATION TOTALS, BIRTHS, DEATHS AND RATES OF NATURAL INCREASE, 1949-80

Year	Year-end totals (million)	Crude birth rate (1)	Crude death rate (2)	Rate of natural increase (1)-(2) (per thousand)	Rate of natural increase based on increase in population over previous year
1949	541.7	n.a.	n.a.	n.a.	n.a.
1952	574.8	37	17	20	21
1957	646.5	34	11	23	29
1965	725.4	38	10	28	n.a.
1971	847.8	31	7	23	26
1979	970.9	18	6	12	13
1980	982.6	n.a.	n.a.	n.a.	12

Source: Annex H, Table A.1.

3.09 Since 1965, however, the birth rate has almost halved - a decline faster than any recorded in another country. As a result, and despite a remarkably low death rate, population growth (1.2% in 1980) is now extremely slow by developing country standards, though it is above that of industrialized countries (Table 3.2). The official estimates for birth and death rates and for population growth are not consistent, but even if the former rates are adjusted to eliminate the inconsistency - by the mission's estimates to 21 per thousand and 8 per thousand, respectively - they still appear very low by comparison with rates in other developing countries.

Table 3.2: INTERNATIONAL COMPARISON OF BIRTH AND DEATH RATES (1978)

	Crude birth rate --(per thousand population)--	Crude death rate --(per thousand population)--	Rate of natural popula- tion increase ---- (%) -----
China, 1979	18 (21)/a	6 (8)/a	1.2 (1.3)/a
India	35	14	2.1
Indonesia	37	17	2.0
Sri Lanka	26	6	2.0
Low-income countries	39	15	2.4
Middle-income countries	35	11	2.4
Industrialized countries	14	9	0.5

/a Figures in brackets are adjusted to be consistent with official estimates of population in successive years.

Sources: For China, Annex H, Table 3.3; for countries other than China, World Bank, World Development Report, 1980 (Washington, D.C., 1980).

Causes of Fertility Decline /1

3.10 The contrast between the records of China and other developing countries is particularly striking when income is taken into account. In general, the birth rate tends to be lower, the higher a country's per capita GNP; the lowest rates are found in the industrialized countries, the highest in the poor countries of sub-Saharan Africa and the Indian subcontinent. China's birth rate, however, is less than half what would be expected in a country of its income level; it would appear normal in a country with several times China's income level.

3.11 One reason for China's unusually low birth rate is its unusually low death rate, and in particular the low rate of infant mortality, which reduces the number of children that a mother needs to bear in order to attain her desired family size. Another reason is the unusually high proportion of people - and especially women - with at least a primary education (para. 3.79), which has been shown by research in other countries to alter attitudes concerning family size and the use of modern contraceptives. But these factors alone cannot account for the speed with which fertility has recently declined in China; nor are they sufficient to explain the low level it has reached. An additional important factor is the Government's birth planning policy.

/1 The reasons for the decline and low level of the death rate are further discussed in paras. 3.84-3.92 below.

3.12 Population policy has been subjected to various changes in direction. In 1956, following the 1953 census, the Government announced a policy of promoting late marriage and birth limitation, but this was soon replaced by ideological polemics against population control during the Great Leap Forward. Although attempts were made to reintroduce the birth planning program during the 1960s, only at the end of the decade was the program resumed, expanded and intensified.

3.13 Since the early 1970s, however, population planning has been viewed as an integral part of development strategy, and China has had one of the world's most active and effective fertility reduction programs. Contraceptives are universally available and free, as are abortion and sterilization. There has been a successful effort to raise the age of marriage. Study groups in communes and brigades (and at analogous levels in urban areas) set birth quotas and allocate births to couples in a particular order. And a campaign to promote the one-child family was begun in 1979.

3.14 The program owes its effectiveness partly to the Government's commitment to it, but also to two sorts of incentives and disincentives. The first is economic: paid vacations or work points for undergoing planned birth operations since the early 1970s, and more recently, in some localities, financial allowances and priority in education, employment and housing for couples who pledge to have only one child, combined with financial penalties for those who have more than two children. The second, which builds on a long tradition of group responsibility, as well as on an effective system of rural organization, is social: intense efforts are made to persuade couples to conform to birth planning norms, both through the media and (more importantly) through discussions between couples, local officials charged with implementing the policy, and other local people.

Population Distribution

3.15 As in most other developing countries, there are comparatively few old people in China - only 4% of the population is over 65, by comparison with 16% in Sweden. The proportion of the population under 15 (about 32%) is likewise greater than in the industrialized countries (typically under 25%): but, due largely to the decline in fertility in the 1970s, it is at the low end of the developing country spectrum. As a result, the ratio of population of working age to total population - an important influence on per capita income - is about 64% in China, as compared with 56% in India, 51% in Mexico and 66% in the USA. Moreover, some two thirds of the working-age population are actually working - a proportion that has risen significantly in the past three decades.

3.16 Official estimates put the urban population at 13% of the total in 1979, which is very similar to the proportion in 1953 and much lower than the proportions in other developing countries (India, 22%; Indonesia, 20%; all low-income countries, 21%; all middle-income countries, 51%). The low growth and low current share of the urban population in China may be to some degree a statistical illusion. But they undoubtedly also reflect the policy of "industrialization without urbanization," which has been pursued fairly consistently since about 1957. Communes and brigades have been encouraged to establish industries of all kinds in rural areas (these currently account for about 6%

of total rural employment); and migration to urban areas has not, as in most other countries, been a matter of individual choice, but has been controlled by the Government.

3.17 Migration policy has in fact varied over time. During the Great Leap Forward, large numbers of rural people were encouraged to come to work in urban industry, but returned to the countryside during the subsequent economic difficulties. Control of migration was then tightened. During the Cultural Revolution, both for ideological reasons and because job opportunities in the cities were growing slowly, 15-20 million urban people (mainly the young) were sent to the countryside - though there was also a limited flow in the opposite direction. Since 1977, however, most of those sent to rural areas have returned, and it has again become very hard for rural people to leave their communes - except for the few who obtain a university or technical secondary education, or who are recruited into the military or the coal mines.

3.18 Less is known about migration between rural areas, though it too has been regulated by the Government. The tendency appears to have been for population to grow faster in provinces with relatively more arable land per head. But there has been no major change in the geographical distribution of population: /1 as in 1949, over 90% of the population lives in the eastern half of the country.

C. Macroeconomic Perspective /2

Structure

3.19 Over the past three decades, the structure of China's economy has altered substantially (Table 3.3). At current prices, the share of agriculture in net material product (NMP) /3 has dropped by 21 percentage points, while that of industry has risen by 26 percentage points. As a corollary, the share of material services has fallen. (The share of nonmaterial services also appears to have fallen, but less sharply, at least since 1957: Annex A, para. A.12).

/1 For a fuller discussion, see Chapter 1.

/2 For comparisons between China and other countries, the Chinese official statistics need to be adjusted to account for, inter alia, the country's unique national accounting conventions. These adjustments and some important qualifications are explained in the Appendix to Annex A, which is crossreferenced in this section where appropriate. Unless otherwise specified, data for other countries are from the World Bank's World Development Report (WDR) 1980.

/3 NMP is the official measure of aggregate domestic production. It differs from Gross Domestic Product in excluding (a) depreciation and (b) nonmaterial services, both private and public. For further details, see Shigeru Ishikawa, National Income and Capital Formation in Mainland China (Tokyo, 1965).

Table 3.3: PRODUCTION STRUCTURE AT CURRENT PRICES, 1952-79 (%)

	1952	1957	Average 1977-79
Agriculture	58	47	37
Industry <u>/a</u>	24	33	50
Material services <u>/b</u>	19	20	13
Net material product at market prices	100	100	100

/a Includes construction, as well as mining, manufacturing, gas, electricity and water.

/b Freight transport and commerce.

Source: Annex A, Table A.1.

3.20 These movements in shares at current prices, moreover, understate the extent of the structural change. For since 1952 the prices of agricultural products have been rising, while those of industrial products have been falling. Thus at constant prices, the share of industry in NMP has risen by 39 percentage points, while its net output growth rate - an average of 12% per year - has been 4.5 times that of agriculture (Table 3.4).

Table 3.4: SECTORAL NET OUTPUT GROWTH AT CONSTANT 1970 PRICES (%)

	1952-57	1957-79	1952-79
Agriculture	4.9	2.3	2.7
Industry	19.4	10.8	12.3
Material services	10.1	3.9	5.0
Net Material Product	8.2	5.3	5.8

Source: Annex A, Table A.8 (using double-deflated series, with brigade industry included in industry, and construction included in services).

3.21 With adjustment solely for differences in accounting conventions, the international statistics in Table 3.5 suggest that the share of agriculture in GDP is significantly smaller in China than in other low-income developing countries, though it is double that in middle-income countries. The share of industry, however, is much greater - nearly twice the share in other low-income

countries and about 25% higher than in middle-income countries. The share of services is small - rather more than half that in other low-income countries and rather less than half that in middle-income countries.

Table 3.5: INTERNATIONAL COMPARISON OF PRODUCTION STRUCTURE, 1979 (%)

	China (adjusted)		India	Indonesia	Low- income countries	Middle- income countries
	<u>/a</u>	<u>/b</u>				
Agriculture	31	(34)	38	30	38	15
Industry	47	(40)	27	33	24	38
Services	22	(26)	35	38	38	48
Gross domestic product at market prices	100	(100)	100	100	100	100

/a Adjusted only for differences in accounting conventions.

/b Approximate adjustment also for relative price differences - see para. 3.25.

Sources: Annex A, Tables A.13 and A.14.

3.22 Concurrently with the changes in the structure of output, there have been changes - though less pronounced - in the structure of employment (Table 3.6). The industrial labor force has grown only about three times as fast as the agricultural labor force, implying that the gap in output per worker between industry and agriculture has widened. The proportion of the labor force engaged in services rose in the 1950s, but has remained constant since 1957, despite the declining share of services in output./1

/1 Employment data include construction in services, whereas output data include it in industry. But even if construction output is shifted from industry to services, the share of services in GDP still declines markedly.

Table 3.6: SECTORAL EMPLOYMENT (%)

	Annual average growth		Percentage of total 1979
	1952-79	1957-79	
Agriculture	2.0	2.0	74
Industry	5.5	6.3	13
Services	3.4	2.5	13
<u>Total Employment</u>	<u>2.5</u>	<u>2.5</u>	<u>100</u>

Source: Annex B, Table 10.1. Brigade enterprise employment is included in agriculture and construction employment in services.

3.23 The share of agriculture in employment in China (when adjusted for differences in coverage) is much the same as in other low-income countries, while the share of industry is significantly higher and of services significantly lower (Table 3.7). The differences between China and other low-income countries are less marked as regards sectoral employment shares than as regards sectoral output shares. This implies that the relative sectoral productivity of labor differs between China and other countries (Table 3.7). Specifically, the ratio of net output per worker in industry to net output per worker in agriculture is about 6 in China, as compared with about 4 on average in low-income countries and about 5 on average in middle-income countries.^{/1} Net output per worker in services is also relatively low in China - two thirds of the average for industry, as compared with about 100% in other low-income and middle-income countries.^{/2}

3.24 One possible reason for the unusually high relative (value) productivity of industrial labor in China is unusually high relative physical productivity; another is unusually high relative prices for industrial products. Without reasonably comprehensive data on (especially industrial producer good) prices in China, the two elements cannot be disentangled directly. But there is indirect and fragmentary evidence that, despite their marked decline over the past 30 years, high industrial relative prices are an important part of the explanation (Annex A, para. A.17).

^{/1} The ratio for Indonesia, however, is close to 6, possibly because of the importance of oil in industrial output.

^{/2} Indonesia is again an exception.

Table 3.7: INTERNATIONAL COMPARISON OF SECTORAL EMPLOYMENT

	China	Percentages of total, 1978			
	Percentage of total 1979 (adjusted)	India	Indonesia	Low-income countries	Middle-income countries
Agriculture	71	74	60	72	45
Industry	17	11	11	11	23
Services	12	15	29	17	32
<u>Total employment</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
	<u>Sectoral Labor Productivity Ratios, 1979 /a</u>				
Industry/agriculture	6.1	4.8	5.9	4.1	5.0
Industry/services	1.5	1.0	2.3	1.0	1.1

/a Calculated from sectoral shares of GDP and total employment.

Source: Annex A, Tables A.12-13 and para. A.15.

3.25 If allowance were made for this difference in relative prices, sectoral output shares in China would appear less different from those in other developing countries. For example, if it were assumed that the whole of the difference between China and India in relative industrial labor productivity was due to different internal prices, and a suitable further adjustment were made to the Chinese data, then the shares of agriculture, industry and services in China would be 34%, 40% and 26%, respectively.^{/1} But this would not vitiate the broad conclusions that China is industrially advanced by low-income country standards, that the share of agriculture is high by middle-income country standards, and that the share of services is low by the standards of all other developing countries.^{/2}

^{/1} Indian prices are used in this and subsequent adjustments, not because they are "undistorted," but because they are reasonably representative of prices in most developing countries, and hence provide an appropriate basis for comparing China with other developing countries. At world market prices, the share of industry in China would appear even lower, and that of agriculture higher.

^{/2} Adjustment for relative price (and wage) differences reduces the dissimilarity as regards the service share between China and other developing countries. But a substantial gap remains. One possibly important reason for this, which is common to both China and the East European centrally planned economies (Annex A, para. A.14), is the high degree of vertical integration in the economy, and the consequent swallowing-up of many services in the output of other sectors. Another reason, more peculiar to China, is the small scale of the personal service sector.

Growth

3.26 The official estimates of real NMP and population in Table 3.8 suggest the rapid but uneven pace of growth in China since the revolution. In the first three years of recovery from the civil war, there was an extraordinarily large expansion of production, which was followed by fast growth during the period of the First Five-Year Plan. During the Great Leap Forward, output at first rose sharply (the exact magnitude of the rise is not known because of widespread falsification of statistics at that time) but subsequently plunged back by 1962 to about 12% below the 1957 level. After a short recovery period, growth was quite fast during the first half of the Cultural Revolution, but considerably slower during the second half. In the subsequent period of adjustment, growth was especially rapid in 1977-79.

Table 3.8: POPULATION AND INCOME GROWTH, 1949-80

	Population ----- (average annual growth, %)	Net material product in constant prices (average annual growth, %)	Net material product per capita -----
1949-52, Rehabilitation period	2.00	19.3	17.0
1953-57, First Five-Year Plan	2.38	8.9	6.4
1958-62, Second Five-Year Plan (including the Great Leap Forward, 1958-60)	0.62	-3.1	-3.7
1963-65, Adjustment period	2.85	14.7	11.5
1966-70, Third Five-Year Plan	2.63	8.3	5.5
1971-75, Fourth Five-Year Plan	2.17	5.6	3.4
1976-80, Fifth Five-Year Plan	1.33	6.2	4.8
1952-79	1.96	6.1	4.1
1957-79	1.87	5.4	3.5
1977-79	1.35	9.7	8.2

Source: State Statistical Bureau.

3.27 These fluctuations - which appear even larger in year-to-year data - were in large part caused by errors and changes of policy; but they make the

high trend growth rate more impressive. Even in 1957-79, NMP grew at an average annual rate of 5.4%, or 3.5% per capita./1

3.28 For international comparisons, the Chinese data on NMP need to be converted to the concept of Gross National Product (Table 3.9). This makes only a negligible difference to the growth rate for 1957-79, which on a per capita basis appears much higher than the average for other low-income countries (1.6% over roughly the same period) and is not far below the average of 3.7% for middle-income and industrialized countries.

Table 3.9: INTERNATIONAL COMPARISON OF NATIONAL INCOME

	Gross national product per capita	
	Average annual growth at constant prices (%), 1957-79 /a	Level, 1979 (\$)
China	3.5 (2.7)/b	256
India	1.4	190
Indonesia	4.1	380
Sri Lanka	2.0	230
Low-income countries	1.6	230
Middle-income countries	3.7	1,420
Industrialized countries	3.7	9,440

/a Figures for countries other than China refer to 1960-78.

/b Figure in brackets is adjusted for relative price differences.

Sources: Annex A, Table A.18 and paras. A.19-A.24. For countries other than China, the level of GNP per capita in 1979 is from the World Bank's Atlas, 1980.

3.29 The growth of aggregate output, though, is in effect a weighted average of sectoral output growth rates, with the weights being the share of each sector in the total. Thus unusually high industrial prices, which elevate the share of industry (the fastest-growing sector), tend to exaggerate China's growth rate relative to other countries' rates. But even if it were again assumed that the whole of the difference between China and India in

/1 The estimated trend is of course affected by the choice of endpoints, which is constrained by data availability. In 1957, the harvest appears to have been good but not outstanding. The harvests in 1978 and 1979, however, were both outstanding, while that in 1977 was below average. The best estimate of the trend growth rate in this period is thus probably somewhere between 5.4% (in both 1957-78 and 1957-79) and 5.0% (in 1957-77).

relative industrial labor productivity is due to different internal prices, and a suitable adjustment were made, China's growth rate of GNP per capita in 1957-79 would still be 2.7%, well above the average for other low-income countries./1 (Of this difference of 1.1 percentage points in per capita GNP growth between China and other low-income countries, approximately 0.5 percentage points represents slower population growth in China, and the remainder faster growth of aggregate production.) However, China's adjusted per capita GNP growth rate is significantly below the 3.7% average in both middle-income and industrialized countries in this period.

3.30 Conversion at the official exchange rate puts China's per capita GNP in 1979 at \$256, somewhat above the average for other low-income countries, but far below the average for middle-income countries./2 It is important to establish, however, that this gives a reasonably accurate impression of China's real income in relation to that of other developing countries.

3.31 As a starting point, and despite the shortage of internal price data for China, a rough comparison can be made with India - the second largest low income country - in two ways: first, on the basis of information about both countries' agricultural production and composition of GDP, together with the assumption (para 3.25) about their internal price structures; second, by projecting their current levels of per capita GNP back to earlier years for which independent real income comparisons have been attempted. These exercises are described in Annex A, paras. A.25-29. They suggest that China's per capita real income is currently 20-50% above that of India. This is consistent with the 35% implied by the official-exchange-rate-based estimates in Table 3.9.

3.32 Based on this comparison of China with India, and earlier work that permits approximate real income comparisons between India and other countries, China's real per capita GNP appears about half that of the Philippines, about one third that of Colombia and Malaysia, and about one tenth that of the industrialized countries (Annex A, Table A.20). As is usually the case with real income comparisons, the gaps are smaller than when official exchange rates are used. But China's ranking in relation to other developing countries is not much altered.

Investment

3.33 Official estimates of the share of investment in total material expenditure (Table 3.10) illustrate the rising trend over the past three decades in the share of aggregate resources devoted to investment (although there have been substantial fluctuations around this trend). At current prices, the ratio of investment to total material expenditure rose between 1952 and 1979 from 21% to 34%. At constant prices, the rise was even steeper (from 13% to 36%: Annex A, Table A.26).

/1 If evaluated at world market prices, the Chinese growth rate would appear even lower. But so would the growth rates of most other developing countries.

/2 This estimate of China's per capita GNP is made by the World Bank Atlas method, which involves a three-year average of exchange rates: for details, see Annex A, paras. A.23-24.

3.34 Adapting the Chinese data to the Western national accounting framework (Table 3.10), the share of investment in GDP was about 23% in 1957 (the data needed for the conversion are unavailable for 1952) and 31% in 1979 - much higher than in other low-income countries (21%) and middle-income countries (25%). Part of this disparity is probably caused by the unusually high relative price of industrial (and hence of investment) goods in China discussed earlier. But even after a rough adjustment to correct for this, the share of investment in China is still 27%, well above the average for other low-income countries and somewhat above that for middle-income countries.

Table 3.10: INVESTMENT SHARE

	China /a			India	Indonesia	Low-income countries	Middle-income countries
	1952	1957	1979			1978	
<u>Investment as % of:</u>							
Total material expenditure	21.4	24.0	33.6	n.a.	n.a.	n.a.	n.a.
Gross domestic product	n.a.	23.2	31.1	24	20	21	25
			(27.1)/b				

/a At current prices.

/b Adjusted for relative price differences.

Source: Annex A, Table A.22 and paras. A.30-33.

3.35 Moreover, the above comparison understates the degree to which China's domestic savings rate has exceeded that of other developing countries. In other low-income developing countries in 1978, more than a quarter of investment was financed by inflows of external funds (in middle-income countries, this proportion was about a tenth). In China, by contrast, the proportion of investment financed by domestic savings in 1979 was about 97%; on average during the past 20 years it has been over 100%, since China has not received any foreign capital and has, in fact, maintained a substantial foreign aid program.

3.36 In considering investment efficiency, macroeconomic assessments are always unreliable because they ignore the sectoral composition of investment, and this problem is aggravated by the need to adjust the Chinese data for international comparisons. But with due qualification, the aggregate incremental capital-output ratio (ICOR)/1 in China in 1957-79 was in the range

/1 The ICOR (expressed, say, in dollars) measures the average amount of new capital used to add one dollar to aggregate output. For details, see Annex A, para. A.34.

4.8-5.4, depending on the assumptions made about relative prices (see Annex A, para. A.34-A.38 and Table A.23). This is not much above (i.e. worse than) the 1960-78 average of 4.6 for other low-income countries, most of which themselves use capital inefficiently. But it is much higher than normal for a country that has grown as fast as China (the average for middle-income countries was 3.9), and that has devoted so little investment to "nonproductive" uses such as housing.

3.37 Although comparable calculations for different time periods are not possible, the aggregate ICOR in China apparently increased by about 80% between the 1950s and the 1970s. This was partly because the gestation period of investment projects increased (from four to five years in the 1950s to eight or more years in the mid-1970s). But the average productivity of installed capital has declined even more sharply (see Annex A, para A.38).

3.38 It is difficult to assess how much of this rise in the Chinese ICOR is due to increased inefficiency (in an economically meaningful sense), and how much to changes in the structure of the economy and other "natural" causes. Aggregate ICORs have tended to rise in most other developing countries, which suggests that increased inefficiency is unlikely to be the whole explanation. On the other hand, however, the rise in the Chinese ICOR has apparently been unusually steep, despite a marked decline in the share of investment allotted to "nonproductive" uses. The macroeconomic evidence thus tends to confirm much microeconomic evidence that investment in China over the past two decades has been inefficient. Some reasons for this may be inferred from the composition of investment.

3.39 The proportion of total investment accounted for by increases in inventories and work-in-progress was on average one quarter in 1977-79 (and close to 30% in every year since 1957 for which the necessary data are available). Differences of definition and coverage (especially the convention in China and other centrally planned economies of treating expenditure on unfinished construction projects as an increase in inventories rather than as fixed investment) preclude comparison with other developing countries.^{/1} For six centrally planned economies, this proportion in 1975-78 ranged from 13% (German DR) to 37% (USSR), with an average of 24%, which is similar to the rate in China.^{/2} But in most of these countries, as in China, there is microeconomic evidence that inventories are inordinately high, due to mismatches between demand and supply, inability to guarantee supplies, and lack of incentives to economize on working capital.

^{/1} For a sample of eight other developing countries (India, Pakistan, South Korea, Malaysia, Sri Lanka, Thailand, Colombia, Mexico) in 1975-78 the average ratio of inventory (excluding unfinished construction) to total (gross of depreciation) investment was about 7%. For a sample of six industrialized countries (Canada, France, Italy, Federal Republic of Germany, USA, UK), it was about 4%. UN, Yearbook of National Accounts Statistics, 1979, Table 2A.

^{/2} The other countries are Czechoslovakia, Hungary, Poland and Yugoslavia. The USSR figure is for 1971-74. UN, Yearbook of National Accounts Statistics, 1979, Table 2B.

3.40 The official data on the sectoral allocation of fixed investment in China are in important respects incomplete (Annex A, para A.39-40). But Table 3.11 presents rough unofficial estimates for 1965 and 1977-79. These suggest that about 20% of total fixed investment has gone into agriculture and about 55% into industry, of which four fifths has been for heavy industry. The remaining quarter of total fixed investment has gone into transport, commerce, housing and social services.

Table 3.11: SECTORAL COMPOSITION OF TOTAL FIXED INVESTMENT (%)

	1965	1977-79
Agriculture	20	21
Industry	54	57
- heavy	(45)	(47)
- light	(10)	(10)
Other	25	23
<u>Total</u>	<u>100</u>	<u>100</u>

Source: Annex A, Table A.24.

3.41 The high share of industry - especially heavy industry - and the much lower share of agriculture have been criticized in China as inappropriate and wasteful, on two counts. First, this sectoral allocation of investment has stemmed from an unjustifiably high aggregate investment ratio; and second, a different sectoral allocation would have yielded better returns. Since the former criticism partly depends on a subjective or political judgment on the degree to which current consumption should be sacrificed in order to raise future consumption, it is appropriate to concentrate here on the latter, more objective, criticism.

3.42 Direct information on the relative marginal returns to investment in different sectors is not available. But in 1957-79, the net output of industry at constant 1970 prices increased in absolute terms by 3.8 times as much as the net output of agriculture, while industry (on the basis of the estimates in Table 3.11) appears to have absorbed rather less than three times as much fixed investment as agriculture. This might suggest that on average the returns to investment were higher in industry than in agriculture. If, however, sectoral output growth were evaluated not at 1970 Chinese prices but at a price ratio similar to that in India, industrial output in absolute real terms would have increased in 1957-79 by only 2.4 times as much as agricultural output (Annex A, para. A.40); and at world market prices, the comparison would appear even less favorable to industry. This suggests that the average returns to investment have in fact been lower in industry than in agriculture./1

/1 This method of assessment assumes, inter alia, that the contribution of investment in each sector to output growth in other sectors (e.g. industrial investment in fertilizer production) is reasonably accurately reflected in the volume and prices of intersectoral sales.

3.43 The overall efficiency of investment in China may therefore have been reduced because too large a share was allocated to industry and too small a share to agriculture. But this is probably also true of most other developing countries. Thus the apparently lower average efficiency of investment in China than in other developing countries probably does not stem mainly from the misallocation of investment between broad sectors, but is more likely due primarily to excessive inventory investment and to the misallocation and inefficient use of fixed investment within broad sectors.

Consumption

3.44 Material consumption per capita is estimated to have grown in real terms at an annual rate of 4.7% in 1952-57 and 1.9% in 1957-79 (Table 3.12). Total consumption (calculated by adding nonmaterial services to material consumption) per capita is also estimated to have grown at an average annual rate of 1.9% in 1957-79. This is significantly above the average of 1.2% for other low-income countries, though well below the middle-income countries' average of 2.9%. But the disparity between the rates for China and other low-income countries is smaller as regards consumption growth than as regards income growth (Table 3.9), because the share of investment in income has risen faster in China (at 1970 prices, the marginal domestic saving rate in 1957-79 was over 40%). Also, the comparison would look less favorable to China if 1977 rather than 1979 were selected as the terminal year, since two fifths of the total increase in consumption in 1957-79 occurred between 1977 and 1979: in 1957-77, per capita consumption grew at an annual average rate of only 1.3%, barely above the average for other low-income countries.

Table 3.12: CONSUMPTION AND PERSONAL INCOME

	China		Level 1979 (\$)	India	Indonesia	Low- income countries	Middle- income countries
	Annual average real growth (%)						
	1952-57	1957-79					
<hr/>							
<u>Consumption</u>							
<u>Per Capita</u>							
Material	4.7	1.9	148	n.a.	n.a.	n.a.	n.a.
Total	n.a.	1.9	170/a	1.0	3.2	1.2	2.9
<hr/>							
<u>Personal Income</u>							
<u>Per Capita</u>							
Urban	n.a.	2.9	244				
Rural	n.a.	1.6	111				
Total	n.a.	2.0	131/a				

/a The disparity between these two figures, which are estimated from different official sources, is attributable partly to collective consumption and personal savings, but also to errors and omissions in the underlying data - see Annex A, para. A.50.

Source: Annex A, Tables A.26-27 and A.29 and paras. A.41-A.44, A.51-53.

3.45 Consumption growth for specific commodities is shown in Table 3.13. Grain consumption per capita grew at only 0.6% p.a. in 1957-79 - and not at all between 1957 and 1977. Consumption of vegetable oil also grew very slowly. Consumption of nonstaple foods such as meat (2.6%) and sugar (4.3%) rose faster. Consumption of manufactured goods rose faster still, as suggested by the 6% per capita annual average real growth of light industry gross output in 1957-79. Within the manufactured category, the largest single item, cotton cloth, grew at under 2% per capita. But per capita purchases of other manufactured goods grew very fast (albeit from a low initial level) - radios at 16%, bicycles at 10%, sewing machines at 12%, and watches at 60%.

Table 3.13: ANNUAL PER CAPITA CONSUMPTION OF SPECIFIC COMMODITIES

	Annual average real growth (%)		Level 1979
	1952-79	1957-79	
Grain (kg)	0.7	0.6	236.1
Vegetable oil (kg)	-0.2	0.3	2.3
Pork, beef and mutton (kg)	2.3	2.6	10.9
Sugar (kg)	n.a.	4.3	3.7
Cotton cloth (meters)	2.0	1.7	11.4
Radios (per '000 persons)	25.7	16.0	14.3
Bicycles (per '000 persons)	17.0	9.8	9.8
Sewing machines (per '000 persons)	15.4	12.3	5.6
Watches (per '000 persons)	n.a.	60.1	19.6

Source: Annex A, Table A.28 and para. A.42.

D. Income Distribution

Regional Inequality

3.46 Marked interprovincial differences exist in both agricultural and industrial output per capita: as a percentage of the national average, the range in agriculture is from 65 in Guizhou to over 200 in the suburbs of the large cities, and in industry from 36 in Guizhou to 1,106 in Shanghai (Table 3.14). These differences, moreover, are positively correlated (R = + 0.8):/1 regions with high agricultural output per head tend also to have high industrial output per head.

/1 R is a coefficient which measures the strength of linear correlation: a value of (+ or -) 1.00 would indicate a perfect (direct or inverse) correlation, while a value of zero would indicate no correlation.

Table 3.14: REGIONAL INEQUALITY, 1979

	Gross value of output per capita as % of national average		Distributed collective income per capita /c (% of national average)	Population (% of national total)
	Industry /a	Agriculture /b		
Northeast				
Liaoning	256.6	131.4	137.9	3.5
Jilin	120.0	115.2	139.2	2.3
Heilongjiang	140.9	133.2	132.1	3.3
Northwest				
Shaanxi	79.6	86.6	95.4	2.9
Gansu	92.3	67.9	67.9	2.0
Qinghai	78.3	97.0	117.0	0.4
Ningxia	80.0	81.6	82.4	0.4
Shanxi	91.3	101.5	102.9	2.5
Nei Monggol	62.9	97.1	92.1	1.9
North China Plain				
Henan	50.0	83.4	76.0	7.4
Hebei	83.7	108.9	99.8	5.3
Shandong	87.3	101.0	95.0	7.4
Upper Middle Chang Jiang				
Sichuan	53.6	79.7	83.0	10.1
Hubei	85.9	120.3	127.3	4.8
Hunan	63.2	103.6	110.7	5.4
Jiangxi	51.1	98.6	107.1	3.3
Chang Jiang Delta				
Anhui	50.5	82.3	84.3	4.9
Zhejiang	84.5	123.7	125.2	3.9
Jiangsu	138.4	141.5	119.0	6.1
South				
Fujian	58.5	89.7	81.4	2.6
Guangdong	78.6	86.7	106.0	5.7
Guangxi	57.0	78.8	89.6	3.6
Guizhou	35.6	65.1	55.6	2.8
Yunnan	40.3	69.7	77.5	3.2
Border Regions				
Xizang	/d	127.5	152.9	0.2
Xinjiang	54.1	113.7	122.8	1.3
Cities				
Shanghai	1,106.4	234.6	257.1	1.2
Beijing	512.8	186.9	180.8	0.9
Tianjin	497.9	283.7	174.0	0.8
National Average	100.0	100.0	100.0	100.0

/a Divided by total provincial population.

/b Divided by rural population.

/c Per commune member.

/d Not available, but very low.

Source: Annex B, Tables 1.2, 1.4, 6.11 and 7.7.

3.47 Since 1952, interprovincial differences in per capita industrial output have narrowed somewhat in proportional terms, mainly because growth has deliberately been kept below the national average in the old industrial centers (Shanghai, Tianjin and the northeastern provinces) and above the national average in the interior and border provinces and the new capital, Beijing.^{/1} In agriculture, the pattern of change appears to have been more mixed, although data limitations currently preclude an accurate assessment.

3.48 Interprovincial inequalities of per capita industrial output are clearly much greater than those of agricultural output, but they have much less effect on interprovincial inequalities of personal income and consumption. One reason for this is that real wages in state industry are (para. 2.58-2.59) in principle uniform throughout China. Another is the centralized budgetary system: although more industrialized provinces have had higher per capita revenues (three quarters of industrial net output is not wages but profits and taxes), they have not been allowed commensurately higher levels of expenditure (para. 2.19). Yet another reason is the centralized system of commodity allocation: provinces do not control the end uses of most of the industrial output produced within their borders.

3.49 A higher level of industrialization can thus raise per capita personal incomes in a province in only three, comparatively minor, ways. First, by generating a higher level of urban employment, since wages in state industry generally substantially exceed rural earnings (see below). Second, by the industries being commune owned, since most commune industry revenue accrues directly or indirectly to commune members. Third, by the industries being of a scale and type such that provincial or subprovincial authorities control the allocation of their output, especially to agriculture.

3.50 Interprovincial differences in agricultural output per capita, by contrast, are of major distributional significance. Most agriculture is in the hands of communes; taxation of agriculture is light; and the incomes of individual commune members depend directly on the productivity of their commune. Thus Table 3.14 shows a strong interprovincial correlation ($R = + 0.9$) between agricultural output per capita and distributed collective income per commune member.

Rural-Urban Inequality

3.51 Because of these marked interprovincial differences in agricultural incomes, and the much greater uniformity of urban personal incomes, the gap between urban and rural incomes varies widely from province to province - being largest in agriculturally poor provinces such as Gansu and smallest in

^{/1} See Annex D, paras. 2.37-38.

agriculturally prosperous provinces such as Liaoning.^{/1} On average, nationwide, the data in Table 3.12 suggest that in money terms urban per capita income is currently about 2.2 times rural income.^{/2} Higher income per urban worker explains most of the difference: the rest is due to a higher participation rate (the ratio of workers to population) in urban (55%) than in rural (42%) areas.

3.52 The figure of 2.2 may be cautiously compared with similar statistics in other developing countries (Table 3.15). The comparison suggests that the urban-rural income ratio in China in 1979 was not very different from that in other Asian developing countries.

Table 3.15: INTERNATIONAL COMPARISON OF RURAL-URBAN INEQUALITY

	Ratio of average urban income to average rural income	
	Per capita	Per household
China, 1979	2.2	1.7
Bangladesh, 1966/67	n.a.	1.5
India, 1975/76	1.9	1.8
Sri Lanka, 1969/70	n.a.	1.7
Indonesia, 1976	n.a.	2.1
Malaysia (Pen.), 1970	2.2	2.1
Philippines, 1971	n.a.	2.3
Thailand, 1975/76	2.2	n.a.
Brazil, 1976	2.3	n.a.

Source: Annex A, paras. A.48 and A.63.

^{/1} Though not calculated on the same basis as the national average urban-rural income ratio mentioned above, the following estimates of per capita consumption in 1979 provided to the mission by provincial authorities confirm that interregional variation in the ratio is primarily caused by variation in rural incomes.

	Agricultural population	Workers and staff
	----- (Y per year) -----	
Gansu	93	408
Hubei	156	463
Jiangsu	181	525
Liaoning	231	437

^{/2} For the source of this figure, see Annex A, paras. A.45-48.

3.53 In money terms, the Chinese urban-rural income ratio appears to have been about the same in 1957 as in 1979,^{/1} and for some of the intervening period (prior to the large increase in agricultural procurement prices in 1979) to have been substantially greater. In real terms, moreover, since the "cost of living" has risen faster in rural than in urban areas, the gap appears to have widened considerably: urban per capita incomes are estimated to have increased in 1957-79 at an annual average real rate of 2.9%, but rural incomes at only 1.6% (Annex A, paras. A.51-52). This has occurred despite official efforts to reduce the gap by holding down urban wage rates - the average real wage in state organizations in 1979 was slightly lower than in 1957 - and by raising agricultural procurement prices. But physical productivity per worker in agriculture has risen very little, and the participation rate in urban areas has increased faster (from about 33% in 1957 to the current level of about 55%) than in rural areas - both in part because of restrictions on rural-urban migration.

3.54 To get a more accurate picture of the current disparity between urban and rural living standards, the data on money incomes should be supplemented by information on the quantities of specific commodities consumed. Comprehensive information of this kind for recent years is not yet available. But fragmentary statistics tend to confirm that the rural-urban living standard gap is substantial.^{/2} Consumption of food, ownership of consumer durables, and quality of clothing, for example, all appear to be much higher in urban areas - as indeed are the level of income support arrangements (paras. 2.66-2.70) and the quality of education and health facilities.

3.55 The one possible exception is housing, of which there is an acute shortage in urban areas (partly because construction of dwellings was until recently given very low priority in the allocation of investment). Families frequently have to share accommodation, and the average floor space per person was estimated in 1978 at only 3.6 square metres - not much larger than a double bed.^{/3} In rural areas, there is apparently less crowding: a 1979 survey reports that "each peasant household occupies 3.8 rooms."^{/4} But water and sanitation facilities are probably better in urban areas, and urban rents are extremely low.

^{/1} N. Lardy, Economic Growth and Distribution in China, Cambridge U.P., 1978, p. 179.

^{/2} The results of recent household surveys in Sichuan and nationwide indicate that the urban-rural ratio of per capita consumption is 2.4 for meat and 1.9 for cloth, and that the urban-rural ratio of per capita consumer durables ownership is 4.7 for bicycles, 3.8 for sewing machines, 4.3 for radios, 8.5 for wristwatches, and 10.3 for televisions. In Annex C, para. 3.19, it is estimated that the urban-rural per capita grain consumption ratio is 1.6.

^{/3} Liu Guoguang and Wang Xiangming, "The Problem of Rate and Proportional Relationships in China's Economic Growth: an Examination" (Social Science in China, No. 4, 1980).

^{/4} People's Daily, January 3, 1981.

Urban Inequality

3.56 The results of a large-scale sample survey of urban incomes in early 1980 are summarized in Table 3.16. They imply (Table 3.17) that the poorest 40% of the urban population receive about 30% of total income, the richest 20% receive about 28%, and the richest 10% receive about 16%.

Table 3.16: URBAN INCOME DISTRIBUTION, 1980

Income class (Y per capita per month)	Percentage of urban income	Percentage of urban population	Average wage per worker (Y/month)	Average participation rate (%) <u>/a</u>
Over 50	12.5	7.3	71.2	85.3
35-50	34.9	28.2	64.4	68.2
25-35	35.1	38.0	63.5	51.5
15-25	16.5	24.0	61.9	39.4
Under 15	1.0	2.5	62.4	24.7
<u>Total/average</u>	<u>100.0</u>	<u>100.0</u>	<u>63.9</u>	<u>55.1</u>

/a Number of workers as a percentage of the number of household members.
Source: Annex A, Table A.30 and para. A.54.

3.57 By international standards (even allowing for differences of definition and coverage), this is an extraordinarily low degree of urban inequality, as the comparisons in Table 3.17 illustrate. The share of the poorest 40% is roughly double the average for other developing countries, the share of the richest 10% roughly half. The Chinese urban Gini coefficient^{/1} of 0.16 compares with an average of about 0.43 in other developing countries; the lowest coefficients recorded in other developing countries are roughly double the Chinese figure.

3.58 There are three main reasons for the much lower level of urban inequality in China. First, and with the exception of interest on savings deposits, there is no private property income (rents, dividends and profits), which tends to be highly unequally distributed in other countries. Second, there is almost no income from self-employment - a category that (since it includes everything from successful businessmen and independent professionals to street-hawkers) also exhibits a high degree of inequality in other countries. Third, the distribution of wages and salaries is comparatively equal, primarily because the relative pay of managerial, professional and technical employees is much lower than in most other developing countries.^{/2} (Wage differences among manual workers, by contrast, are not very different from those in other countries.)

/1 The Gini coefficient is a measure of the degree of inequality: its value can range from zero, indicating complete equality, to one, indicating that all income is accruing to a single recipient.

/2 Lardy, op. cit. p. 179.

Table 3.17: INTERNATIONAL COMPARISON OF URBAN INCOME INEQUALITY

	Income shares of recipient groups			Gini coefficient
	Poorest 40%	Richest 20%	Richest 10%	
China, 1980	30.0	28.2	15.8	0.16
Bangladesh, 1966/7 *	17.1	47.2	31.5	0.40
India, 1975/6	16.9	48.8	34.1	0.42
Pakistan, 1970/1 *	19.1	44.4	29.7	0.36
Sri Lanka, 1969/70 *	16.3	47.5	31.7	0.41
Indonesia, 1976 *	16.0	49.4	34.5	0.43
Malaysia (Pen.), 1970	11.2	56.5	40.3	0.52
Philippines, 1971 *	13.7	54.1	35.3	0.47
Thailand, 1975/6	17.5	46.6	32.2	0.40

Note: Distribution is of people ranked by household per capita income, except for countries marked *, where the distribution is of households ranked by total household income. See Annex A, paras. A.54 and A.63-6, for sources and further notes.

3.59 China appears similar to other countries, however, inasmuch as a substantial proportion of urban inequality is caused by variations among households in participation rates. The per capita income difference between the richest and poorest category of households in Table 3.16 (Y 46 per month) is far larger than the difference in earnings per worker (Y 9) and is thus explained mainly by the large difference (85% versus 25%) in the ratio of workers to household members. These differences in participation rates in turn are probably largely due to demographic factors - variation in the age and sex composition of households. But they may also reflect some urban unemployment, especially among the young: several million people are currently estimated to be "waiting for jobs," although the great majority of these are reported to be in some form of temporary employment.

3.60 There are no statistics on the distribution of real consumption (the quantities of specific goods consumed at different income levels), but this is unlikely to deviate widely from the distribution of money income. For although important people undoubtedly enjoy special treatment such as better housing and use of official cars, the rationing system and the low prices of necessities relative to luxuries have an opposite - and probably much larger - effect. More generally, the income statistics in Table 3.16 are entirely consistent with common observation: in the streets of urban China, one sees a uniformity of dress, state of health and mode of transport that is without parallel in any other country in the world - and that is dramatically different from what is found in most other developing countries.

Rural Inequality

3.61 In the first ten years after the revolution, measures were taken that substantially reduced inequality and poverty in rural areas. In human terms, perhaps the most important was an improved system for distributing food to localities with bad harvests. In economic terms, the most important measure was land reform, which was followed by collectivization. As a consequence, the situation since the late 1950s has differed markedly from that in other developing countries: within production teams ownership of land and capital has not affected income inequality; or, to put it another way, the returns to land and capital have been shared among team members roughly in proportion to their work.

3.62 But other sources of inequality remain. One is differences between households in participation rates caused by differences in age and sex composition. Another is differences between teams in the quantity and quality of land per person, which, since richer teams save proportionately more, also give rise to differences in capital per person. Attempts to reduce interteam inequality, by discriminating in favor of poorer teams in the allocation of commune and state funds, seem to have had some effect within particular communes. But there has been no major effort to diminish or eliminate this arbitrary source of income inequality by, say, taxing income or land progressively./1

3.63 China, moreover, has more or less eliminated an important equalizing force present in most other developing countries, namely migration - both between rural areas and from rural to urban areas. Restricting migration has had some beneficial effects on rural inequality and poverty, since it has forced people in backward areas to make the most of their limited resources. But those born where the land is particularly crowded or the soil infertile have usually had to remain there all their lives. In general, greater freedom of movement might have diminished rural inequality, especially in light of increasing evidence from other developing countries that migration has on balance reduced poverty./2

3.64 National data for 1979 on differences in income between teams (measured as annual distributed collective income per capita)/3 show that 16%

/1 In the 1950s, the agricultural tax was significantly progressive. Since then, however, the general practice of not raising the absolute quantity of grain collected as tax has reduced (a) its importance - from 8% of agricultural net output in 1957 to 3% in 1979, and (b) its progressivity - since the decline in the proportion of output paid in tax has been greatest where output has grown fastest. On the other hand, the amount of tax collected in the poorest provinces has been somewhat reduced in physical terms, and since 1979, production teams whose per capita collective grain distribution is less than 150-200 kg (within this range, there is provincial discretion) have been exempted from the tax.

/2 See, for example, World Development Reports, 1979 (Chapter 6) and 1980 (p. 44).

/3 Distributed collective income is the part of a production team's collective earnings that is distributed to its constituent households (in cash and grain, but all expressed in money terms): see paras. 2.42 and 2.46.

of teams have an income of Y 40 or less, while 25% have an income in excess of Y 100 (Annex B, Table 2.7). This indicates substantial inequality caused by interteam variations in land and other resources per person. But for comparison with other developing countries, allowances must be made in these statistics for (a) undervaluation of income in kind, (b) income inequality between households within teams caused by variations in collective earnings per worker (although these are rather small) and in participation rates, and (c) other sources of income - from private farming and handicraft activities, wages of family members in nonfarming jobs on and off the commune, remittances from relatives in urban areas, social relief, and so on./1

3.65 Table 3.18 presents a distribution of rural per capita income based on the official data on inter-team distribution of collective income, but roughly adjusted to reflect these three factors. It implies that the poorest 40% of people receive 20% of total rural income, the richest 20% receive 39%, and the richest 10% receive 23%. The Gini coefficient is about 0.31./2

Table 3.18: ESTIMATED RURAL INCOME DISTRIBUTION, 1979

Income class	Average adjusted income (Y per capita per year)	Percentage of total income	Percentage of people
1	394	21.4	9.2
2	283	17.7	10.6
3	209	16.1	13.0
4	176	11.8	11.3
5	139	11.4	13.9
6	120	7.1	10.0
7	97	5.6	9.8
8	67	8.8	22.2
<u>Total/average</u>	<u>171</u>	<u>100.0</u>	<u>100.0</u>

Source: See Annex A, Table A.33 and paras A.55-61.

3.66 In Table 3.19, a comparison is made with other Asian developing countries, although caution is necessary because of differing definitions and coverage, and because of errors and omissions in the underlying data (see Annex A, para. A.64-6). The statistics suggest that the distribution of rural income in China is not very different from that in the four poorest countries in the table (Bangladesh, India, Pakistan, Sri Lanka), although the income share of the richest groups is somewhat lower - and would probably appear lower

/1 For some purposes, it would also be appropriate to include undistributed collective income, which (since it is proportionally greater in richer teams) would increase the degree of income inequality: see Annex A, para. A.49).

/2 For comparison, the Gini coefficient of the official data on the inter-team distribution of collective income is 0.26.

still if the incomes of the rich in the other countries were more accurately measured. But there is apparently much less rural inequality in China than in the four better-off countries in the table, whose Gini coefficients average 0.42.

Table 3.19: INTERNATIONAL COMPARISON OF RURAL INCOME INEQUALITY

	<u>Income shares of recipient groups</u>			Gini coefficient
	Poorest 40%	Richest 20%	Richest 10%	
China, 1979	20.1	39.4	22.8	0.31
Bangladesh, 1966/7 *	19.9	41.7	26.1	0.33
India, 1975/6	20.2	42.4	27.6	0.34
Pakistan, 1970/1 *	21.9	38.8	24.0	0.30
Sri Lanka, 1969/70 *	18.6	42.5	26.4	0.35
Indonesia, 1976 *	16.4	46.0	32.0	0.40
Malaysia (Pen.), 1970	12.2	54.8	39.3	0.50
Philippines, 1971 *	17.3	46.7	31.7	0.39
Thailand, 1975/6	17.8	46.5	31.1	0.39

Note: Distribution is of people ranked by household per capita income, except for countries marked *, where the distribution is of households ranked by total household income. See Annex A, paras. A.55-61 and A.63-66, for sources and further notes.

3.67 No direct evidence is available on changes in rural inequality in China since collectivization, but there is some reason to suppose that geographical differences in agricultural output per capita have widened in proportional terms; and this has probably been reinforced by a tendency for commune industry to grow fastest in agriculturally prosperous areas. Thus the distribution of rural income may have become more unequal in the past two decades - a trend also observed in other low-income countries.

Overall Income Distribution

3.68 Table 3.20 presents an estimated distribution of per capita personal income among the whole Chinese population, obtained essentially by adding together the urban and rural distributions discussed earlier. It implies that the poorest 40% of people receive 18% of total personal income, the richest 20% receive 39%, and the richest 10% receive 23%. The Gini coefficient is 0.33.

3.69 This overall income distribution is somewhat more unequal than the rural income distribution, despite the fact that the urban income distribution is far less unequal. The reason for this is the large gap between average urban and average rural incomes. Thus although urban people are only about 15% of the total population, they constitute about half of the richest 20% of the population. Likewise, the poorest half of the population is virtually 100% rural.

Table 3.20: ESTIMATED OVERALL (URBAN PLUS RURAL) INCOME DISTRIBUTION, 1979

Income class	Average income (Y per capita per year)	Percentage of total income	Percentage of people
1	498	13.3	5.3
2	394	15.4	7.8
3	307	22.6	14.7
4	221	16.2	14.7
5	175	8.8	10.0
6	139	8.2	11.8
7	120	5.1	8.5
8	97	4.0	8.3
9	67	6.3	18.9
<u>Total/average</u>	<u>202</u>	<u>100.0</u>	<u>100.0</u>

Source: Annex A, Table A.34 and para. A.62.

3.70 Again, there is no direct evidence on trends in overall inequality, but in the first 10 years after the revolution - with the socialization of industry, the collectivization of agriculture, and the imposition of an egalitarian wage structure - inequality must have been sharply reduced. Subsequently, however, rural inequality may have increased, while the urban-rural income gap, though in 1979 similar in money terms to 1957, has widened in real terms. Since the late 1950s, therefore, the overall income distribution has probably become more unequal.

3.71 Comparisons with other developing countries (Table 3.21) are again made with strong reservations about the quality of the data. Broadly speaking, the overall income distribution in China appears somewhat less unequal than in India, though similar to that in Bangladesh, Pakistan and Sri Lanka. It is much less unequal than in the four better-off Asian countries in the table. And it is similar to that in Yugoslavia, a much richer socialist country.

3.72 These differences and similarities in overall income distribution between China and other countries are caused by the interaction of several factors - urban inequality, rural inequality, the urban-rural income gap, and the relative sizes of the urban and rural populations. But intercountry differences in inequality are largely a matter of differences in the share of income received by the richest people; and in this respect, China is the most egalitarian of the Asian countries in the table (and would probably appear even more so if the incomes of the rich in other countries - including retained business profits and capital gains - were more accurately measured). The reason for this characteristic, in which China is similar to Yugoslavia, is the virtual absence of individual income from property.

3.73 But in terms of the income share of the poorest 40%, China, though significantly more egalitarian than the four richer Asian countries in the table, appears rather similar to India and the other Asian countries at around its income level. (The share of the poor in China is also similar to that in Yugoslavia.)

Table 3.21: INTERNATIONAL COMPARISON OF OVERALL INCOME INEQUALITY

	Income shares of recipient groups			Gini coefficient
	Poorest 40%	Richest 20%	Richest 10%	
China, 1979	18.4	39.3	22.5	0.33
Bangladesh, 1966/7 *	19.6	42.3	26.7	0.34
India, 1975/6	18.5	46.5	31.4	0.38
Pakistan, 1970/1 *	20.6	41.5	26.8	0.33
Sri Lanka, 1969/70	20.8	41.8	27.4	0.33
Indonesia, 1976 *	14.4	49.4	34.0	0.44
Malaysia (Pen.), 1973	12.5	55.1	39.8	0.50
Philippines, 1971 *	14.2	54.0	38.5	0.47
Thailand, 1975/6	15.8	49.3	33.4	0.42
Yugoslavia, 1973 *	18.4	40.0	22.5	0.32

Note: Distribution is of people ranked by household per capita income, except for countries marked *, where the distribution is of households ranked by total household income. See Annex A, para. A.62-66, for sources and further notes.

3.74 By way of qualification, it should be noted that large developing countries - of which China is the epitome - tend to have greater regional economic differences and hence greater-than-average income inequality. Another qualification is that the understatement of the incomes of the rich in other countries probably causes the income shares of poorer groups to be overstated (although underreporting among the poorest groups cuts in the opposite direction). But even if the income share of the top 10% in other low-income Asian countries were raised to 50%, the share of the poorest 40% would fall by only 3 to 4 percentage points.

3.75 Thus, in China, the share of poorer groups in total personal income - as conventionally measured in money terms - is probably not very different from the norm for a large country at its income level. A significant underlying difference, however, is that China is composed of communities within which there is comparatively little inequality and between which there is little contact and mobility. In other developing countries, by contrast, extreme poverty and considerable affluence commonly coexist within communities.

3.76 It is now widely recognized, moreover, that income statistics give an incomplete and potentially misleading picture of poverty. What is more relevant is the distribution of real consumption, especially of fundamentally necessary or desirable goods such as food, clothing, housing, medical care, and schooling. And in this regard, notwithstanding their low income share,

the poorest people in China are far better off than their counterparts in most other developing countries./1

E. Human Development

3.77 To understand why this is so, it is appropriate to focus on three key aspects of human development - basic education, nutrition and health. Each is important in itself as an aspect of well-being. But they are also interrelated: nutrition affects health and educational attainment; health affects nutritional status and schooling; and education, especially of mothers, affects health and nutritional status, especially of children. Education, health and nutrition, moreover, are all causally interlinked with both income and fertility (see para. 3.11)./2

Basic Education

3.78 China, like other socialist countries, has strongly emphasized wide diffusion of literacy and numeracy. Although the relative emphasis accorded to basic and more advanced education and training (see paras. 4.91-4.108 below) has fluctuated over time, as have the efficiency and effectiveness of the methods employed, there has been an unwavering commitment to the spread of basic education. This has been expressed concretely, both in expansion of formal primary and junior secondary schooling, and in the establishment of a remarkably extensive network of adult and informal education.

3.79 As a result of this effort, the proportion of primary school age children enrolled rose from about 25% in 1949 to 93% in 1979, while the secondary enrollment ratio rose from about 2% to 51%. (In addition, large numbers of overage children and adults are enrolled in primary education: the ratio of pupils in primary education to the primary school age group is 158%.) The adult literacy rate is estimated to have risen from 20% in 1949 to 66% in 1979, and the absolute number of illiterate adults (despite a near-doubling of population) to have declined by 70 million.

3.80 Table 3.22 puts the current situation in China into the international perspective. In terms of primary school enrollment, China is way ahead of most other developing countries, especially the low-income ones, and only a little behind the advanced industrial countries. In terms of secondary school enrollment, China is also far ahead of most developing countries, though some way behind the advanced industrial countries. As regards adult literacy,

/1 The specific reasons for this divergence, especially at the lowest levels, between the distributions of income and of real consumption in China are discussed below. In general terms, they fall into three categories. The first is loans to poor households (from their teams) and to poor teams (from the state). The second is low relative prices for necessities such as food, education, and health services. This is achieved partly through (implicit or explicit) state subsidies, partly by locally financed subsidies, and partly through low pay for social service workers. The third is the high degree of cost-effectiveness in the education, health and food security systems.

/2 For a fuller discussion of these interrelationships, see Chapter 5 of World Bank, WDR, 1980, especially pp. 68-70.

Table 3.22: BASIC EDUCATION IN THE 1970s (%) /a

	Primary school net enrollment ratio /b	Secondary school gross enrollment ratio /c	Adult literacy rate
China	93	51	66
India	64	28	36
Indonesia	66	21	62
Sri Lanka	62	47	78
Low-income countries	56	25	38
Middle-income countries	75 /d	28 /d	71
All developing countries	62	26	51
Industrialized countries	94	68	99

/a Data for China refer to 1979, for other countries to 1975 or 1977.

/b Proportion of primary school age group enrolled.

/c Secondary school enrollment as ratio of secondary school age group.

/d Intermediate middle-income countries.

Sources: For China, Annex I; for other countries, enrollment ratios from World Bank, Education Sector Policy Paper, except for gross secondary enrollment ratios for India, Indonesia and Sri Lanka, which are from World Bank, WDR, 1980, as are the literacy rates.

China (which in 1949 was similar to other low-income countries and a long way behind the middle-income countries)/1 is now well ahead of the average for low-income countries and not far behind that of middle-income countries.

3.81 The higher average school enrollment rates in China also reflect a more equal distribution of educational opportunities - as between rural and urban areas, families of varying income levels, and males and females. For example, the proportion of rural primary school age children enrolled, though less than (the 100%) in urban areas, is still nearly 92%, a very high figure by developing country standards. Similarly, 84% of primary school age girls in China are enrolled, as compared with 50% in India and 56% on average in all developing countries.

3.82 The quality of basic education is also good (though it suffered during the Cultural Revolution, see para. 4.93). About 72% of those who enter primary school in China complete 4 years' education, as compared with 41% in India, 68% in Indonesia and 38% in Brazil. Within China, the quality of school buildings and equipment varies widely; even in the cold north, many rural schools lack window panes, desks and chairs are frequently decrepit or in short supply, and often the only educational aids are a couple of posters.

/1 The adult literacy rate in 1950 has been estimated at 22% on average in low-income countries and 48% on average in middle-income countries: World Bank, WDR, 1980, p. 34.

All of these factors tend to depress the educational attainment of Chinese children. But unlike most low-income countries, China has an ample supply of textbooks (which are of vital importance for learning) even in the poorest areas and for the poorest children. Thus although the curriculum is in some respects narrow and outmoded, the achievements of Chinese children in such basic subjects as mathematics are on average probably ahead of those in most other countries.

3.83 All this has been accomplished, moreover, at remarkably low cost. Expenditure on primary education in China is only \$20 per pupil per year - less than half the average for other developing countries - despite an unusually low pupil/teacher ratio. (Light teaching loads, however, cause the average class size - around 34 in primary schools - to be unexceptional.) The main reasons for this are the low salaries of teachers in China - about 140% of per capita GNP, as compared with up to several hundred percent in other developing countries - and low spending on physical facilities.

Health

3.84 The determinants of health - as measured by illness as well as death rates - are much broader than is sometimes supposed. One is people's consumption of certain goods and services, including food, housing, fuel, soap and water, as well as medical care. Another is the health environment - climate, standards of public sanitation, and the prevalence of communicable diseases. A third is people's understanding of nutrition, health and hygiene.

3.85 Chinese health policies and institutions (see paras. 2.76-2.80) reflect an unusually good and early grasp of these determinants, in combination with a strong commitment to improve the health of the mass of the people under tight financial constraints. Raising incomes and expanding basic education - discussed earlier - have in this sense both been part of the drive for better health, as has food distribution policy - to be discussed below.

3.86 In the area of health care narrowly defined, Chinese policy has had three distinctive features. One is a very strong emphasis on preventive measures and on improving the health environment - by vaccination and infectious disease vector control, and by strict enforcement of elementary aspects of private and public sanitation. A second has been very wide diffusion of basic curative care - most notably through the barefoot doctors at the team and brigade levels - backed up by referral of difficult cases to trained personnel at better equipped commune health centers and county hospitals, with corresponding arrangements in urban areas. A third has been continued reliance on traditional Chinese medicine - personnel and drugs - in areas where it is of proven efficacy.

3.87 There are only about 2,500 people per (fully qualified Western) doctor in China, as compared with 9,900 in other low-income countries and 4,300 in middle-income countries. The ratio of population to other medical personnel (including nurses and doctors of Chinese medicine) is even more favorable - 900 excluding barefoot doctors and 400 including them, as compared with 8,800 in other low-income countries and 1,900 in middle-income countries.

3.88 Largely because the pay of most medical personnel is very low by international standards, this has been achieved at a total annual cost of under \$7 per capita, of which perhaps \$4 is public expenditure. By the standards of low-income developing countries, the latter figure is quite high - it compares with \$2 in India and \$1 in Indonesia. But in other low-income countries, large sections of the population, and in particular the rural poor, have little or no access to health care, whereas in China coverage of some sort is virtually universal - a situation usually found only in countries rich enough to spend several hundred dollars per capita on health.

3.89 It is not possible to disentangle the relative contribution of the health care system from that of the other factors mentioned, but it has certainly played an important part in the tremendous improvements in health since the revolution. Life expectancy (which is determined mainly by infant and child mortality rates) is estimated to have risen from 36 years to 64 years. The incidence of disabling as well as killing diseases such as schistosomiasis, malaria, tuberculosis, trachoma, plague and cholera has been drastically reduced. Case fatality rates have also fallen sharply - in measles, from 6.5% in 1950 to 0.66% in 1979.

3.90 Similar progress has been made in other developing countries, even the low-income ones, where life expectancy is estimated to have risen from 35 years in 1950 to about 50 years in 1978 (Table 3.23). But the advance has been much faster in China (a gain of 28 years in life expectancy, as compared with 15), and thus the present life expectancy in China is well above the average not only for low-income but also for middle-income countries (61 years). Indeed, China's life expectancy is some 16 years greater than would be expected (on the basis of cross-country comparisons) in a country at its income level, a performance surpassed only by that of Sri Lanka.

Table 3.23: LIFE EXPECTANCY AT BIRTH (years)

	1950	1960 <u>/a</u>	1979 <u>/b</u>
China	36	57	64 <u>/c</u>
India	n.a.	43	51
Indonesia	n.a.	41	47
Sri Lanka	n.a.	62	69
Low-income countries	35	42	50
Middle-income countries	52	54	61
Industrialized countries	66	69	74

/a 1957 for China

/b 1978 for countries other than China

/c The official Chinese estimate for 1979 is 68 years. The estimate of 64 years is derived from the adjusted death rate of 8 per thousand; see para. 3.09 and Table 3.2 above.

Sources: Annex H, Tables 2.1 and 2.2, and World Bank, WDR, 1980.

3.91 Little if any of this can be attributed to climatic differences between China (which is half-temperate) and other low-income countries (which are nearly all tropical): cold is a hazard to health, especially among children; China's life expectancy in 1950 appears similar to that of other low-income countries; and life expectancy today in nontropical low-income countries such as Nepal and Afghanistan is well below the low-income country average. Instead, on the basis of evidence from other developing countries, the main contributors to China's superior performance - and indeed to that of Sri Lanka - are probably fourfold. First, the food rationing system has greatly reduced acute malnutrition, which appears to contribute to between one third and two thirds of all child deaths in other developing countries. Second, widespread primary education, especially of women, has contributed to improved nutrition and health practices in child-rearing. Third, near-universal basic curative and preventive health care has greatly reduced the incidence and fatality rates of common respiratory and diarrheal diseases, which remain major killers in other developing countries. Fourth, the birth planning program, by contributing to low fertility, has also contributed to better health among mothers and children./1

3.92 Within China, despite the near-universality of basic coverage, good health and health care facilities are not equally distributed. Urban areas have better services than rural areas, as well as higher life expectancy (six years above the national average in Beijing, seven in Tianjin and eight in Shanghai). There are also sizeable variations in life expectancy between provinces which are clearly - though imperfectly - correlated with variations in rural income levels (Table 3.24). Thus, the life expectancy of people in Guizhou, the poorest province, is about 10 years less than that of people in the agriculturally prosperous northeastern provinces of Liaoning and Heilongjiang. Similarly, within rural areas, the quality of health care provided at the commune and lower levels varies according to income, with some of the poorest brigades and teams having reportedly cut back on services in recent years. These variations, while smaller than in most other developing countries, are nonetheless a cause for concern.

/1 For further discussion of the issues in this paragraph, see World Bank, WDR, 1980, pp. 53-57

Table 3.24: LIFE EXPECTANCY AND INCOME, BY PROVINCE /a

	Life Expectancy at Birth, 1973-75 (Years)	Distributed Collective Income Per Capita (% of national average)
Shanghai	72.0	257.1
Tianjin	70.9	174.0
Heilongjiang	70.4	132.1
Liaoning	69.7	137.9
Beijing	69.5	180.8
Hebei	68.6	99.8
Zhejiang	68.4	125.2
Fujian	67.3	81.4
Jiangsu	67.2	119.0
Henan	66.9	76.0
Shanxi	66.6	102.9
Nei Monggol	66.3	92.1
Jilin	65.8	139.2
Anhui	65.7	84.3
Shaanxi	64.6	95.4
Jiangxi	63.2	107.1
Xinjiang	62.5	122.8
Hunan	62.5	110.7
Ningxia	62.3	82.4
Xizang	61.3	152.9
Qinghai	61.3	117.0
Yunnan	60.6	77.5
Sichuan	60.1	83.0
Guizhou	59.3	55.6

/a Not all provinces were covered by the survey on which this table is based.

Source: Table 3.14 and Annex H, Table A.11.

Nutrition

3.93 As a result of the recent surge in agricultural production and grain imports, which caused a 19% increase in per capita calorie intake between 1977 and 1979, average food consumption in China currently compares quite well with that in other developing countries (Table 3.25). Food energy consumption, at 2,440 calories per person per day and 103% of estimated requirements, is above that of India and the average for all low-income countries (both 2,000 calories and 91%), though below the average for middle-income countries (2,600 calories and 108%). Protein availability per person is also above that of all the low-income countries in the table except Pakistan, and similar to that of middle-income countries such as Brazil and Mexico. However, the Chinese diet is believed to contain an unusually low proportion of meat and fats.

3.94 Average per capita calorie intake is estimated to have been about 2020 calories in 1957. In the aftermath of the Great Leap Forward, however, grain production per capita dropped sharply, the food distribution system encountered difficulties, and there was widespread, severe malnutrition. Moreover, despite a strong recovery of production in the mid-1960s and substantial grain imports, average per capita calorie intake in 1977 was only slightly higher than in 1957 - and quite close to the average for other low-income countries.

Table 3.25: FOOD AVAILABILITY

	Per capita daily availability of		Protein	
	Energy	% of	Total	Animal
	Calories	require- ment	----- (gm)	-----
China, 1979	2,441	103	62.6	16.5
<u>Low-Income Countries, 1977</u>				
Bangladesh	1,812	78	36.0	6.4
India	2,021	91	50.0	13.0
Indonesia	2,272	105	47.0	6.0
Pakistan	2,281	99	63.0	20.0
Sri Lanka	2,126	96	43.0	7.0
Average	2,052	91	n.a.	n.a.
<u>Middle-Income Countries, 1977</u>				
Brazil	2,562	107	62.7	35.1
Korea, Rep. of	2,785	119	73.0	15.0
Mexico	2,654	114	66.0	27.0
Thailand	1,929	105	49.0	14.0
Average	2,590	108	n.a.	n.a.

Source: Annex H, Table 2.6.

3.95 But the extent of malnutrition in a country is only dimly related to its average food consumption. Of far greater importance is the way in which food is distributed, and in particular the relative consumption levels of the lowest income groups. In this regard, China surpasses all but a few developing countries - either low-income or middle-income.

3.96 In urban areas, staple foods have consistently been rationed, with monthly entitlements that vary with the age, sex and occupation of the recipient but appear to provide for an adequate (though spartan) level of consumption. Rations have to be purchased, but their prices have allowed the great majority of households (and by now virtually all of them) to afford their full allotment.

3.97 In rural areas, the Government has guaranteed to sell enough grain to make up any gap between the amount of grain distributed as income in kind by production teams and a floor level of 200 kilograms (of unprocessed grain) per person per year in rice-growing areas and 150 kilograms in other areas. Again, this "ration" has to be purchased, but loans and social relief grants are made available where necessary. The floor level is low - equivalent to no more than 1400 calories per day - but it is almost invariably supplemented by food grown on private plots or purchased with money income from collective or private activities (though until recently grain could not be privately traded)./1

3.98 Detailed data on the distribution of food intake per person are not available. But two sorts of evidence strongly suggest that the Chinese system has, as mentioned earlier, made much progress toward eliminating the acute malnutrition that is common in many developing countries (and that unquestionably contributes to early death, ill health and other physical suffering, and mental retardation). One is the high life expectancy, which is associated with an infant mortality rate of 56 per thousand (as compared with 100-200 in other low-income countries).

/1 In 1980, Hebei suffered from serious drought and Hubei from serious flooding. Following an official request for international assistance, it was widely reported in the Western press that there were acute food shortages in these two provinces. However, the Ministries of Agriculture and Food (the latter being responsible for grain distribution) stated to Bank staff that some of these reports were exaggerated, and that the minimum food requirements of the people in these provinces are in fact being met through the system described above.

3.99 The second sort of evidence concerns the height and weight of school children. Although anthropometric data of this kind are generally biased by lower school attendance among malnourished children, enrollment rates are very high in China.^{/1} It is thus significant that in a small sample of rural and urban schools recently surveyed, there appeared to be almost no acute malnutrition, as measured by abnormally low weight for height (known as "wasting"). It is also significant that the proportion of children who are chronically malnourished (as measured by abnormally low height for their age, known as "stunting") even in rural schools in the very poor province of Gansu is below that in other low-income Asian countries.

3.100 But the anthropometric data do indicate that a substantial proportion of Chinese children are stunted, and that there are major differences in this regard between poorer and richer parts of the country. Among children aged 3-10, only 5% are stunted in urban areas (less than 2% in Beijing) - and this proportion appears to have declined substantially since 1958; but in rural areas, the proportion is 20-35%, with the highest proportions in areas with the lowest personal incomes. (The trend of rural malnutrition over time is not known, although the necessary data were collected in 1959.) The adverse effects of chronic malnutrition on mental development and other aspects of personal well-being are incompletely documented. But the same Chinese data indicate that it slows individual children's progress in school.^{/2}

3.101 The causes of this widespread chronic malnutrition are not well established. But important among them, as the Government recognizes, is rural poverty. In 1979 - a record harvest year - 11.7% of production teams, containing around 100 million people,^{/3} distributed less than 150 kg of unprocessed foodgrains per capita to their members (Annex B, Table 2.8). Similarly, the estimates in Table 3.20 imply that in 1979 the poorest fifth of the population - some 200 million people - had an average annual per capita income of about Y70, which would purchase only about 300 kg of unmilled rice, even if nothing were spent on other commodities.^{/4}

^{/1} Moreover, data obtained from schools in 1980 were generally consistent with the results of a 1975 household survey of anthropometric status undertaken by the Ministry of Public Health.

^{/2} Micro-nutrient deficiencies appear less serious in China than in many other low-income countries. But mild anemia (caused partly by inadequate iron in the diet, partly by hookworm infestation) is widespread. Rickets, goiter and Keshan disease (caused respectively by vitamin D, iodine and selenium deficiencies) also affect significant proportions of the population and have been the subject of government campaigns and research.

^{/3} This number includes a small number of production teams producing commercial crops and livestock who have small amounts of distributed foodgrains but relatively high incomes.

^{/4} The quota procurement price for low-quality rice appears to average about Y12 per 50 kg (see Annex B, Tables 3.3-3.6).

3.102 In certain important respects, then, the data on real consumption and human development confirm the impression given by the income distribution statistics. There are indeed substantial inequalities in China, especially within rural areas. As a result, and since the average income in China is low, a large minority of the population is very poor. These people, however, have a much higher standard of living than those at similar income levels elsewhere. They all have work; their food supply is guaranteed; most of their children are at school; and the great majority have access to basic health care. Life expectancy - whose dependence on many other economic and social variables makes it probably the best single indicator of the extent of real poverty - is on average in China outstandingly high for a low-income country; even in the poorest province, it is not far below the average for middle-income countries.

4. SECTORAL PROGRESS AND PROBLEMS

A. Agricultural Development

Growth and Development

4.01 After the revolution of 1949, agricultural development posed a number of formidable challenges for China's new socialist planners. First and foremost was the historical inheritance of an already highly productive agriculture. The man/land ratio was less favorable in rural China in 1949 than it is in India today. With little new land to develop, future agricultural progress would necessarily depend on raising crop yields: but the starting point was high, and there was only a rudimentary system of agricultural research and farmer advisory services. Moreover, after decades of upheaval and warfare, all sectors laid claim to a limited reconstruction and development budget: as the largest sector in the economy at that time, agriculture could be expected to contribute rather than receive real resources for investment. Against this background, China's progress in agricultural development has been quite impressive.

4.02 Progress has not been achieved, however, without sharp fluctuations in policy, which at times have caused substantial setbacks to development and severe hardship for the peasant population. Data on the major phases of agricultural development are shown in Table 4.1, which disaggregates gross agricultural output into a number of sub-categories./1

4.03 The first task in agriculture following the establishment of the People's Republic was restoration and recuperation. Recovery was rapid and pre-war levels of agricultural production were attained by about 1952/53. Thereafter a phase of continuing development during the First Five-Year Plan period (1953-57) raised output to new record levels. This improvement was largely the result of land development and irrigation schemes. Thereafter, bad weather in several years and the disruptions of the Great Leap Forward movement severely checked progress - so much so that crop output does not seem to have recovered to 1957/58 levels until about 1964.

/1 The Chinese statistical system distinguishes some five categories of agricultural output: crops, animal husbandry, fisheries, forestry, and brigade-managed enterprises together with production team "sideline" activities. Most brigade enterprise and some team sidelines are not agricultural activities in the usual sense, and it seems that many sidelines in the past have evolved and become brigade- or even commune-managed activities. Team sidelines also include hunting and gathering activities, e.g. of medicinal herbs and natural forest products. In most subsequent analysis, "agriculture" excludes brigade enterprises and sidelines; where these are included, "agriculture & sidelines" is used.

Table 4.1: GROWTH OF GROSS AGRICULTURAL OUTPUT
(constant prices)

	Food- grain	Cotton & oilseeds	Other crops	Animal husbandry & fisheries	Brigade enterprise & sidelines	Agri- culture	Agricul- ture and sidelines
	----- % p.a. -----						
1952-57	3.3	2.2	8.3	7.2	4.0	4.6	4.5
1957-65	nil	1.1	1.8	3.2	6.6	0.9	1.4
1965-77	3.1	0.1	2.4	3.4	10.5	2.9	3.6
1977-79	9.3	13.2	2.1	8.7	12.5	8.1	8.8
1952-79	2.6	1.7	3.3	4.4	8.3	3.0	3.5

Source: Annex C, Table 3.1.

4.04 The experience of agriculture in the early 1960s prompted the authorities to make changes in their strategy: procurement prices were increased and agricultural development was accorded higher priority in investment planning. Allocations to producer goods industries for chemical fertilizer, tractors, irrigation pumps and other equipment were also increased, which subsequently had a cumulative impact on input supplies. The initial stages of this policy coincided with the emergence of many new and improved high-yielding varieties, especially of rice and wheat, from agricultural research.

4.05 From 1966 until 1976, however, agricultural policies were dominated by political rather than economic considerations, and technical criteria (together with technician training) were neglected. With provincial grain self-sufficiency and "grain first" as the dominant policy themes, foodgrain output grew at about 3% p.a. between 1965 and 1977. This was accompanied by a renewed emphasis, beginning in the late 1960s, on rural industry: brigade enterprise output grew at more than 10% p.a. By contrast, growth of cotton and oilseeds production was virtually halted.

4.06 Although overall agricultural growth at some 2.9% p.a. between 1965 and 1977 is not much below the long-term trend, this was a period of very substantial increases in the modern inputs (e.g. agricultural machinery, irrigation power equipment and chemical fertilizer) that were becoming available. It is possible, therefore, that actual output fell short of the full potential output of the sector throughout this period. This appears to be confirmed by the sector's performance after 1977. With policy changes on a broad front, coupled with a further large increase in the supply of chemical

fertilizer, reasonable weather in 1978 and exceptional conditions in 1979, agricultural output grew by 8.1% p.a. and foodgrain production by 9.3% over the two years./1

Per Capita Supplies

4.07 Table 4.2 compares agricultural and population growth and shows the implied per capita increase in agricultural output for several periods. Except for the two most recent years, the per capita increase has clearly been very limited, and was negligible over the two decades 1957-77.

Table 4.2: GROWTH RATES: AGRICULTURE AND POPULATION

	Agricultural output	Population (% p.a.)	Per capita increase
1952-57	4.6	2.4	2.1
1957-77	2.1	1.9	0.2
1977-79	8.1	1.3	6.7
-----	-----	-----	-----
1952-79	3.0	2.0	1.0

Source: Table 4.1 and population data from Annex B, Table 1.1.

4.08 The limited improvement in the per capita availability of major food items is confirmed by the production data in Table 4.3 (see also Table 3.13). Trade data on a commodity basis are not systematically available for years earlier than 1977, although some estimates for trade in grains have been made. These estimates indicate negligible grain trade prior to 1957 and net imports thereafter, adding about 11 kg to per capita availability in 1979. The increase in net grain imports in the most recent years probably reflects in large part the increased use of domestically produced grain for livestock feed in rural areas. In terms of consumption shares, sugar and vegetable oils are the most significant imported supplements to domestic consumption, adding about 1.1 and 0.2 kg per capita respectively in 1979. (About one third of tea production is exported.)

/1 Agricultural output in 1980 was checked by poor weather conditions, so that grain production (318.2 million tons) fell slightly in relation to the record 1979 crop (332.1 million tons). Nevertheless, a surge in cash crop and meat production helped to raise gross output overall by 2.7%; so that average growth (agriculture plus sidelines) in 1977-80 was 6.7% p.a.

Table 4.3: FOOD PRODUCTION: KG PER CAPITA PER ANNUM, 1952-80

	1952	1957	1965	1970	1977	1979	1980
Grain, unmilled basis	234	248	215	232	239	274	260
Meat	5.9	6.2	n.a.	n.a.	8.3	10.9	12.3
Vegetables	n.a.	(79)	n.a.	(78)	(94)	(92)	n.a.
Oils	3.1	2.7	2.1	1.9	1.7	2.7	3.1
Fish	2.9	4.7	n.a.	n.a.	5.0	4.4	4.6
Fruit	4.3	5.6	n.a.	4.1	6.0	7.2	n.a.
Sugar	0.8	1.3	n.a.	n.a.	1.8	2.6	2.6
Tea	0.1	0.2	0.1	0.2	0.3	0.3	0.3

Source: Annex C, Table 3.3.

4.09 Other major agricultural outputs include cotton and various fiber crops (silk, jute, etc.) plus wool, timber and forest products (natural oils and resins) and rubber. For cotton, the most important crop, per capita availability increased by about 25% from 1952 to 1965, but fell back to about the 1952 level by 1977. Between 1977 and 1980, cotton output rose by over 30%. Imported raw cotton contributed about one fifth of domestic supply in 1979 and is now a sizeable item in total commodity imports. China also imports some timber and rubber; in aggregate, imports and exports of nonfood agricultural materials were roughly balanced in 1979.^{/1} The share of all farm and sideline products in total commodity exports fell from 40% in 1957 to 23% in 1979.

Productivity and Income Growth

4.10 Intense and increasing pressure on a narrow arable land base is the major element in China's agricultural experience since 1949. Official estimates suggest that arable land availability, after increasing in the 1950s (from about 98 million ha in 1949 to 112 million ha in 1957), fell thereafter to a level currently reported at 99.5 million ha. Most of the decrease seems to have occurred between 1957 and 1965 (and may be partly spurious, because of exaggerated claims in the 1950s); after 1965 there seems to have been little net change in either the arable or the sown area (the latter is some 49%

^{/1} Including cotton yarn and filature silk as agricultural exports, but excluding cotton, wool and silk piece goods, and fabrics and carpets.

larger, at 148.5 million ha, because of multiple cropping).^{/1} Thus from 1952 to 1979, the sown area appears to have expanded at an annual average rate of only 0.2% (Table 4.4).

4.11 By contrast, the agricultural labor force has grown rapidly - at about 2% p.a. between 1952 and 1979 (2.3% p.a. in 1952-65, with slower growth thereafter due to lower birth rates and the growing importance of commune enterprises). This is a faster rate of growth than in any comparable country (see Table 4.5). As a result, the sown area per agricultural worker in 1979 was two thirds what it was in 1952. Hence just to keep (gross) labor productivity constant required a 50% increase in aggregate crop yields over the period, i.e. 1.5% p.a.^{/2}

4.12 Estimates of net output (or value added) in constant prices, and data on the agricultural labor force and sown area, are the basis for Table 4.4. They imply a fall in aggregate labor productivity, despite a substantial increase in land productivity, of about 12% between 1957 and 1977, after a sizeable increase during the first plan period. Ground lost during the intervening 20 years was more than regained in 1977-79.

Table 4.4: GROWTH RATES OF AGRICULTURAL VALUE ADDED, LABOR FORCE AND SOWN AREA

	Net output (in 1970 prices)	Labor force	Sown area	Net output per worker	Net output per sown ha
1952-57	4.9	2.2	2.2	2.6	2.6
1957-77	1.6	2.1	-0.3	-0.5	1.9
1977-79	9.4	1.0	0.0	8.3	9.4
-----	-----	-----	-----	-----	-----
1952-79	2.7	2.0	0.2	0.7	2.5

Source: Annex C, Tables 3.5 and 3.8.

^{/1} The major explanation of zero growth in arable land is that the gains from land reclamation and settlement in the border areas and the northeast, as well as from increased multiple cropping through new irrigation development, were offset by industrial and residential requirements in the densely settled and highly productive zones, where land is usually double and sometimes triple cropped.

^{/2} In fact, because yield increases were somewhat higher than this, gross output per worker increased somewhat, at 1.0% a year between 1952 and 1979.

4.13 A comparison of the growth of net output over the past two decades with rates in other countries shows a significantly slower growth of output, and especially of labor productivity, in China (Table 4.5). In most developing countries, however, roughly a third of the incremental agricultural production of field crops has been derived from increases in the cultivated area (though this proportion is tending to decline) versus two thirds from yield increases; China has had to rely almost exclusively on yield increases for production growth.

Table 4.5: AGRICULTURAL AND LABOR PRODUCTIVITY GROWTH, 1960-78:
AN INTERNATIONAL COMPARISON

	Net output -----	Labor force (% p.a., average over period)	Net output per worker -----
China (1957-79)	2.3	2.0	0.3
India	2.3	1.6	0.7
Indonesia	3.2	0.7	2.5
Egypt	3.0	1.4	1.6
Low-income countries	2.3	1.4	0.9
Middle-income countries	3.3	0.7	1.8

Source: For China, Table 4.4; for other countries, World Bank, WDR, 1980.

4.14 Rural per capita income grew faster than agricultural labor productivity for two main reasons: (a) the increased procurement prices of agricultural products (and increased prices in rural markets) versus the near constant prices of industrial goods sold in rural areas (a "terms of trade" effect); and (b) the growing importance of brigade- and commune-managed enterprises as a nonagricultural income source. (The second factor probably adds more to collective savings than to personal incomes, since most profits are retained for reinvestment and most enterprises - at least at the brigade level - pay work points rather than wages at the average work point values of the respective production teams.) Though data limitations preclude a reliable assessment, it appears that in 1957-79 the terms of trade effect added something like one percentage point to agricultural labor productivity growth, while growth of nonagricultural employment added about another quarter of a percentage point: thus rural per capita real incomes grew at about 1.6% p.a./¹ A substantial fraction of this increase, however, must have occurred in the last two years, with sharp rises in both agricultural output and procurement prices. Over the two decades 1957-77, rural per capita real incomes probably increased very little.

¹ See Annex A, para. A.52 and Annex C, paras. 3.55-59.

Technological Change

4.15 The contributions of science and technology to agricultural development in China have been considerable, especially for the major food staples - rice, wheat and corn. For rice in particular, China has pioneered several biological innovations: the first semi-dwarf improved rice was released in 1959, some seven years before the International Rice Research Institute released its similar IR8 variety; in the 1970s, China was the first nation to develop and popularize a rice hybrid, and it has developed techniques of rapidly stabilizing the varietal characteristics in new plant material that are widely studied in other countries. Advanced work has also been done in wheat (for dwarfing, cold tolerance, rust resistance and early maturity); and hybrids are now planted on over 70% of the corn area.

4.16 Biological advances in crop agriculture have been complemented by extensive efforts to improve the land base, extend irrigation and flood protection systems, and increase nutrient availability through chemical fertilizer.^{/1} In the 1950s, when few scientific advances had yet been made, the control of flooding and gravity flow irrigation development were emphasized. Huge projects, involving tens of thousands of peasant workers during the dry season, were initiated and completed on the North China Plain and in the Chang Jiang basin. These works (as well as many local schemes) were financed partly by the peasant communities through labor contributions, and partly by the government. Between 1952 and 1957, the rice area increased by some 4 million ha, and higher rice production contributed 70% of the 25 million ton increase in aggregate grain production.

4.17 During the 1960s and 1970s, China's burgeoning industrial sector was able to supply many items for agricultural modernization, including the pumps and engines for power driven irrigation. Over this period, some 30 million ha were reportedly developed under pump irrigation systems - by far the largest and fastest development of this type in the world.^{/2} Overall, about 45% of the arable land (45 million ha) is now irrigated (versus about 17% in other developing countries); this compares with about 16 million ha in 1949 and implies an average rate of development close to 1 million ha p.a. since then. With flood control and irrigation, China's grain production has become progressively less subject to annual fluctuations due to weather; negative deviation from one year to the next has probably not exceeded 7% of the grain crop since the disasters of the early 1960s. In 1980 for example, with exceptionally bad

^{/1} Organic fertilizer, mostly obtained from pig manure, has also increased in importance with the rapid development of China's enormous pig population (320 million in 1979, 40% of the world's total stock). In advanced areas, some 30 tons per ha of composted materials are reported to be applied annually.

^{/2} About 11 million ha are tube-well irrigated fields, 80% in the north and northeast plains area.

floods and drought, aggregate grain production was within 5% of the record 1979 crop.

4.18 Some perspective on the investment in modern technology in agriculture is provided by Table 4.6, which shows farm-level stocks of various types of machinery and use of chemical fertilizer.^{/1} The implied acceleration in use over time is particularly striking for some of the leading items; about half of the 1980 stock of large tractors was added since 1976; similarly, the use of nitrogenous fertilizer in 1980 was more than twice as high as in 1976 - quite possibly, as much nitrogenous chemical fertilizer was made available over the four years 1977-1980 as in the whole of the preceding 27 years.

Table 4.6: USE OF MANUFACTURED INPUTS IN AGRICULTURE

	1952	1957	1977	1979	1980	India 1977	Japan 1977	Rep. of Korea 1977
<u>Chemical Fertilizer</u>								
<u>Nutrient Weight:</u>								
Total (million tons)	0.04	0.15	7.24	10.65	12.32			
per arable ha (kg)	n.a.	n.a.	64.0	109.0	128.0	25.3	428.1	329.9
Large and medium tractors ('000)	1.3	14.7	467.0	666.8	745.0			
Machine plowed area (million ha)	0.1	2.6	38.4	42.2	41.0			

Source: Annex C, Tables 3.6 and 3.7. Data for countries other than China from FAO publications.

4.19 Some of the results of this extensive change in technology and input use are indicated in Table 4.7, where China's performance is compared with that of other developing and developed countries. Current yields for virtually all its major crops are exceeded by only a few of the countries that produce

^{/1} Variable quantities of fertilizer have been imported; about 0.5 million tons in 1977/79, in terms of nutrient weight.

on a comparable scale.^{/1} Furthermore, Chinese yields are obtained under a system of extensive multiple cropping, so that yields per arable hectare are considerably higher - for all cereals, perhaps 30% higher than shown in the table (where figures are on a cropped or sown hectare basis). Thus in terms of yields per arable hectare, Chinese yields for all cereals are significantly higher than the averages for both developing and developed countries.

Table 4.7: YIELDS AND YIELD INCREASE: MAJOR CEREALS

	Crop yields, 1977-79 average (tons/ha)	Trend rate of increase ^{/a} (% p.a.)
<u>All Cereals</u>		
China	2.65	2.8 (3.0)
Other developing countries	1.46	1.9
Developed countries ^{/b}	2.62	2.7
<u>Rice</u>		
China	3.95	1.8 (1.9)
Other developing countries	2.10	1.7
Developed countries ^{/b}	5.54	1.0
<u>Wheat</u>		
China	1.82	3.6 (5.9)
Other developing countries	1.39	2.4
Developed countries ^{/b}	2.08	2.9
<u>Corn</u>		
China	2.76	3.1 (3.5)
Other developing countries	1.39	1.2
Developed countries ^{/b}	5.09	3.2

^{/a} China: 1957 compared with a 1977-79 average. Figures in brackets show more recent trends (1970 compared with a 1977-79 average). Other countries: 1961-65 average compared with a 1977-79 average. Cereals exclude soybeans and tubers, which are usually included in Chinese grain statistics.

^{/b} Market and centrally planned.

Sources: China, Annex C, Table 1.2; other countries, FAO data.

^{/1} For example, the USA and France for wheat and corn; the USA for sorghum and groundnuts; the USA and the USSR for cotton; the USA and Brazil for soybean; and Canada for rapeseed. Japan's rice yields, with very much smaller total production of a Japonica variety and with heavy subsidies, also exceed those of China.

Policy and Problems

4.20 Progress in agricultural development has not been the result of priority allocation of state investment resources. Except for the adjustment periods in the mid-1960s and late 1970s, agriculture has not received much above 10% of total state investment; even including investment in industries supporting agriculture (fertilizer, machinery, etc.) the share has not been much above 15% (Table 4.8). For the economy as a whole, the share of agriculture in total investment has been around 20%, of which about two thirds was undertaken and financed by the communes, including direct labor contributions. This appears modest in relation to agriculture's contribution to employment and personal incomes, and was indeed probably too low relative to investment in industry (para. 3.42). But because the aggregate investment rate has been high, the absolute amount of investment in agriculture has been large, and has contributed to an impressive amount of technical change and modernization.

Table 4.8: AGRICULTURE'S SHARE IN TOTAL INVESTMENT
(%, average over period)

	1952-57	1965	1970	1975	1977-79
<u>Share of Total State Capital</u>					
<u>Construction Expenditure</u>					
Agriculture	7.8	14.6	8.8	10.7	12.2
Agriculture & supporting industries /a	14.7	18.5	12.0	15.5	17.6
<u>Share of Total Fixed Investment</u>					
Agriculture	n.a.	20	n.a.	n.a.	21
(of which % financed by commune's own resources)		(66%)			(62%)

/a Derived from data given in Yang Jianbai and Liu Xuezheng, "The Relations Between Agriculture, Light Industry and Heavy Industry in China," Social Science in China, No. 2, 1980.

Source: Annex A, Table A.24, and Annex B, Table 2.4.

4.21 But Chinese critics of past policies make several important points. Investment priorities for agriculture were not always well selected, in part because technical and economic criteria were largely ignored for long periods. Thus quantitative achievements in increasing the supply of modern inputs sometimes mask considerable deficiencies - for example, the poor quality and high production costs of some chemical fertilizer, and the inappropriate use of agricultural machinery (discussed below). Other examples are some of the larger irrigation projects, which require continuing subsidies to be viable (e.g. power subsidies for some high lift pump irrigation systems), and some of the early flood control works, which were implemented before proper study and have later required substantial redesign.

4.22 A second point is that because incentives and producer discretion have been restricted, effective farm management has not flourished, and the substantial potential of collective agriculture has not been fully realized. In all probability, many minor investments were not effectively scrutinized by local officials, who themselves bore none of the consequences of failure and enjoyed none of the fruits of success; and a multitude of individually small, but collectively important, opportunities were lost for want of local farm leadership able to seize and act upon its knowledge of the potential (and limitations) of the local environment.

4.23 Moreover, technology change on the scale and at the speed achieved since the early 1960s has given rise to several problems. The increased supply of chemical fertilizer is almost entirely nitrogen based, so that the amount of nitrogen (N) available has greatly increased relative to the other major nutrients, phosphorus (P) and potassium (K). Studies based on soil analysis show that phosphate may now be the limiting factor in increasing crop yields in some of the more advanced areas of southern China, where use of chemical N is heavy. A second problem is the extensive use of low grade ammonium bicarbonate, a fertilizer produced in small, coal-based plants on a wide scale in China, which still accounts for about half of total fertilizer output. Ammonium bicarbonate is highly volatile; as much as half the nutrient can be lost in transportation and in application, thus lessening the contribution to plant growth. A third problem has been the tendency to encourage some farming communities to apply more than the economically optimal amount of chemical fertilizer, especially by recommending usage rates calculated to maximize crop yields. Thus in some areas, it has been claimed that fertilizer use may fall in the future, since the new policy of greater decision-making autonomy for production teams will cause economic considerations to be given greater weight. Nevertheless, aggregate production and use continued to grow rapidly in 1980 - by 15.7% compared with 1979.

4.24 Some problems with agricultural machinery are similar to those for chemical fertilizer. In particular, while much machinery was becoming available during the 1970s, a sizeable proportion was of indifferent quality, which caused frequent breakdowns, costly repairs and sometimes premature write-off of equipment. During most of the 1960s and 1970s, when the authorities emphasized local self-sufficiency, numerous tractor plants and other equipment facilities were established, but the items produced were of variable quality, reflecting the depth of locally available engineering skills and know-how of the work force. With greater emphasis on the use of credit for machinery acquisition and more local level autonomy in purchasing decisions, production of tractors fell sharply in 1980; by 22% for medium and large tractors and 32% for pedestrian tractors.

4.25 Questions about mechanization in agriculture and its potential for displacing labor in rural areas are now attracting considerable interest among Chinese scholars and agricultural planners. The impact of mechanization on crop yields and cropping intensities would probably be important in areas where there is a premium on rapid and timely land preparation and harvesting, for example in parts of northern and northwestern China that have short and variable growing seasons, and in parts of eastern China where there is a labor scarcity due to double and triple cropping in agriculture, plus a very substantial development of brigade and commune enterprises. Elsewhere, however,

given generally abundant labor supplies relative to land resources, it seems plausible that more mechanization has been undertaken than could be justified on economic grounds alone. Under collective agriculture, the consequences are economic rather than social, since labor displaced by machines is assigned to other tasks, though perhaps tasks with a very low productivity.^{/1} The major implication of excessive mechanization is, therefore, higher costs of production.

4.26 Finally, there have been major problems in land development, involving erosion, siltation and salinity. Erosion control is mainly attempted via afforestation, but huge and sparsely populated areas, as well as adverse natural conditions, have limited the effectiveness of the work in the main problem area of central-north China on the loess plateau. Reported failure rates are high in afforestation work mainly because young trees need watering over several years before they are well established; gross replanted areas are often four or five times the area in which trees are successfully established. In some areas there are also serious erosion problems caused by removal of the forest or bush cover for fuelwood or by livestock (goats). With continuing massive silting (an age-old problem of the Huang He) some of the newer reservoirs are filling at a rapid rate; the Sanmenxia dam has lost about 5 billion cu m of storage capacity on this account. On the North China Plain, continuing silting also requires that the dike structures (for flood protection) be progressively raised, but drainage presents increasingly difficult problems in the neighboring areas as the river beds are elevated above the surrounding flood plains.

4.27 Poor drainage is also associated with salinity problems affecting possibly 15% of the total irrigated area, i.e. some 7 million ha. Some secondary salinization seems to have occurred in the North China Plain as a result of poorly designed systems developed during the late 1950s (during the Great Leap Forward), when irrigation was largely developed without drains using the relatively salty (0.2-0.5 g/liter) water of the Huang He. Drainage is also important in the northeast and northwest where substantial areas suitable for irrigation have saline soils. Vigorous efforts are now ongoing to tackle these problems.

B. Industry

4.28 Whereas agriculture has continued to be the main source of income for the vast majority of the population, the industrial sector (which in Chinese statistics includes mining, logging and electric power, as well as manufacturing) has dominated the development effort. At Chinese prices, its gross output is now nearly three times, and its net output 1.25 times, as high as that of agriculture.

^{/1} Also, much mechanization has been associated with tasks that are otherwise extremely demanding in terms of human labor, so that there is a quality of life dimension as well as a production dimension associated with certain types of labor displacement.

4.29 By international standards, China's industrial output per capita is small. Though close to three times the average for other low-income countries (at Chinese prices and official exchange rates), it is only slightly over a quarter of the average for middle-income countries, and about 4% of the average for industrialized market economies. In terms of total output, however, China ranks among the world's major industrial countries. The net value of manufacturing production (again at Chinese prices and official exchange rates) is about one seventh that in the USA. In 1979, in terms of quantity produced, China led the world in output of cotton yarn and fabric. It ranked third in output of cement, coal and sulphuric acid, fifth in steel production, and seventh in electric power generation./1

Growth

4.30 Industrial growth in China over the past three decades has been rapid. Gross output grew at an annual average real rate of 11% in 1952-79. Growth was especially fast (18% per year) in 1952-57; but on average the rate remained high (nearly 10% per year) even in 1957-79, despite setbacks associated with the withdrawal of Soviet assistance, the Great Leap Forward, and the Cultural Revolution. The rate of growth of heavy industry, moreover, was over 13% (as compared with light industry's 9%) in 1952-79./2

4.31 The real growth of industrial net output, at an estimated 10.2% per year in 1957-79 (Table 4.9), was far above the average for other low-income countries (5.4%) and well above that for middle-income countries (7.5%). Indeed, only three large developing countries - Nigeria, the Republic of Korea and Thailand - achieved faster industrial growth in this period.

4.32 Moreover, these statistics (although they include some unusable output)/3 neglect the qualitative transformation of Chinese industry. Much effort has been devoted to attaining new technical capabilities. Almost the entire range of modern industries has been set up, with much emphasis on those making capital equipment. Thus China produces a far greater variety of industrial goods than most developing countries, and is far less dependent on imported equipment. In practically every significant industry, major plants have been built in several parts of the country, and special efforts have been made to spread manufacturing into backward regions and rural areas. Quantitative advances, even in periods when China was isolated, were made by

/1 Comparisons based on physical output of basic intermediate goods are biased in China's favor, however, since manufacturing in China tends to be wasteful of energy and materials, and the final products probably involve less fabrication and have a lower average value relative to the materials used.

/2 Heavy industry includes the manufacture of most producer goods, mining and electric power; light industry includes manufactured consumer goods and some producer goods. For more detailed definitions, see Annex D, para. 2.05.

/3 Chinese economists have recently emphasized that (an unquantified) part of industrial output has in the past been either added permanently to inventories or discarded.

overcoming obstacles through a combination of ingenuity and expediency - for example, by using small plants and outdated methods when it was difficult to build larger plants or master newer methods.

Table 4.9: INDUSTRIAL GROWTH, 1957-79 /a
(% per year)

	Industrial net output/ <u>b</u>	Industrial labor force	Industrial net output per worker
China	10.2	6.3	3.7
India	5.1	1.6	3.4
Indonesia	7.7	3.8	3.8
Low-income countries	5.4	2.9	2.4
Middle-income countries	7.5	3.9	3.4

/a 1960-78 for countries other than China.

/b Includes mining and construction. Output data for China, but not other countries, exclude depreciation and include indirect taxes.

Sources: For China, Annex A, Table A.15; for other countries, World Bank, WDR, 1980.

4.33 Underlying this progress has been a very large investment effort. Of the 25-30% of GDP that was used, on average, for investment in 1957-79, more than half went to industry - of which more than four fifths was for heavy industry (see para. 3.40 and Table 3.11). China was thus channeling into industrial investment alone a proportion of national output (14-17%) not far below that of total investment (18%) in the average low-income developing country. As a consequence, the stock of industrial fixed assets was nearly 11 times larger in 1979 than in 1957.

4.34 Productivity growth in Chinese industry, however, has been less impressive. Real net output per worker in 1957-79 grew at about 3.7% per year (Table 4.9), which is higher than the average for other low-income and middle-income countries. But capital per worker increased even faster. Thus, taking labor and capital together, total factor productivity in industry appears to have stagnated since 1957 (which means that output growth has been achieved by increasing the quantity of factor inputs, and not by increasing the efficiency with which they are used). In this respect, China's performance in 1957-79 was similar to that of most of the East European centrally planned economies, but was much worse than its own performance in 1952-57, when total factor productivity in industry is estimated to have risen substantially, and indeed was markedly inferior to the normal pattern of modern economic growth./1

/1 See Annex D, Table 1.3.

Structure

4.35 Comparison of China's industrial structure with that of other countries is hampered by differences of definition and lack of a detailed sectoral breakdown of Chinese net output. But Table 4.10 compares the current composition of gross industrial output in China with that in several large developing and developed countries (see also Annex D, paras. 1.21-1.24).

4.36 In many respects, China appears similar to other developing countries. The share of textiles (13%) is high - just below that of India (15%). In some other industries, moreover, including chemicals, basic metallurgy, and nonmetallic minerals, shares in large countries at different levels of development are much the same, and China is in no way unusual.

4.37 As regards machinery and metal products, however, China has, by low-income country standards, a distinctively large share (27%), well above that in India (19%), about the same as in Yugoslavia (27%), and not much smaller than in the industrialized market economies (31-36%). This is particularly striking in view of the low level of production of consumer durables (including passenger cars) in China. As regards food processing, by contrast, China appears slightly below the bottom end of the range for the industrialized countries and well below the range for developing countries. (This is due to unusually low agricultural prices in China, to the exclusion of brigade industry from the statistics, and to definitions of gross output that - except in the largest urban enterprises - exclude the raw materials used in such activities as grain milling, slaughtering and cotton ginning.)

4.38 Roughly grouping all industries into heavy and light (though departing from the Chinese classification for lack of the necessary data), the share of heavy industry in China appears only slightly higher than in India and Yugoslavia, considerably higher than in the Republic of Korea, and significantly lower than in the industrialized market economies./1

/1 Profit rates on capital in heavy industry appear much lower than in light industry (Annex D, Table 2.2), which might suggest that the share of the heavy sectors in Chinese industry is understated by low relative prices for heavy industrial products. But much the same tends to be true in many other countries. Coverage of industry varies from country to country - in India for example, the statistics include only establishments with more than 20 workers (or 10 and a power source), with most of the excluded establishments in light industry. In China, brigade industry is excluded, but its gross output is equal to only 3.6% of that of all other industry.

Table 4.10: COMPOSITION OF GROSS INDUSTRIAL OUTPUT (%)

	China (1979)	India (1976)	Yugoslavia (1977)	Rep. of Korea (1977)	Spain (1976)	Average of five industrialized market economies <u>/a</u>
Food products and tobacco	11.4	17.8	16.1	15.1	13.9	13.3
Textiles	13.0	15.4	6.4	13.4	4.4	4.4
Clothing and footwear	3.0	1.4	5.1	6.8	5.1	2.9
Wood products & paper	2.5	1.7	6.6	4.4	4.4	4.0
Chemicals, rubber and plastics	12.3	14.6	8.6	12.0	13.1	12.3
Petroleum and coal refining	3.6	5.5	4.4	9.4	7.9	5.3
Nonmetallic minerals & building materials	3.4	3.2	3.9	4.1	4.3	3.5
Metallurgy and metal mining	9.0	10.9	11.3	7.7	16.8	8.9
Machinery and metal products	27.3	18.8	27.0	20.0	20.4	33.3
Miscellaneous manufacturing	6.0	2.0	4.0	3.9	4.1	5.6
Petroleum and coal extraction	4.6	2.8	2.0	0.9	0.6	2.1
Electricity	3.9	5.9	4.6	2.3	5.0	4.4
<u>Total</u>	<u>100.0</u> <u>/b</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>
Share of predominantly "heavy" industries <u>/c</u>	64.1	61.7	61.8	56.4	68.1	69.8

/a Unweighted average of USA (1977), Federal Republic of Germany (1976), UK (1976), Italy (1977), and Japan (1977).

/b Adjusted to exclude logging.

/c All industries from chemicals downward, except miscellaneous manufacturing.

Source: Annex D, Table 1.7 (which contains more detail and additional notes).

4.39 The structure of ownership (state, urban collective, or commune) of China's industry is shown in Table 4.11. At the commune level or above, there are some 350,000 industrial enterprises, with nearly another 600,000 in brigades.

Table 4.11: STRUCTURE OF INDUSTRIAL OWNERSHIP, 1979

	Number of enterprises ([^] 000)	Gross output (Y billion)	Net output /b	Employment (million)	Capital stock /a (Y bln.)
State-owned	84	372	127	31	349/c
Urban collective	100	64	18	13	32/c
Commune	171	23	10	9	16/c
Brigade	580	16	n.a.	10	n.a.
<u>Total</u>	<u>935</u>	<u>475</u>	n.a.	<u>63</u>	n.a.
Light /d	208	198	59	22/e	83/c
Heavy /d	147	261	95	31/e	314/c

/a Net fixed assets plus circulating funds.

/b Gross output in 1970 prices, net output at current prices.

/c Independent accounting units only.

/d Excludes brigade industry.

/e Estimated.

Source: Annex D, Tables 2.1 (contains additional details and important explanatory notes), 2.2, and accompanying text.

4.40 The state enterprises are the backbone of the system. They include all the more important factories, as well as many small ones. With brigade enterprises excluded from the totals, the state sector in 1979 used about 88% of the capital stock, and 58% of the labor force, to produce over four fifths of the net output. Another 12% came from urban collectives and 6% from communes. State enterprises average about 370 workers each (as compared with about 130 in urban collectives and about 50 in communes). Their capital per worker, in net fixed assets and circulating funds, was about Y 11,000, compared to about Y 2,400 in urban collectives and around Y 1,700 in commune enterprises. Wages averaged about Y 760 in state enterprises compared to about Y 520 in urban collectives.

4.41 The enterprises in light industry are smaller, and on average use much less capital relative to output, than those in heavy industry. The latter in 1979 had 80% of the (fixed and working) capital, though only 58% of

the employment, and turned out 62% of the net output, at the commune level and above. Responsibility for light industry is also more decentralized, since direct supervision of enterprises is almost always the responsibility of regional or local authorities. By contrast, in heavy industry all important enterprises (including 12,000 in machine building) come directly under central ministries, though all but a few are jointly supervised by provincial and central level authorities. The state sector produces 85% of the gross output (still excluding brigade enterprises) in heavy industry and 76% of that in light industry. The latter has roughly two thirds of the enterprises but only 28% of employment in the state sector; thus, roughly 22 million people are employed in heavy industry in the state sector alone. In urban collectives and commune enterprises, taken together, heavy industry accounts for about 45% of the output, employs nearly 40% of the labor force, and includes nearly 120,000 enterprises.

4.42 Less is known about brigade (and team) enterprises, especially about the composition of their output. But they are in general small, with an average gross output of Y 30,000 and average employment of 17 (the comparable figures for commune enterprises are Y 140,000 and 50 employees); and many of their workers are employed for only part of the year. Their gross output per worker averages about Y 1,700, as compared with Y 2,850 in commune enterprises, Y 4,600 in urban collectives, and Y 11,800 in state enterprises. Unlike the centrally planned economies of Eastern Europe, therefore, but like most market economies, China's industrial sector exhibits great internal diversity in the scale and productivity of enterprises.

4.43 China differs from both East European and most market economies, however, in the composition of its industrial value added. In state enterprises and urban collectives, wages (including bonuses and welfare fund contributions) account for about one quarter of value added, the remainder being mainly profits plus taxes (of which, in the state sector, the share of profits is about 60%). The share of wages is thus lower than in most market economies, and the share of taxes lower than in the East European economies, while profits (especially by the standards of the public sector in most developing countries) are high. This is due not to unusually great efficiency, but to high industrial prices. The idiosyncracies of the price structure are also largely responsible for wide variations in profitability between industries (see para. 5.17).

4.44 Wage rates, by comparison, vary relatively little between industries. In the state sector (making no allowance for variations in the skill composition of the labor force), the range in 1979 was from Y 660 per year in food processing and Y 700 in chemicals, to Y 865 in logging and petroleum and Y 910 in coal mining.

Problems

4.45 Chinese industry has three fundamental problems. One is low efficiency in converting inputs (including capital and labor) into output. The second is outdated products. The third is an inappropriate balance of capacity

within and between different subsectors, especially in relation to the current drive to expand consumption and reduce investment.

4.46 The low productivity of industry, emphasized by Chinese officials and economists, is apparent even in the better enterprises. There are many signs of inefficiency in the use of capital. In terms of machinery, most plants are opulently equipped for the tasks assigned to them. (Most, however, have built a significant proportion of their equipment themselves.) Much of the machinery stands idle most of the time, though it is invariably well maintained, in contrast to factory buildings, which are often neglected. Enterprises also typically contain huge amounts of work in progress. Many plants have unbalanced capacities or other less than optimal features. A large share of machine-building plants are producing at only a fraction of their potential capacity. However, the efficiency of operations and the quality of plant design vary widely among industries. Exceptional enterprises, such as a cotton textile plant visited by the mission, appear very efficient by world standards; and some Chinese-built plants, in industries such as petrochemicals, appear admirably up to date.

4.47 The designs of many Chinese engineering products are obsolete and inferior by comparison with those from advanced countries. In many cases, production technologies are also outdated - although these old technologies frequently appear appropriate in Chinese circumstances. With few exceptions, however, Chinese plants are not locked into outdated designs by specialized production lines. Indeed, much "mass production" in China is by methods more suitable to the manufacture of prototypes, relying mainly on the skill of the operative and general purpose machine tools.

4.48 Newer designs of many products are being made in small numbers in the most advanced plants or institutes. Indeed, scientific skills and technical know-how in some parts of industry are remarkable, and shop-floor skills are excellent in many plants. Given the products being made and the methods used, Chinese enterprises show admirable attention to quality and great skill in craftsmanship.

4.49 Labor seems to be assigned in very large numbers, even taking into account training and materials handling needs; and this is especially true in plants that now stand partly idle. As a result, particularly in heavy industry, large numbers of workers appear to have little to do. This may prove a serious problem, especially since work habits acquired in youth will be hard to change later. Some highly trained people are among those whose potential is not fully used. However, management appears to maintain close touch with workers' concerns and keeps them well apprised of enterprise objectives and production results.

4.50 Unsatisfactory results can commonly be traced to a dependence on supplies from a different ministry or organizational unit that places its own objectives ahead of those of its outside customers, or to some other failure in coordination, or conflict in objectives, among separate units. These problems are never readily admitted - Chinese units at all levels invariably criticize only themselves.

4.51 Managers in industry at all levels appear dedicated, energetic and remarkably able. There appear to be major deficiencies, however, in the procedures by which decisions are reached and in the information used in making them - particularly as regards investment projects, but also for other major decisions concerning the allocation of scarce resources. As a result, mistakes and inefficient choices are frequent. For example, the design of investment projects in manufacturing appears to be haphazard and liable to errors such as insufficient attention to requirements for power, materials, and transportation, or a poor choice of site. Procedures diffuse responsibility for decisions such as these, so that everyone, and thus no one, will be at fault when mistakes occur. Information available to central authorities appears to be insufficient for analytical choices, and not nearly enough is known about possibilities, requirements and alternatives at the local level. Almost no economy-wide information is available to guide individual enterprises, even those being given wider responsibilities.

4.52 A further source of inefficiency at all levels seems to be distorted signals created by the system of prices, taxes, and charges (if any) for the use of resources, including capital and labor. Inevitably, many choices are made at all levels based on costs, financial returns, profits, or quantity indices based on output value. These choices are frequently led astray by a very weak and uncertain relationship in industry between money costs (or returns) and "true" scarcity values. The most obvious problem has been the lack of charges for the use of capital (except bank loans for above-plan working capital); but the prices of labor, energy and many raw materials have also been divorced from relative scarcities.

4.53 The prices of industrial products include a large markup at each stage of processing, which sometimes leads enterprises to make expensive items for themselves when manufacture elsewhere would be cheaper. Price signals sometimes also lead enterprises throughout the economy to make more of products in excess supply, and to try to use more of those in short supply. Until this signalling system can be adjusted, centralized decision making is likely to be mistake-prone, while decentralization of decision making does not represent a satisfactory alternative. Enterprise managers cannot readily take on an enlarged role in the system, for lack of suitable information and signals to guide their decisions, as well as for lack of experience.

C. Energy

4.54 Exploitable reserves of the principal energy resources in China are believed to be equivalent to 500 billion tons of standard coal - roughly 500 tons per person (as compared with estimated world reserves of 250-300 tons per person). Of this, 80% is coal and about 15% hydro potential. Petroleum and natural gas are relatively less abundant, though in absolute terms China's estimated reserves are comparable to those of Indonesia. Oil shale and geothermal resources are also significant. The extent of uranium deposits is unknown.

4.55 Both coal and petroleum resources are quite widely spread, but the largest and richest resources are in the northern region, with substantial deposits also in the northeastern region. Industries in these two regions, not very distant from the deposits, account for a substantial share of the country's total energy consumption. The northwestern provinces also have large fossil fuel deposits, but exploration and development have been retarded by their remoteness from the main population centers, as has development of the 70% of hydro potential located in the southwest. The southeast is least well endowed with energy resources.

Production

4.56 The current pattern of energy production (Table 4.12) reflects this resource endowment inasmuch as coal contributes 70% of total commercial energy - a very high figure by comparison with other developing countries, where the average is around 14%. But the potential of oil and gas, which contribute about a quarter of total production, has been more intensively exploited than that of hydropower, which contributes only 3%. Noncommercial energy sources (wood, straw, etc.) contribute an amount equal to about 40% of total commercial energy production, but appear to be at the low per capita level typical of poor countries with a high population density, limited forest resources and organic-manure-intensive agriculture.

Table 4.12: ENERGY BALANCES, 1979
(million tons of coal equivalent)

	Coal	Oil and gas	Electricity	Total commercial energy	Traditional energy	Total
Production	454	174	119/a	649	250	899
Net consumption	451	149	119	621	250	871
Power system	71	27	18	18	0	18
Industry	289	79	78	446	n.a.	446
Transport	12	21	1	34	n.a.	34
Domestic and commercial	79	2	6	87	250	337
Agriculture and other	n.a.	20	16	36	n.a.	36
Exports	3	25	0	28	0	28

/a Of which hydropower contributes 21.

Source: Annex E, Table 1.1.

4.57 In 1952-80, the average annual growth of commercial primary energy production (in coal-equivalent units) was 9.6%. Coal output grew at 8.3%, crude oil output at 21.7%, and electricity production at 14.2%. By comparison with other developing countries over the past two decades (Table 4.13), China's performance appears good. Indeed, since China's energy production record has been achieved largely with outmoded and indigenous technology, it appears outstanding.

4.58 To realize it has required massive investment. Comprehensive statistics for earlier years are not available. But in 1978/9, investment in energy (including electricity transmission and petroleum refining) was annually absorbing more than 20% of state capital construction, or 3% of GDP, as compared with an average of less than 2% in oil-importing developing countries. At least in electric power, which now accounts for 40-45% of the sectoral total, there appears to have been a substantial increase in the rate of investment since the mid-1970s.

Table 4.13: INTERNATIONAL ENERGY COMPARISONS

	Growth rate of energy production (% per year)		Energy consumption elasticity	Energy consumption per dollar of GNP	Energy consumption per person
	1952-80	1957-80	1957-80	1979	1979
		<u>/a</u>	<u>/b, /a</u>	<u>/c</u>	<u>/c</u>
China	9.6	8.5	1.8 <u>/d</u>	2.5	644
India	n.a.	3.7	1.1	1.1	196
Indonesia	n.a.	8.2	1.3	0.8	282
Low-income countries	n.a.	7.1 <u>/e</u>	1.6	0.9	174
Middle-income countries	n.a.	5.0 <u>/e</u>	1.2	0.8	976

/a Figures for countries other than China refer to 1960-78.

/b Energy consumption growth divided by GDP growth.

/c In kg of coal equivalent. Figures for countries other than China refer to 1978.

/d Taking GDP growth to be 4.6% (Annex A, paras. A.19-21).

/e Hydropower evaluated on a somewhat different basis.

Source: Annex E; World Bank, WDR, 1980; and UN Statistical Office.

4.59 The backwardness of most of the technology in use is evident in all production subsectors. Productivity in coal mining, even at (the minority of) mechanized underground faces, is low, largely because of inadequate training; and the development of open-pit mines, which account for only 5% of total production, has been retarded by lack of specialized equipment. Geological

and geophysical exploration for oil, drilling, and reservoir engineering (including enhanced recovery activities) are all handicapped by inadequate equipment and by failure to properly maintain and use the limited amount of modern equipment available. The manufacturing technology and system design used in electricity generation have also lagged somewhat behind world standards.

4.60 In a few areas, however, China has developed a technological lead. One is the extraction of oil from shale, for which a simple and effective technique has been put into use on a large scale. Another is biogas, which is used on a scale unparalleled elsewhere: some 7 million digestors, each capable of meeting the cooking and lighting needs of a household of 5 people, had reportedly been built by 1979. Yet another may be small-scale hydroelectric power plants, which in rural areas have advantages in terms of speed of construction, demands on trained manpower, and transmission costs; an estimated 90,000 plants (with an average capacity of about 80 kW) are currently in operation.

4.61 Moreover, despite technological limitations and some apparent managerial weaknesses, the Chinese electric power system appears quite efficient by international standards. Transmission and distribution losses (at 9.24%) are low by developing country standards. Fuel consumption per kWh in large thermal power stations is lower than in Indonesia and only 17% higher than in the USA. Furthermore, thermal power plants annually produce about 5,500 kWh of electricity per kW of installed capacity (as compared with about 3,900 kWh in India and the USA): this is accomplished partly by staggering the hours and working days of consuming industries, but it also reflects the reliability and maintainability of Chinese generating equipment.

4.62 However, some recent failures in energy production appear to reflect poor planning as well as backward technology. One, familiar in other developing countries, is that growth of electrical generating capacity - despite the surge in investment over the past few years - has failed to keep up with demand, which has reduced useful industrial output to some degree (and not-very-useful industrial output to a larger degree). More serious is the slowdown of growth, and latterly an absolute decline, in the production of both oil and coal.

4.63 As regards oil, the problem is largely that exploration and development activity, though by international standards extensive (2,000-3,000 wells drilled per year, on- and offshore), has for many years been rather ineffectual. The last major discovery was in 1975. In addition, poor management of existing fields has caused their output to peak earlier and to decline faster than it need have done. There has likewise been too much emphasis in the last few years on the immediate production of coal, and too little on opening new mines and developing existing ones.

Consumption

4.64 China's commercial energy consumption per capita (644 kg of coal equivalent) is nearly four times the average for other low-income countries, though only two thirds the middle-income country average. By far the biggest

user is industry (Table 4.12), which accounts for over 70% of total commercial energy consumption (including 65% of coal, even excluding consumption for power generation, and 80% of electricity, of which half goes to metallurgy and chemicals). The second biggest user is the household and commercial sector, which accounts for 14%. Transport absorbs only 5%, and agriculture about the same - despite the fact that 63% of brigades have access to electricity. Exports of coal and oil, though substantial in relation to China's total foreign trade, are less than 5% of total commercial energy production.

4.65 Taking commercial and traditional energy together, household energy consumption amounts to about 300 kg of coal equivalent per capita per year. But the climate in much of China is far colder than in most other low-income countries, and consequently there is a greater need for domestic heating. Thus, despite progress in biogas and small-scale forestry, energy is scarce in rural areas; old people and small children sweep up leaves and twigs for fuel. Household electricity consumption appears low by international standards.

4.66 Energy consumption over the past two or three decades has grown nearly as fast as energy production, and faster than total production in the economy. In 1957-79, the annual average real growth of GDP was 5.3% at 1970 Chinese prices, and might have been about 4.6% had prices been similar to those in India (see Annex A, Table A.18). The aggregate energy consumption elasticity was thus in the range 1.6-1.8, which is somewhat above the figure of 1.6 in other low-income countries, and well above the figure of 1.2 in middle-income countries (Table 4.13).

4.67 Relative to GNP, China's energy consumption is about three times the average for either low-income or middle-income (or industrialized market) economies. Even the European centrally planned economies, whose energy consumption per dollar of GNP is distinctively high, on average appear significantly less energy intensive than China. Part of the reason for this may be China's sectoral pattern of energy supply and demand.

4.68 First, China relies much more on coal than other developing countries, and coal-fired steam systems are inherently relatively inefficient (the energy-intensive East European economies also rely heavily on coal). The example of India, however, which approaches China in dependence on coal (60% of consumption, as compared with China's 73%), suggests that this is not an important part of the explanation. In a few sectors (railways and metallurgical industry), China appears no more energy intensive than India; but on average in nonmetallurgical industry, China's energy-to-output ratio is more than twice as high as India's.

4.69 In addition, since industry (particularly heavy industry) is generally more energy intensive than other sectors, China's high energy-to-GNP ratio could be partly due to a high share of industry in total output or of heavy industry (which accounts for four fifths of all industrial electricity consumption) in industrial output. But when allowance is made for the unusual

internal price structure in China, the share of industry in GDP, though about 15 percentage points above the average for other low-income countries, is probably close to the average for middle-income and industrialized countries (Annex A, Tables A.13 and A.14). Similarly, the share of heavy sectors in Chinese industry is not very different from the shares in India, advanced middle-income and industrialized countries (Table 4.10).

4.70 Thus even when allowance is made for possible mitigating factors, the macroeconomic data (buttressed by a variety of microeconomic evidence - Annex D, paras. 2.33-4 and 3.03) suggest that China uses energy, especially in industry, a good deal less efficiently than other developing countries. One underlying reason for this has been inadequate access to foreign equipment (and know-how) embodying the substantial progress made in fuel saving over the past three or four decades. More important, however, has been the lack of incentives in China to economize on energy: as with other materials, enterprise managers have, until very recently, had little reason to limit the energy use of installed capacity, or to demand new and more fuel-efficient equipment from their suppliers - who have in turn been under little pressure to undertake appropriate research and innovations.

D. Transport

Development Strategy

4.71 In 1949, the Government inherited a transport system consisting of a large traditional sector using animal, labor and wind power and a modern sector using capital equipment such as trains, buses, trucks and steam powered vessels. The basic capacity of the modern sector was less developed than those of other large, low-income countries (e.g. India had some 53,000 km of rail routes in that year, as compared with 22,000 km in China). It was highly concentrated in the northeast and coastal regions hitherto under foreign domination, but not integrated into a coherent network, and had been seriously damaged by over a decade of continuous warfare. The tasks in transport development after 1949, therefore, were first, to reconstruct and rehabilitate; then to expand capacity in support of national objectives aimed at integrating the country politically and administratively, and at dispersing industrial development away from the coastal areas; finally, to modernize the system in line with technology trends, reduce costs, and improve overall efficiency.

4.72 The broad pattern of transport development has reflected the country's general policies of self-reliance, dispersed development, and priority to the development of heavy industry, as well as defense strategy considerations. Given China's physical setting, these policies have worked more in favor of rail transport, which remains the dominant mode, than roads. In the 1950s, funds invested in new rail line construction were only slightly larger than those invested in old line improvement. By the late 1960s and early 1970s, however, rail investment had shifted more towards new line construction, for which total investment expenditure was some six times that for improvement of

existing lines. Only 20% of this new line construction was in coastal and neighboring provinces where most of the population lived. The bulk of rail infrastructure investment was used to improve transport access to important but isolated provinces (Sichuan, Yunnan, Guizhou), as well as to integrate remote border provinces into the national economy and facilitate the exploitation of their mineral potential. Extending the rail network into these areas has involved major engineering achievements in tunnelling and bridge construction in difficult terrain and climatic conditions.

4.73 During the 1950s and 1960s, the presence of hostile military fleets off the coast, imposing a partial blockade at times, and the slow development of foreign trade led to a decline in the importance of ocean and, particularly, coastal shipping, which had historically been the major mode of north-south traffic. Instead, major efforts were made to bridge the east-west flowing rivers, especially the Chang Jiang, at points well inland. After the shift of policy to emphasize agricultural development in the early 1960s, greater attention was given to the construction of rural roads. These were mostly built on the initiative and with the resources of local government and the communes, and they were usually of low standard. Transport development and operations consistently gave priority to freight rather than passenger traffic.

4.74 The transport sector remains dualistic, with traditional means (such as pack animals, human porters, animal or laborer drawn or pushed carts, and wind powered sampans and junks) existing in large numbers alongside a growing, modern transport system. Although these traditional forms of transport are slow and expensive, they are clearly important for moving freight short distances, particularly in the densely populated eastern parts of the country. In the mountains and border provinces, animal (e.g. camel) transport is still used for longer hauls. The bicycle remains the dominant means of short-distance passenger movement, especially in urban areas.

Growth of Traffic

4.75 Major progress has been made since 1949 in extending the size of the transport network, improving its capacity, raising its efficiency, and using it effectively to meet economic, political and social goals. This progress has been the result of substantial investment. During the First Five-Year Plan (1953-57) investment in transport and communications accounted for about 16% of total state capital construction. The proportion rose to 20% in the mid-1960s, remained at about that level through the mid-1970s, and then fell to 13% by 1979. Within transport, investment in the railways has consistently been around 50-70% of total investment. Investment by communes, which is additional to state capital construction, includes a considerable proportion for transport, particularly for labor-intensive road building, so that the sector's share in total national investment is likely to have been around 15% over the past three decades. This share is similar to that of many developing countries over the same period.

4.76 Freight traffic has grown rapidly. In 1979, the modern transport sector moved 1,042 billion ton-km, implying an average growth of 10% a year since 1952, or about 8.3% a year since 1957 (Table 4.14). Long-distance

ocean shipping (with average hauls of about 7,500 km) accounted for 30% of the total in 1979. With this excluded, the growth rate since 1957 was probably about 6.5% a year. This implies that the growth of freight transport output was about 1.3 times the growth of GNP over the same period. This ratio is a little lower than those in most developing countries at about China's level of per capita income. More recent data with wider coverage than those in Table 4.14 imply that in 1979 (excluding ocean shipping) railways accounted for 68.1% of total freight traffic, coastal shipping 10.3%, inland waterways 6.6%, roads 9.1% and pipelines 5.8%.

Table 4.14: GROWTH OF FREIGHT AND PASSENGER TRAFFIC /a

	Freight				Passengers				
	Rail ----- (billion ton-km)	Road	Water	Total -----	Rail ----- (billion passenger-km)	Road	Water	Air	Total -----
1952	60	1	15	76	20	2	3	0.02	27
1957	135	5	42	181	36	9	5	0.08	50
1979	559	27	456	1,042	121	60	11	3.50	197
Average Annual Growth (%)									
1952-79	8.6	13.0	13.5	10.2	6.9	13.4	4.9	21.1	7.6
1957-79	6.7	8.0	11.5	8.3	5.5	9.0	4.0	18.7	6.5

/a The figures exclude the work done by enterprise, ministry and commune-owned vehicles and vessels, as well as that of multi-purpose tractors using the highways.

Source: Annex F, Table 2.2.

4.77 The growth of total passenger traffic, at an average rate of 6.5% p.a. since 1957, /1 has also been roughly 1.3 times the growth of GNP, but is considerably slower than the rates in many developing countries. The average level of mobility in China - about 200 passenger-km per person per year by modern transport means - is also very low by international standards (cf. 710 for India in the mid-1970s and nearly 1,000 for the USSR in 1965). Although restrictions on population movement may have restrained demand for passenger transport more in China than in other developing countries, congestion on passenger trains and the difficulty of obtaining seats on trains, buses and planes suggest that traffic might be much larger if the transport capacity were available.

/1 This figure is likely to be an understatement, since transport by enterprise and ministry buses, for example, is excluded. So are urban bus transportation and passenger transport to and from Shanghai and Tianjin.

4.78 Despite evident and striking progress in expanding the transport network, China's transport system is still underdeveloped relative to the country's physical size and population (Table 4.15). As in most developing countries, the density of coverage is particularly low in rural areas; for instance, over 4,000 communes (or 8% of the national total) and 200,000 production brigades (about one fourth of the national total) are reported to be without any roads.

Table 4.15: TRANSPORT NETWORK AND TRAFFIC

	China 1979	India 1979	Brazil 1979	USSR 1978
<u>Network</u>				
<u>Railways</u>				
Route-km per '000 sq km of land area	5	15	3	6
Route-km per '000 population	0.05	0.09	0.24	0.53
<u>Highways</u>				
Route-km per '000 sq km of land area	91	335	175	71
Route-km per '000 population	0.9	1.7	12.5	6.1

Source: For China, Annex B, Table 9.1; for other countries, World Bank documents, Jane's All the World's Railways, 1980/81, and UN, Annual Bulletin of Transport Statistics for Europe, 1979.

Modal Development and Problems

4.79 Railways. The railway system is the major carrier of both freight and passengers. It has more than doubled in size since 1949, from 22,000 km to about 50,000 km of track, of which 8,000 km are double or multiple track and over 1,000 km electrified - a figure that will quickly rise to 2,000 km as work at an advanced stage is completed. Operations appear efficient and show a high level of track and equipment utilization. The average freight density of 11 million net freight ton-km per route-km in 1979, for instance, is second only to that of the USSR (24.7), one of the world's major railway systems, and compares favorably with the average density on other systems, e.g. USA (4.5), India (2.7), Romania (6.9), and Western Europe and Japan (1.1-1.7). The freight car turnaround time of three days is extremely low by any standard. Freight traffic is dominated by coal, construction materials, and mineral ores; compared with railways in both developed and developing countries, relatively little capacity is used to transport food (3% for foodgrains) and other consumer goods.

4.80 Passenger railway transport has fared less well, though for most people it is virtually the only means of intercity travel. Passenger equipment is in short supply, and on many trunk lines the number of passenger cars cannot be increased without reducing freight transport. Complaints are already frequent about overcrowding, poor service, lack of suitable waiting facilities and slow journeys. Even a modest increase in passenger train speeds will pose severe problems because of the predominance of slow freight trains.

4.81 Another problem is the predominant use of steam (unique among the world's major railways) in railway operations (78% of motive power, compared to 20% diesel and 2% electric), which limits the length and weight of trains, passing tracks, yard operations and other operational features. Steam locomotives also have an inherent fuel inefficiency, operational distance limitations, especially in water-short areas, and capacity constraints in mountainous areas with high gradients and tunnels. On the other hand, the installed capacity to manufacture diesel locomotives is not fully utilized, partly because of technical problems relating to the design of the engines and the difficulty of their maintenance. Electrification of the railways has also been slow because of electric power shortages and a variety of technical problems relating to the locomotives, telecommunications interference, and lack of space in the tunnels on older lines.

4.82 Because railways are already operating at or near capacity in much of the system and the use of equipment is intensive, sudden upsurges in traffic (such as those experienced in 1978 and 1979) inevitably result in serious bottlenecks on some lines. Capacity problems are partly attributable to the sizeable amounts of short-haul (freight and passenger) traffic that the railways handle (which could be carried more economically by road and water). This is the result of many factors, including pricing distortions: short-haul rail transport prices are below cost; prices are administratively determined and generally favor rail at the expense of roads; and high prices are charged by road transport corporations for short-haul traffic. The present system of prices and revenue retention, and the lack until recently of any charges for fixed capital, also create incentives for the regional railway administration to secure added investment, with the result that while the system's capacity is intensively used, excess capacity exists in equipment manufacturing and maintenance facilities.

4.83 Road Transport. China's network of motorable roads has increased from about 80,000 km in 1949 to about 900,000 km in 1979. However, in terms of spatial density, the road system remains one of the least developed in the world. Moreover, the existing roads - most of which were built with local resources - are generally of a low standard in terms of alignment, bridge design, and especially pavement condition and strength. The low standard of pavements, the limited extent of paved roads, and the lack of traffic separation are perhaps the greatest deficiencies of the road system and a major cause of high vehicle operating costs. There are less than 200 km of modern four-lane intercity highways in China. The traffic mix includes large numbers of slow-moving vehicles (including, in both rural and urban areas, farm tractors used to carry freight and passengers), animal and human drawn carts,

pedestrians and bicycles. The effect is to reduce journey speeds for trucks and buses, making journey times quite high on almost all roads. Significant congestion is already evident on a few main truck routes, on approach roads to some major cities, and within the larger cities and towns.

4.84 The size of the vehicle fleet is also small by international standards. China has less than 20 motor vehicles per 10,000 population, as compared with 21 for India (excluding motorcycles - or 58 including motorcycles, which are a major mode of transport in India but rarely found in China). The difference is particularly striking for passenger cars. There are probably over 1,000 people per car in China, as compared with about 500 in India and 20 in Brazil. More serious is that the design of most vehicles, including trucks, dates back to the pre-1949 era, resulting in high operating costs and fuel consumption.

4.85 Road transport clearly plays a much less important role in China than in other developing countries and serves very much as a feeder system to the railways or local service activities in and around urban areas. Although this reflects the physical environment of China as well as the Government's development strategy, the relatively minor role of road transport means that many parts of the country (particularly in the mountainous regions) remain isolated. Since these mostly poor and backward areas are the least capable of mobilizing their own resources for road construction (unlike other areas, which have done so in the past), their development difficulties are compounded.

4.86 Water Transport. Inland water transport and coastal shipping are more important in China than in most countries, because of the concentration of people near the numerous rivers, canals, lakes, and 18,000 km coastline. Historically, canal and river transport have provided the major means of freight transport, though in modern times their importance has declined relative to that of railways. Since 1949, some previously unusable or war damaged navigable inland waterways have been opened up to river and canal traffic, so that now about 107,800 km of waterways - twice the length of the rail network - are navigable, although only 57,000 km have a water depth of 1 meter or more, and most of the rivers remain in their natural condition. As a result, most of these waterways only serve short-distance local traffic; the average haul in inland water transport is 170 km, compared to 1,232 km in coastal shipping. The large absolute growth in water transport since 1952 (a 28-fold increase, including ocean shipping) has been accompanied by major technological changes, so that engine rather than wind powered vessels now account for the bulk of freight traffic movement by water.

4.87 Sea transport and associated port development have grown rapidly since 1970 as a result of China's re-entry into substantial international trade and changed political conditions allowing the resumption of normal coastal shipping. This rapid growth placed a considerable strain on the ocean and river ports, the capacity of which did not grow much in the first two decades of the People's Republic. Despite the stepped up efforts begun in the early 1970s to modernize the 15 main ports under the Ministry of Communications, many ports experience serious congestion. During 1979, for instance, ships waited for berths at the ports of Shanghai, Tianjin and Huangpu an average of 30% of their total stopover time, or 2-4 days per vessel.

4.88 A weakness in waterborne transport operations is the proliferation of ocean, coastal, and inland water transport into a large number of uncoordinated institutional and administrative units. One result is more frequent transshipment than would otherwise be necessary, in part because each of the organizations is attempting to maximize physical productivity indicators rather than minimize costs. Also, consignment sizes are often less than optimal, both technically and economically. Due to jurisdictional ("assigned task") requirements, carriers are prevented from offering the most efficient services, e.g. direct shipments from coastal port to inland port (or enterprise terminal), or from a foreign port to a coastal or inland port, without intermediate transshipment at a third port, ocean or coastal. Moreover, expansion plans for the major ports appear to have been developed at least until recently on the basis of individual port requirements rather than within the framework and strategy of a national port and traffic flow development plan. Such a plan is now being drawn up.

4.89 In recent years, China's ocean and coastal shipping fleet has been expanding faster than that of any other nation. It now totals over 9.0 million dwt, making it about the fourteenth largest fleet in the world. China is estimated to have committed over \$1.3 billion for ship purchases from mid-1976 to 1980, while also building its own vessels - in 1980, for example, 818,000 tons of steel ships for civilian use were produced. A substantial share of the country's foreign trade is carried on nationally owned vessels, which include 46 semi-containerships. Many ships, however, have difficulty in obtaining return cargoes. In improving its ports, rivers, canals and ship-building yards, China has built up a large dredging fleet (comprising over 500 dredgers and auxiliary vessels), a part of which is underutilized even though overseas contracts are being sought.

4.90 Aviation. Domestic aviation is still underdeveloped. In 1978, for example, China had 40,000 domestic flights as compared with 85,000 in India. Passengers carried numbered 2.0 million in China and 4.7 million in India. The difference in service frequency is striking. The number of daily flights per route-km is 1.7 in India and 0.3 in China. The aviation system is being upgraded, with capacity and service increased by the addition of jumbo and other jet aircraft. More city pairs are being added to the domestic network, and more cities are being opened to international services. Nevertheless, the CAAC, the official airline, has difficulty in keeping up with the growing demand, including increasing tourist traffic from overseas.

E. Advanced Education and Training /1

4.91 Chinese educational policy since the revolution has consistently emphasized the development of socialist consciousness and physical skills, as well as of intellectual ability at all levels. But it has sometimes proved difficult to strike a proper balance between being "expert" and being "red", and between basic and more advanced education.

/1 For a discussion of China's achievements in basic education, see paras. 3.78-3.83.

4.92 In the 1950s, there was steady and impressive progress. From a minute base (120,000 students in 1949), higher education expanded rapidly, and by 1958 the enrollment rate (1.6% of the relevant age group) was similar to the average for other developing countries at that time. The Great Leap Forward, and the economic difficulties that followed, interrupted this advance. But by the mid-1960s the development of higher and technical education had regained momentum.

4.93 During the Cultural Revolution (1966-76) the whole education system was severely disrupted. Many schools and universities were initially closed, with much destruction of equipment and burning of books. Primary and secondary schools reopened after two or three years, but universities and other post-secondary institutions not until the early 1970s (and even then on a diminished scale). Vocational and technical secondary schools (apart from those run by enterprises) were virtually abolished, as was postgraduate education. An open-door admissions policy was adopted at all levels - except for those whose class backgrounds were unsatisfactory (which included the children of most of the intelligentsia). The length of secondary and university courses was reduced, and a strong emphasis was placed on political and practical rather than academic subjects. Many teachers and professors, accused of "bourgeois" attitudes, were despatched to the countryside and replaced by peasants, workers and others with acceptable political backgrounds.

4.94 Since 1976, the importance of experts has again been recognized. Key schools and universities, technical and vocational education, and post-graduate study have been encouraged. Courses have been restored to their former length, and university enrollment has risen. The quality of education is stressed, and academic knowledge is again favored over practical experience.

Skilled Manpower Availability

4.95 The Cultural Revolution is estimated to have cost China two million middle-level technicians and one million university graduates (in addition, only a poor quality education was given to those who did pass through the system during this period). Partly as a result, the proportion of the labor force with higher education in 1979 was only 0.5%, and with a technical or vocational secondary schooling, only 0.9% (of whom many are teachers).

4.96 Chinese higher education has been biased toward science and engineering, and against the arts and social sciences. Even so, only slightly over 1% of the labor force has had intermediate or higher scientific and technical training. Of these, 28% are engaged in teaching or research and 30% in medicine, leaving only 42% working in agriculture and industry.

4.97 As a result, the ratio of scientific and technical personnel to total manpower in the productive sectors is low. Even in chemicals and machinery manufacturing, the ratio in China is only 4.5%, as compared with 5.2% in Brazil, 9.3% in Mexico and 21.1% in the USA. And in agriculture, the technical and scientific manpower ratio is estimated at 0.5-1.0 per thousand, as compared with 2 per thousand in Mexico and an international average of 5 per thousand.

4.98 These statistics convey only part of the story. On the positive side, the centrally controlled and commune-based system in China is an unusually efficient way of using limited amounts of technical manpower in agriculture. In addition, the data may understate the numbers of people who have received formal or informal technical training on the job (Annex I, paras. 3.88-3.93). But on the negative side, the statistics conceal chronic shortages of accountants, economists and properly trained managers. They also conceal the poor quality and out-of-date character of much technical knowledge - the result of ten years of educational disruptions and isolation from the rest of the world.

4.99 In relation to China's desire and need to modernize, its supply of skilled manpower is inadequate. So are many of the institutions that must be relied on to improve the situation.

Universities

4.100 The university enrollment rate in 1979 was only 1.2% - half the average for other low-income countries and a quarter of the average for all developing countries. Physical facilities are on the whole uncrowded, but there are acute shortages of scientific equipment (notably computers) at all levels and of books and journals for postgraduate students (whose numbers are still tiny by international standards). University teaching staff are numerous - the student/teacher ratio of 4.3 is low by international standards (10 would be a more normal figure). But many of the teachers are inadequately qualified: even in 20 key universities, only 8% had completed postgraduate studies, and 16% had three or fewer years of higher education. Many of the "assistants" (33% of the staff) were hired during the Cultural Revolution to assist students in productive labor and practical work. Of the teachers who have proper qualifications, many are old, and their knowledge somewhat out-of-date.

4.101 There continues to be a strong bias toward science and engineering, especially in the key institutions. Of those enrolled in 1979, only 6% were studying liberal arts, 2% finance and economics, and 0.3% politics and law. Within science and engineering, moreover, the curriculum is weak. The "applied method" approach is followed rather than the "basic problem" approach. Immunology and genetics are excluded from basic life science courses. In physics, optics, calorimetry and elementary electrical experiments are well covered, but atomic and nuclear physics are neglected. Physical chemistry is emphasized at the expense of organic and inorganic chemistry.

4.102 Chinese universities, in contrast to primary and secondary schools, are also expensive by international standards, because the student/teacher ratio is high, physical facilities are underutilized, and a high proportion of students are boarders. Costs per student are of the order of \$1,000 per year - double the average cost in other developing countries, and 50 times the cost per student in primary education (as compared with a ratio of about 9 in South and East Asian developing countries; the ratio in sub-Saharan Africa is about 100/1).

/1 World Bank, WDR, 1980, Table 5.1.

Technical and Vocational Schools

4.103 Formal technical and vocational schools have not yet recovered from the turmoil of the Cultural Revolution. Many of their former facilities have not been returned to them, and in 1979 total enrollment was only 1.4 million, far below the 1965 level. This 1.4 million, moreover, is only about 2.4% of all secondary school enrollment; the corresponding figure for other developing countries averages 11%.

4.104 Of the students enrolled in formal technical and vocational education at the secondary and (except universities) postsecondary level, some 25% are training to be teachers and 10% to be medical workers, while 50% are in industrial schools. Only 7% are studying agriculture, and for many of them, not as a first choice. (This situation is only somewhat improved by the fact that 2% of the students in general secondary schools have chosen an agricultural program.) As in primary and general secondary schools, teachers in technical and vocational education appear to be inefficiently used, with a student/teacher ratio of about 10 (as compared with about 15 in other countries).

Nonformal and Continuing Education

4.105 In contrast to the formal advanced education system, nonformal advanced education in China is impressive. The in-service teacher training system, for example, is well developed by international standards: it uses correspondence, radio and TV, and summer courses; and about one out of five teachers is participating. In addition, many enterprises provide in-service technical and vocational courses to upgrade their staff and similar preservice training for general secondary school graduates.

4.106 But it is at the tertiary level that China's progress in nonformal education is most remarkable. There are night schools and correspondence courses (often run by regular universities), spare-time universities (run by cities and prefectures), institutions of higher education for workers and peasants (run by enterprises and counties), and teacher training schools and TV universities (run by education departments at various levels). Together, they add 860,000, or about 60%, to formal tertiary-level enrollment.

4.107 The bulk of tertiary-level nonformal education is financed by enterprises: the courses use the enterprises' facilities; the teachers are usually regular employees of the enterprises; and students attend classes during working hours. This represents a rational response to the deficiencies of the formal education system, especially in the Chinese context of lifetime employment in a single enterprise. The courses appear to be of a reasonable standard and have a unit cost far below that of the regular university courses.

4.108 The Chinese TV university, which provides high quality education at low unit cost, is perhaps the most advanced of its kind in a developing country. Each province except Xizang has its own program, but the central TV university in Beijing plays the leading role - preparing programs, selecting textbooks and preparing study guides. The students, of whom 40% are full-time,

are organized into classes that meet frequently; but live teaching plays only a limited role. The curriculum is highly technical, with courses in physics, chemistry, mathematics, computer science and engineering. The English broadcasts have a very wide unenrolled audience. Entrance is by competitive examination, and the drop-out rate is under 10%.

F. Foreign Trade

Role of Trade

4.109 Foreign trade in China has historically been small relative to total economic activity, reflecting the large size of the country, its diversified resource endowments and the inward-looking tradition of its people. Since the establishment of the People's Republic, the expansion of foreign trade has been further constrained by the country's isolation over much of the period, especially the absence of diplomatic relations with many Western countries, the trade embargo imposed by Western countries in the 1950s and the country's commitment to self-reliance. Thus, even after the substantial normalization of international relations in the 1970s, China's trade to GNP ratio in 1978 remains one of the lowest in the world (Table 4.16). Although the share of exports in China's GNP is low by international standards, the low share of imports is especially striking. This is in contrast to developing countries such as Bangladesh and Turkey, whose shares of exports in GNP are also low, but whose shares of imports are considerably higher because of substantial capital inflows.

4.110 In the three decades between 1950 and 1980, exports in current US dollars grew at an average annual rate of 12.2%, while imports grew at 12.1% (Table 4.17). Since world price increases for traded commodities were about 6% over this period, the real growth of trade appears to be about 6%, much the same as the growth of GNP. Although trade policy has varied over the three decades, the basic objective at all times has been to import only goods necessary to compensate for unexpected domestic production shortfalls and goods that could not be produced domestically in sufficient quantities, if at all. Over time, the objective has been to reduce the economy's dependence on imports, i.e. to develop domestic industries whose output would substitute for imports. Production of goods for export has been promoted mainly to generate the foreign exchange to pay for imports and to meet other demands (repayment of Soviet loans in the early 1960s and maintaining a foreign aid program in the 1960s and 1970s).

Table 4.16: MERCHANDISE EXPORTS AND IMPORTS AS A PERCENTAGE OF GNP -
AN INTERNATIONAL COMPARISON, AVERAGE FOR 1977 AND 1978

Country	Exports/GNP	Imports/GNP
China <u>/a</u> <u>/b</u>	4.5	4.7
India	6.1	6.9
Indonesia	26.2	15.1
Bangladesh	7.1	17.0
Turkey	4.0	10.3
Brazil	7.3	8.2
Mexico	6.0	8.0
Japan	11.2	10.0
USA	6.5	8.5
USSR	5.6	5.2
All developed countries (1978)	15.5	16.0
Low-income developing countries (1978)	11.1	12.4
Middle-income developing countries (1978)	16.5	21.2

/a Based on the GDP estimates in Annex A, para. A.23.

/b For 1979 and 1980, the percentages are estimated to be as follows:

	<u>Exports/GDP</u>	<u>Imports/GDP</u>
1979	5.4	6.2
1980	6.4	6.9

Sources: For China, State Statistical Bureau and Ministry of Foreign Trade;
for other countries, World Bank, World Development Report, 1980.

Table 4.17: GROWTH OF FOREIGN TRADE

	Exports --- (current \$) ---	Imports	Exports -(constant prices)-/a	Imports	Growth of total merchan- dise trade/ growth of GNP
Average annual growth rate over period, in %					
1977	10.7	9.7	2.1	1.1	
1978	28.4	51.0	10.1	32.7	
1979	40.2	44.1	25.7	25.6	
1980	32.7	23.5	18.0	9.8	

1950-60	12.2	13.2	9.7	10.7	0.9 (1952-57)
1961-70	4.0	4.2	2.6	2.8	0.3 (1957-70)
1971-79	23.0	27.0	9.8	13.8	2.0

/a Deflated by "international price index" compiled by the World Bank.

Source: Ministry of Foreign Trade.

Trends and Composition

4.111 The trend in and composition of foreign trade have reflected the changing pace and pattern of economic development since 1949. In the 1950s, the total volume of trade grew about as fast as the sharply rising GNP. Machinery and equipment - mostly associated with Soviet-assisted projects - accounted for about half of total imports during this period. The share of consumer goods, which dominated imports before the revolution, was reduced to only 7%. The rising level of imports was financed mainly by exports of agricultural and processed agricultural products (82% of total exports in 1953 and 72% in 1957); exports of light manufactured goods, especially textiles (9% in 1955 and 18% in 1959); and loans from the USSR, which amounted to an estimated \$1.4 billion between 1950 and 1959./1

4.112 The 1960s was a decade of severe foreign exchange constraints. Soviet economic assistance ceased in 1960 and was followed by the accelerated repayment of all outstanding loans between 1961 and 1965. Capital outflows continued into the late 1960s and 1970s with the initiation of a substantial foreign assistance program (\$7.5 billion committed during 1961-77),/2 while

/1 R.E. Batsavage and J.L. Davie, "China's International Trade and Finance," in Chinese Economy Post-Mao (US Congress, Joint Economic Committee, 1978), p. 710.

/2 OECD, Aid Program of China, Paris, 1979.

during the 1960s exports in real terms grew not much faster than population, partly because problems of agricultural growth led to falling exports of soybeans and other agricultural products. In addition, the agricultural crisis caused by the failures of the Great Leap Forward had turned the country from a modest net exporter of grains to a substantial importer - 5-7 million tons a year in the first half of the 1960s. (Even after the recovery of agricultural production in the early 1960s, it has continued to be necessary to divert foreign exchange to foodgrain imports.) Substantial imports of chemical fertilizers also began, rising from 1-2 million tons in the early 1960s to over 4 million tons (valued at around \$200 million) in the late 1960s and early 1970s.

4.113 The main effect of the severe shortage of foreign exchange in the 1960s was to reduce machinery and equipment imports, whose share of the total fell to about one fifth throughout the 1960s and early 1970s. In addition to foodgrains, major import items were intermediate goods and raw materials - high quality iron and steel products, nonferrous metals - whose share in total imports rose to one third. Thus in the 1960s there was rapid substitution of domestic products for imported machinery and equipment, and extreme technological isolation, with scarce foreign exchange used mainly to satisfy the basic consumption needs of the rapidly growing population and the production requirements of the already large industrial sector. On the positive side, this was undoubtedly a period of "forced" learning and technological diffusion within the country, as the Soviet technicians abruptly withdrawn in 1960 had to be replaced, half-finished Soviet plants had to be completed, and domestic machinery, equipment and spare parts had to be produced to replace foreign products no longer available.

4.114 Foreign exchange constraints eased significantly in the 1970s for several reasons: (a) the improvement of political relations with Western and some East European countries and the resumption of trade agreements with the USSR, which facilitated rapid growth of exports, especially of manufactured products, and permitted a small amount of foreign borrowing; (b) the emergence of a surplus of crude oil, which permitted rapidly rising exports at a time of sharply increasing world prices; and (c) the growing export capability of domestic industries. Thus in the 1970s both exports and imports grew rapidly - at over 20% a year in current prices or over 10% a year in real terms.

4.115 The early 1970s saw the resumption of technology acquisition from abroad through the import of complete plant and equipment on a scale approaching that of the imports from the USSR in the 1950s. In contrast to the 1950s, however, when the objective was to build up a broad range of heavy industries, the import program in the 1970s concentrated on acquiring a domestic capability to manufacture intermediate goods, especially chemical fertilizer, synthetic fibers, other petrochemical products, chemicals and high-quality steel products. Although the massive import of complete plant and equipment had ended by 1974/75, the rapid growth of foreign trade continued into the late 1970s.

Recent Developments

4.116 Following slower growth in 1975 and 1976 as a result of political disruptions, the growth of foreign trade has in fact accelerated in recent years. According to IMF estimates,^{/1} the dollar value of exports rose by 21% in 1977, 43% in 1979, and 28% in 1980, while that of imports jumped by 49% in 1978, 51% in 1979, and 21% in 1980. Some of the rise was brought about by world inflation averaging 14-15% in these years, but much of it was real. By 1980, merchandise exports were valued at \$17.9 billion and imports approached \$21 billion. Unofficial estimates suggest that the negative trade balance of over \$3 billion was partly offset by a positive balance of \$1.2 billion in services, based mainly on earnings from transportation and travel. Nearly \$0.7 billion more came from overseas remittances. The rest was met by drawing down China's international reserves, which have fluctuated, and by a slight increase in debt (Table 4.18).

Table 4.18: UNOFFICIAL BALANCE OF PAYMENTS ESTIMATES, 1977-80 /a
(current \$, million)

	1977	1978	1979	1980 estimate
Exports	8,050	9,745	13,987	17,900
Imports	-7,627	-11,399	-17,266	-20,968
<u>Trade Balance</u>	<u>423</u>	<u>-1,654</u>	<u>-3,279</u>	<u>-3,068</u>
Transport and insurance, net	255	344	622	777
Other services, net	194	335	503	422
Transfers, net	427	528	626	680
<u>Current Account Balance</u>	<u>911</u>	<u>-447</u>	<u>-1,528</u>	<u>-1,189</u>
Long-term capital	-990	-830	1,919	2,110
Short-term capital	-82	-512	415	-1,964
Errors and omissions	670	1,004	-133	340
Change in reserves and allocation of SDRs	<u>-509</u>	<u>785</u>	<u>-673</u>	<u>703</u>
(- indicates increase)				

/a An official balance of payments table for China is being prepared by the Bank of China and may be available in mid-1981. The very tentative estimates given in this table were prepared by IMF staff and will be superseded by the official figures when they become available.

/1 These differ from the official figures of the Ministry of Foreign Trade in that the IMF includes adjustments for exports to Hong Kong and Macao, foreign aid exports and imports by agencies other than the Ministry of Foreign Trade.

4.117 The present pattern of China's foreign trade roughly reflects the country's abundant endowment of labor, severe shortage of land, the large capital goods sector created in the 1950s and 1960s, and the low level of skills and technology in some products. Table 4.19 shows the pattern of China's exports in recent years. The share of fuel exports has jumped sharply as a result of higher oil prices. Thus, crude oil and petroleum products roughly doubled their share in two years and by 1980 constituted about one quarter of the total. Exports other than fuels are extremely diversified. The leading primary exports are rice (exported in exchange for cheaper cereals), canned and fresh fruit, products made from pigs (live hogs, frozen pork and bristles), tea, aquatic products, and tungsten; but together these items accounted for less than 12% of China's total exports in 1979 (numerous other primary products are also significant). Most of the manufactured exports (and about one third of total exports) are labor-intensive products from the light and handicraft industries. Most important among these are textiles, followed by garments; in 1979, cotton fabric and yarn comprised 5.6% of China's exports, and silk filature and fabrics 3.9%. Highly diversified machinery and transport equipment still account for only a very small share of total exports (3.4% in 1979).

Table 4.19: PERCENTAGE COMPOSITION OF CHINA'S EXPORTS, 1978-80

	1978	1979	1980 (estimate)
Mineral fuels, lubricants & related products	13.8	19.5	26.5
Crude oil	9.8	12.8	17.5
Petroleum products	3.0	5.3	7.5
Coals	1.0	1.3	1.5
Other primary products <u>/a</u>	39.7	34.1	30.5
Manufactures and nonferrous metals	46.5	46.4	43.0
Textiles, handicrafts, and other light industry products	36.1	35.5	33.0
Chemicals	2.4	3.1	3.0
Machinery and transport equipment	3.4	3.4	3.0
Metals and other heavy industry products	4.6	4.4	4.0

/a Minerals, ores and nonferrous metals together are believed to account for only about 3% of total exports.

Sources: Ministry of Foreign Trade and mission estimates, based on export data that are slightly incomplete compared to the IMF figures.

4.118 Manufactured exports remain small by international standards, amounting to a little over \$6 billion in 1979, and account for a very small share of the major markets. Data from importing countries reveal that about

one third went to the industrialized market economies, over half to developing economies (including Hong Kong and Macao), and not more than 15% to the centrally planned economies of Europe and Asia. In 1978, imports from China into all OECD countries constituted only 4.6% of their total imports from the developing economies of East Asia; this share was 3.2% in clothing and 16.3% in textiles other than clothing.

4.119 The recent composition of China's imports is shown in Table 4.20. In contrast to the early 1970s, only a small proportion of total imports is machinery and equipment - about one fourth in 1979 and less in the previous two years. Instead, about half of the total (and sometimes more) comprises raw materials for industry. The remainder (one quarter of the total in 1979) comprises mainly foodstuffs and fertilizer and other raw materials for agriculture. Steel products (including special steel products that China cannot make for itself) have been the leading import of industrial raw materials.

Table 4.20: PERCENTAGE COMPOSITION OF CHINA'S IMPORTS, 1977-79

	1977	1978	1979
Machinery and equipment	17.7	17.5	25.2
Raw materials	58.4	63.9	56.1
for heavy industries	32.0	38.2	32.9
for light industries	19.6	19.4	17.3
for agriculture	6.8	6.3	5.9
Consumer goods (mainly food)	23.9	18.6	18.7
<u>Total</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>
Leading items as a percentage of the total:			
Steel products	20.5	24.8	22.5
Cereals	9.4	8.7	9.5
Cotton	4.4	6.2	5.2
Chemical fertilizer	4.7	4.4	4.2
Motor trucks	1.9	2.8	2.9
Copper and aluminum	3.6	3.5	2.7
Soybeans, fats and oilseeds	3.5	2.1	2.3
Natural rubber	1.6	1.8	1.8
Sugar	4.7	2.4	1.4
Ships and vessels	2.2	1.4	1.5
Polyester, polyamide fibers	2.2	1.8	1.4
<u>Subtotal of Above Items</u>	<u>58.7</u>	<u>59.9</u>	<u>55.4</u>

Source: Ministry of Foreign Trade.

5. ADJUSTMENT AND REFORM

5.01 Since 1977 there has been intense discussion within China concerning both the ends and the means of economic development. In the first two years, the discussion was mainly concerned with the disruption of the economy and the central planning system during the previous decade of political movement. After 1978, however, the scope of the discussion widened considerably, eventually embracing issues concerning the economic system, economic growth and structure, income distribution, poverty, and the fundamental goals of the nation's social and economic development. Moreover, these discussions on economic issues became only a component of a far-reaching discussion of ideological and political questions.

5.02 From this discussion, which is still in progress, has emerged the current economic policy of "Adjustment, Reform, Consolidation, and Improvement." The present chapter discusses reform of the economic system and adjustment of the economic structure, the two main elements of the policy. Specific constraints and development options in the 1980s are reviewed in Chapter 6.

A. Strengths and Weaknesses of the Economic System

5.03 Perhaps the most outstanding feature of the Chinese economic system is its ability to mobilize resources, both physical and human, for achieving an unambiguously defined goal, be it the production of crude steel or the eradication of epidemic diseases. Through the central control of resources, the system is capable of generating very high rates of saving and regulating the growth of consumption, but at the same time providing a reasonably secure basic level of consumption to all the population, an especially difficult task in a low-income country such as China.

5.04 The distinguishing feature of the economic and social system in both the rural and urban areas is its well-organized, multi-level structure, which is closely integrated with the political structure of the country. This facilitates the effective and quick transmission of directives from the center during periods of effective centralized management and is remarkable in its ability to deliver basic social services (education, health care, family planning) effectively and efficiently to the vast majority of the population. At the same time, the system is apparently able to continue functioning on a decentralized basis when centralized management becomes less effective as a consequence of political movements. Especially notable is the foodgrain distribution system, which, although based primarily on distribution within localities (provinces) and on maintenance of reserves within each locality, is able to redistribute the supply quickly between regions in response to needs. The foodgrain distribution system, like the social services system, does not attempt to equalize consumption in all areas, but is aimed at ensuring that everyone receives a minimum subsistence level. Perhaps more than any other country, China has also successfully relied on mass campaigns to achieve national social and economic goals, and on moral incentives to promote peasants' and workers' enthusiasm, though these attempts have sometimes been carried to excess, with unintended consequences.

5.05 Inherent deficiencies of the system, especially in the state-run economy, have, however, long been recognized in China. The current discussion of system reform is, in fact, a resurrection of the intense debate of the late 1950s and early 1960s. Unlike the earlier debate, the current criticism of the system is founded on widespread disappointment with the performance of the economy, and in particular with both the slow improvement in the general standard of living in the two decades following completion of the socialist transformation in the late 1950s, and the evidence of persistent poverty in some parts of the country. The current pressure to reform the economic system thus stems partly from the country's changing priorities, especially the much greater concern today with consumption. Pressure for reform has also arisen from the recognition that future development must be based on increasing efficiency of resource use rather than on mobilization of resources as in the past, and that maintaining growth and modernization in isolation from international technological development is becoming increasingly difficult. The benefits of technological isolation, as a stimulus to improvisation and to the development of technology appropriate to the country's factor endowment, have apparently been overtaken by its costs in terms of technical backwardness and bottlenecks. The normalization of relations with most Western countries also offers China a much more favorable opportunity in the 1980s to increase its participation in international trade, which requires a more flexible economic system.

The State Economy

5.06 The similarities between the debates on system reform in China and in Eastern Europe are striking, but hardly surprising given that the state economy of China today, despite the many attempts to adapt the Soviet model to Chinese economic conditions and development strategy, remains generally similar to the economic system of the USSR and most of the other Eastern European socialist countries. The main features of these economies, which also prevail in China's state-run sector, may be summarized as follows: (a) virtually exclusive public ownership of the means of production; (b) centralization of economic decisions, with regard to both the macro- and micro-allocation of resources; (c) strictly hierarchical planning and administrative structure, dominated by vertical (i.e. sectoral ministry) rather than horizontal linkages, with communications from above mostly in the form of commands; (d) passive role of money and limited role of prices in resource allocation; and (e) state monopoly of foreign trade and insulation of the domestic price structure from the world market price structure. In fact, China, with administrative allocation also of manpower and of essential consumer goods, is in some respects even more centrally controlled than Eastern Europe.

5.07 Efficiency of Resource Use. An objective of the centrally planned system is to eliminate the waste caused by the trial and error of market forces. There are, however, serious problems with the Chinese economic system as it has functioned over much of the past two decades. A major source of these problems has been the central planning authorities' attempt to plan and control economic relations to a degree much beyond their capability. This problem is common to all centralized systems but is especially acute in China, where the Government's ability to plan effectively is weak because of the

country's enormous size, the neglect of economics during much of the past two decades, and the paucity of reliable and useful statistics and other information available to planners.

5.08 A consequence of the over-extension of direct planning is difficulty in matching the structure of production to that of demand. Thus bottlenecks are frequent and supply shortages are aggravated. Large inventories are accumulated of goods in excess supply (or of such poor quality as to be useless), which continue to be produced. In 1980, for instance, stockpiles of steel products were nearly 20 million tons, well over half of annual production, much of which probably has only scrap value.

5.09 The core of the Chinese planners' efforts to match supply and demand, a mutually consistent set of material balances, has apparently not worked well. Although in theory material balancing is much like input-output analysis, the actual method used in plan preparation is much cruder. Preparation of the annual plan usually begins with a target for output for a key commodity (usually an intermediate good, e.g. steel), from which output targets for other major commodities are derived. From these targets total industrial production follows, and then total income, investment, and finally consumption, derived as a residual. The actual procedure has varied over time (for instance, in the early 1960s, the calculation began with a grain output target), but the practice has consistently been to set targets in terms of gross output, and to regard final demand - investment and especially consumption - as a residual. Material balancing also suffers from a weak information base, as the technical coefficients used are often just the previous year's rates of use with minor adjustments.

5.10 Moreover, although the allocation of goods is in principle the core of the annual plan, in practice, delays in preparing the plan frequently result in material allocations being made before the plan is finalized and approved. Material planning has usually been very taut; allocations to enterprises and localities have normally been less than they asked for, with the expectation that they would make up the gap through their own initiative. Materials allocated, moreover, may not be delivered, since the supplying enterprise may not meet its output target. Thus most enterprises attempt to stockpile essential raw materials, and a significant amount of materials is exchanged directly between enterprises and between local governments outside the official allocation process. Because goods are allocated primarily according to administrative divisions, there is considerable transshipment and much unnecessarily circuitous routing. In all sectors, the absence of a direct link between producers and consumers has also resulted in generally poor product quality, shortages of many items and excess supply of others.

5.11 The state economy suffers from many of the problems of bureaucratic behavior. State enterprises operate within a complex formal network of commands - output targets, administratively allocated inputs, regulations and controls - that is tight enough to generate a preoccupation with current physical output at the expense of quality and the needs of consumers, as well as a conservative attitude towards innovation in product mix and cost reduction, which impedes technological progress. At the same time, control is inevitably

not tight enough to prevent enterprises from maximizing their demands on planners and supply agencies for material inputs and equipment without adequate consideration of cost. The consequence is considerable waste and inefficient use of resources. An especially acute source of inefficiency seems to be the administrative allocation of investment capital without appropriate criteria, which has led to excessive stocking and underutilization of machinery and equipment in many state enterprises.

5.12 Because of the country's large size, a problem in China's economic system that has been more difficult to resolve than in any other centrally planned system is the balance between central and local government control. The several attempts over the past two decades at devolution of administrative control to local governments have tended to result in uncoordinated development among localities and have accentuated an already strong regional tendency towards autarky. On the other hand, centralization of control has stifled local initiative and failed to respond to local needs. Indeed, even during periods of centralized control, there has apparently been a lack of horizontal coordination among sectoral ministries of the central government, or even among departments within ministries. Although the high degree of vertical integration (mainly along sectoral and ministerial lines) is probably a major reason why the economy continued to function reasonably well during the past two decades of almost continuous political movements, the economic costs of this lack of horizontal economic relations have been quite high.

5.13 Investment Allocation. In principle, China's annual plan, and especially its annual investment program, forms part of a detailed 5-year plan and a broader 10 or 20-year plan. In practice, however, there has been little effective medium or long term planning. The First Five-Year Plan was approved only half-way through its implementation; the Second was overtaken by the chaos of the Great Leap Forward; and the Third and Fourth were prepared at a time when planning itself was seriously disrupted by political movements. Thus none has played an important role in directing the economy, and the intersectoral allocation of investment has been determined without proper analysis of the future needs of the economy.

5.14 Even within specific sectors, although elaborate procedures exist to process investment proposals, there is apparently no objective method of evaluating their benefits and costs. Economic analysis is usually limited to consideration of whether the goods to be produced are needed in the coming years; little consideration is given to whether the proposed investment is the cheapest means of achieving the given objectives. In the 1950s, simple techniques of evaluating the economic return of proposed investments, such as the pay-back period, were used. Since the mid-1960s, however, investment decisions, even on very large national projects, have often been made without any economic analysis, sometimes even without adequate technical analysis.

5.15 Pricing Problems. Although prices have only a very limited allocative role in the state economy as it has functioned over the past two decades, they have a major impact on income distribution (para. 2.26), on the amount of resources available to the state (through the budget), and on economic decisions in the commune sector. Major price changes in the 1950s and early 1960s most notably involved substantial increases in the procurement prices of agricultural

products (which nearly doubled between 1950 and 1965) aimed at increasing rural purchasing power and creating incentives for production. Regional price differences were also reduced, which benefited the poorer, more isolated parts of the country. Since the mid-1960s, however, the price system has become extremely rigid, and prices have been ignored as an instrument of economic management. Not only has the general level of prices been kept remarkably stable (Annex B, Table 3.1), but few adjustments have been made to the relative prices of different goods and services.

5.16 A particularly serious problem concerns agricultural prices and their relationship to other prices. The procurement prices of agricultural products remained largely unchanged from the mid-1960s to 1979. With rising costs due to increased use of industrial inputs and declining marginal productivity of labor, farmers' income per unit of output (as well as per work day) has declined significantly, to the extent that in some parts of the country the cost of production, especially if valuation of labor input is included, of foodgrains has exceeded the procurement price. In general, the return for commune members on investment in agriculture is far lower than, for instance, in commune and brigade industrial enterprises, which creates a strong disincentive to invest in agriculture. Despite recent improvements, the low level of agricultural prices remains a major issue.

5.17 The prices of many other primary products have not been raised to reflect the increased cost of production over the last two decades, so that production of these items is now unprofitable, even though they are in short supply. By contrast, the prices of industrial consumer goods have not been lowered despite a significant decline in production costs, so that consumer goods industries now attain huge profit margins. According to a recent survey by the Price Bureau, profits as a percentage of fixed capital are over 30% in the wrist watches industry (61%), rubber processing (45%), bicycles (40%), dye (38%), petroleum products (38%), pharmaceutical products (33%), and textiles (32%), but are less than 5% in chemical fertilizers, iron ore, coal, shipbuilding, agricultural tools and machinery, and cement. Thus, in general, prices today do not accurately reflect either cost or supply and demand conditions. Hence the price structure is a poor guide for rational economic decision making, and will inevitably cause problems if prices are to play a more important role in the economy.

Commune Economy

5.18 A distinguishing characteristic of the commune system is its ability to mobilize labor for development purposes. The benefits of labor contributions are shared by all members, and greater benefits are possible from increased use of labor, so long as its marginal product is greater than the cost of the extra food required by a working rather than an idle member. Thus a notable feature of rural China since the revolution has been the mobilization of a vast number of rural workers for farm land capital construction. Questions are now being raised in China about the economic benefits of many of these projects, some of which were ill prepared and caused ecological damage, while others were simply make-work initiated by overzealous cadres. But, in general, these efforts have undoubtedly contributed to the development of the rural sector during a period when other investment allocated to the sector was relatively small.

5.19 The commune system is also remarkably effective in the transmission of policy directives, agricultural technology and social services from the central and local governments directly to individual rural households. This has undoubtedly contributed to the technical transformation of agriculture over the past two decades as well as the achievements in human resource development. But this strength can also be a weakness: many of the problems with the commune system over the past two decades have been caused by misguided instructions from above. Chief among these have been the distortion of the "grain as the key link" policy which led to the discouragement of household and sideline activities, and the overzealous effort to impose a single model of development on all parts of the country despite their very different resource endowments.

5.20 A basic principle of the commune system, namely that different types of economic and social activities require different levels of management, is essential to ensure that resources will be efficiently used and allocated. The production teams were supposed to be mainly responsible for allocating resources for agricultural production and to be the basic income distribution unit. The assignment of this function was based on the premise that the team, typically comprising somewhat less than 100 workers, is the largest unit that can effectively manage day-to-day production activities. Also, a close link is necessary between effort and income; thus, the team's income is shared mainly among its members.

5.21 The team's role in determining its production mix and as the basic income distribution unit has, however, not always been adhered to during the past decade. In most areas, higher level institutions have interfered in the team's production decisions and in some areas, brigades and communes have requisitioned teams' property and labor without compensation. Strong political pressure was at times exerted from above for incomes to be shared at the brigade and even the commune level, instead of at the team level; in some areas, the peasant's political attitude was made a criterion in evaluating his work input. Peasant household activities on their private plots, as well as other sideline activities, have often been discouraged and, at times, even prohibited.

B. Progress of Reform

5.22 These problems of the economic system are the core of the current debate on system reform. Although important issues remain unresolved, the past two years have witnessed many changes in the system of economic management. On some fronts the changes have been substantial, on others, minor. But they represent the beginning of a process that may have fundamental consequences for the country in the future. The major components of the reform are outlined below.

Budgetary Devolution

5.23 Beginning in 1980, a formal revenue-sharing system has been introduced which gives greater autonomy to provincial governments. The details vary somewhat between provinces (see Annex B, Table 4.4), but the basic principle is to allow each province to retain a fixed proportion of the revenues it collects, which will determine its total expenditure. Within this total, the provincial government is to be given more freedom than hitherto in choosing the composition of its expenditure.

5.24 One objective of this reform is to encourage economy in expenditures - since money saved can now be applied to other provincial purposes, rather than flowing back to the central government. Similarly, the reform is intended to stimulate provincial revenue-gathering efforts. For this reason, most provinces will be permitted to retain, in addition to a specified fraction of industrial and commercial tax revenues, all the profits remitted by provincially and subprovincially controlled enterprises - the logic being that this is a type of revenue over which provincial governments have a relatively high degree of control. To further stimulate enterprise efficiency, tax collection and the elimination of waste, each province has been encouraged to extend revenue-sharing principles down to the county level.

5.25 These measures represent yet another attempt to resolve the difficult issue of central-local fiscal relations (paras. 2.17-2.19). The revenue-sharing rates for each province (which are to remain fixed for five years) were based on the actual revenues and expenditures in the 1979 budget. This retains one of the most important features of the old system, namely the much smaller share of revenues retained by rich provinces than by poor provinces (some of which will continue to receive net transfers from the central government). Likewise, the central government still sets the tax rates; and it is continuing to issue guidelines on the composition of expenditure, and to review and require changes (where central guidelines have been disregarded) in draft provincial budgets. The extent of local discretion thus remains tightly circumscribed.

Reform of the State Economy

5.26 Profit Retention. Since 1980, following a period of experimentation, some 6,000 large state enterprises that meet plan targets have been allowed to retain some profits for their own use. The proportion varies among enterprises (but is generally lower where profitability is high), as does the base to which it is applied - usually the level of profits, but in some cases the increase in profits, and in others the discrepancy between planned and actual profits. Moreover, some enterprises pay, on a trial basis, a profits tax, but retain all profit after tax. A common feature of these arrangements, as of the experiments that preceded them, is that the fraction of profits retained is typically small (around 10%).

5.27 This money may, within limits, be disposed of at the discretion of individual enterprises, but they are encouraged to use a substantial part (in practice around a quarter) to pay bonuses to workers based on individual or group performance. Another favored use, which again absorbs about a quarter,

is the improvement of worker amenities and, in particular, the provision of more housing. The remaining half of the money is to be used for investment to improve, modernize and expand the enterprise's productive capacity.

5.28 Although a properly controlled evaluation has not been made, the introduction of profit retention is being based on extensive experimentation as well as continuous debate on the advantages and disadvantages of alternative schemes. A major experiment was conducted in Sichuan in 1979, where 84 experimental industrial enterprises achieved output growth of 15% and profits growth of 33%, as compared with 12% and 15% respectively in other enterprises. Moreover, the sample of experimental firms was sectorally fairly representative, covering 25% of the province's light industrial output and 31% of its heavy industrial output. As these figures suggest, the experimental enterprises were unrepresentatively large. Possibly a more important source of bias is that these enterprises were selected partly because they were considered well managed. The next few years are likely to be a period of continued experimentation and consolidation based on experience.

5.29 Producer Autonomy. State enterprises have recently been given more control over what they produce. This has been accomplished in part through greater discussion and negotiation of plan quotas, though it is difficult to assess the extent of this change. More tangibly, enterprises may now choose, in light of demand and their comparative advantage, what to produce once plan quotas are met, though the amount of production involved is quite small (perhaps 15% of industrial output in 1980).

5.30 Commercial Diversification. Closely related to movements towards greater producer autonomy are the experiments that aim to increase the number and variety of channels through which goods are distributed.^{/1} Outside the state trading system, street markets dealing mainly in food and other consumer goods are now permitted in both urban and rural areas, but probably account for only a small proportion (10-12%) of total retail sales. State and collective producers have also been allowed to establish their own retail outlets to dispose of above-quota production; these outlets accounted for about 6% of all retail sales in 1979.

5.31 Restrictions within the state trading system, especially with regard to manufactured consumer goods, have also been relaxed. Wholesalers are no longer obliged to purchase the whole of a producer's output, regardless of its quality or the market for the goods, but can be somewhat more selective about what they buy and from whom. Retailers are likewise no longer obliged to buy only from local wholesalers, but can purchase above-quota output directly from local producers or seek goods in other localities. There have been fewer innovations in the distribution of producer goods, with the important exception that about 150 types of machinery and electrical equipment, currently in excess supply, are subject to a loosely controlled allocation process that virtually amounts to a free market (prospective buyers shopping around and producers trying to sell their goods outside official channels).

^{/1} Both retailers and wholesalers have also been extensively involved in the profit retention experiments.

5.32 In addition to these essentially commercial reforms, enterprises and communes, as well as other state institutions, have been encouraged to establish various types of "joint ventures". In some cases these are, in effect, bilateral trading relationships, where manufacturers make long-term contracts with producers of agricultural inputs, or where research or design institutes enter into financial relationships with enterprises that use their services. In other cases, two or more entities have set up new joint production or trading facilities. The current scale of these activities cannot be quantified, but they are nonetheless of particular significance because they permit economic linkages across traditional administrative boundaries (geographical, sectoral and institutional).

5.33 Decentralization of Foreign Trade Management. Changes have also been introduced to reduce the institutional barriers between domestic enterprises and their foreign suppliers and buyers. Export and import companies authorized to deal directly with foreign companies (thus bypassing the Ministry of Foreign Trade) have been established in some of the central production ministries and in municipal (Beijing, Tianjin and Shanghai) and provincial governments (mostly in the coastal provinces). Although a few large corporations (e.g. the China Petroleum Corporation) have also been allowed to deal directly with foreign firms, the decentralization measures introduced so far have essentially aimed at shifting administrative responsibility from the Ministry of Foreign Trade to other ministries and some local governments.

5.34 Several new types of arrangements for export and foreign investment have been introduced, including processing of foreign supplied materials or assembly of foreign supplied components; compensation trade, in which foreigners supply equipment and assistance in exchange for part of the output; joint ventures; and cooperative production in Chinese-owned facilities. Although the number of such arrangements seems large, the actual amount of investment involved is quite small and it will be some time before these types of arrangements become a major means of channelling foreign capital into the economy. Special export processing zones are being set up in the coastal provinces. To increase incentives for earning foreign exchange and flexibility in trade management, a foreign exchange retention system has been introduced, whereby local authorities and foreign trade companies can retain a proportion of foreign exchange earned by enterprises under their jurisdiction. The retention rates vary according to the type of earnings, but are generally 20-40% of the increase in earnings above some base period (usually 1978). Retained foreign exchange is shared between the local governments or foreign trade companies and the enterprises that earned the foreign exchange, but use of retained foreign exchange remains subject to local or central government approval.

5.35 With the partial decentralization of trade management, it has become necessary to modify the internal accounting rate for foreign transactions. Reflecting differences in Chinese relative prices compared to world market prices, most import transactions and export of primary products would earn a profit for the foreign trade companies, while most export transactions of manufactured goods would suffer losses if the transactions were carried out at the official exchange rate (about Y 1.5 per US dollar). To avoid creating incentives for importing or disincentives for exporting, therefore, foreign

trade companies from the beginning of 1981 will sell their export proceeds (except for the part they retain) to and purchase foreign exchange for imports from the Bank of China at a so-called "internal settlement rate" of Y 2.80 per US dollar. This rate will apply to all trade and trade-related transactions (e.g. transport, insurance) but not to other service transactions. In addition, on an experimental basis, some enterprises have been permitted to sell their retained foreign exchange to other enterprises through an auctioning process administered by the Bank of China, the exchange rate to be around but not necessarily exactly the "internal settlement rate." However, neither the official exchange rate nor the internal settlement rate has much effect on the prices received by producers on sales of goods ultimately exported, or on the prices of domestic goods which compete with imports. Thus there remains virtually no link between foreign and domestic prices.

5.36 Prices. Linked with the diversification of commerce have been limited changes in the system of determining prices (as well as some conventionally administered adjustments, discussed below, of specific prices). Prices in the street markets are not regulated, and the prices of a few nonessential manufactured consumer goods (formerly controlled mainly at the county level) have been deregulated. Where producers may freely dispose of their above-quota output, they may usually also negotiate its price with the buyer: thus enterprises can bargain with retail stores, and communes with local commercial departments. The prices of essential consumer goods in short supply are still controlled, however, as are the prices of most producer goods (the producers of the 150 types of equipment in excess supply - para. 5.31 - may reduce their prices below the official level by up to 20%). Indeed, following the inflationary experience of 1980, price control over most commodities was strengthened in early 1981.

5.37 Capital Charges. Several moves have been made away from the past practice of providing capital free of charge. Starting in 1981, following experiments the previous year, budget funds will be loaned (loans of 10-40 years maturity at 3% interest) for revenue-generating fixed investment. A similar scheme, though with loans of a shorter maturity (4-6 years), will apply to budgetary funds for modernization and replacement, while working capital provided through the budget will bear interest at 2.5% - half the rate charged by the People's Bank. Furthermore, the People's Bank has gone beyond its traditional role of providing short-term working capital and is now successfully providing medium-term loans (at 5% interest) for small-scale fixed investment, mainly in textiles and other light industry.

5.38 There is a proposal to encourage the efficient use of capital by levying an annual charge (1-2%) on enterprises' existing assets. This scheme is less well developed but is being tried in Sichuan. A further proposal of a charge for use of major natural resources is also being considered.

5.39 Labor and Wages. The main change in the wage system has been the increased use of bonuses (associated with the profit retention scheme), accompanied by a greater emphasis on linking individual remuneration more closely to effort and productivity. There has been only limited relaxation of

the labor allocation system, apart from the sanctioning of individual self-employment (para. 5.41). But a growing number of people in the urban areas may now seek jobs independently of the labor bureaus, while some enterprises have been given more choice about whom (though not how many workers) they hire. Efforts to give enterprises more authority to dismiss workers have apparently not been successful (the sacking of two people in an experimental enterprise employing 10,000 was regarded as extremely advanced).

Urban Collective and Individual Sector

5.40 The urban collective sector has been much neglected in China. On the one hand, individual and small collective activities have declined in importance since the 1950s - and by the mid-1970s had indeed nearly disappeared. On the other hand, large urban collectives (which still number more than 100,000, produce nearly 10% of net industrial output and account for about one fourth of industrial employment) have been managed much like state enterprises, with little autonomy.

5.41 These tendencies are now being reversed. The scope for urban individual and collective production has been enlarged. In urban areas, people may now start businesses based on individual and family self-employment or partnerships (hiring of workers other than apprentices is forbidden). The number of people involved, mainly in services, has risen rapidly. By the end of 1980, more than 810,000 people were operating individual businesses, mainly in services, compared to about 300,000 people in the previous year.

5.42 At the same time increased priority has been given to urban collective enterprises. Their employment and output have expanded much faster in recent years than those of state enterprises. In 1980, for instance, employment in urban collectives increased by 7%, nearly twice the rate of increase in state enterprise employment. They are also being given higher priority than they have been hitherto in the allocation of energy, materials and credit. Changes have also been introduced to increase their financial autonomy and to increase the proportion of their profits which they can retain.

5.43 Although their immediate impact on the economy is small, the above changes - the expanding scope of urban individual and collective activities, and the reinstatement of the autonomy (within the framework of central planning) of collective enterprises may in the longer run turn out to be among the more important reform measures being introduced in China today.

The Commune Sector

5.44 The major development in the commune sector since 1977 has been restoration of the rights and responsibilities of the commune and its subordinate units in their role as collectives. The role of the production team as the basic production management and income distribution unit in the rural economy is being re-emphasized. Within the team, the principle of "distribution according to work done" is being stressed, and teams are encouraged to allocate a larger proportion of collective incomes according to work points earned rather than as equal per capita shares.

5.45 Other changes are also being introduced to strengthen the link between individual effort and reward. A commonly used approach is for a small group of workers within the team, or even individual households, to make a contract with the team involving, say, cash crop production, under which a parcel of land is assigned to the group for a year or longer and an output target and material input allocation are specified. The division of the proceeds between the group and the team, or the bonus/penalty scheme, is usually subject to negotiations between the team and the group, or in some areas, to auctioning among groups interested in working on the parcel of land. This approach seems to be particularly popular in upland and agriculturally diverse areas. In the relatively sparsely populated plain of Northeast China, on the other hand, experiments are being carried out with the production brigade as the basic production and income distribution unit in order to gain economies of scale and to facilitate mechanization.

5.46 Efforts are also being made to expand marketing relations within the commune sector, as well as between the commune and state sectors. Restrictions on rural markets have been lifted. The range of commodities that may be traded in these markets has been widened and now includes the grain surpluses of teams that have fulfilled their tax and procurement obligations. The fixed obligations to furnish grain, oilseeds and cotton to meet quotas and for taxes have also been reduced relative to production. In some areas, additional land is being allocated to households and wider access provided to collective lands for individual grazing, fodder, etc.

5.47 More generally, the present policy regarding the commune sector is to reduce the scope of direct planning and to encourage local initiative and a diversity of local plans to make full use of agronomic potential and local comparative advantage. In this respect, however, there is still considerable local variation in the planning process as experimentation and adaptation continue. In some areas, production teams do determine their own production plan and input requirements. Under these conditions, the relative profitability of the various crops, market and investment opportunities become the most important factors in decision making. Elsewhere, teams are still largely influenced by what in effect are directives from higher authorities (brigade, commune, county, etc.) concerning crop hectarage, output mix, and investment.

C. Issues of Future Reform

5.48 The innovations described above, though diverse in form, have a certain unity of purpose, namely to make the economy more efficient, in the sense both of cutting costs and of matching supply more closely with demand. To accomplish this, producers and traders have been provided with the three necessary ingredients: (a) more freedom of maneuver; (b) greater incentives, especially through profit retention in state enterprises and stronger links between individual effort and rewards in rural communes, to economize and respond to customer needs; and (c) more signals on both the social cost of inputs (especially capital) and the character of demand (through commercial diversification and more competition).

5.49 These reforms thus address important practical weaknesses of the Chinese economic system and are being implemented with much experimentation and public discussion. Moreover, although it is too early for a proper assessment, common observation and press reports strongly suggest that many enterprises and communes are now behaving in a more cost-conscious fashion. Development in the rural sector, in particular, has accelerated and led to a general improvement in many peasants' standard of living.

5.50 Implementation of the reforms has not been free of problems, however. Some managers and workers have been slow to adapt to the new rules, while others have been overzealous in seizing opportunities for profit or higher income, which has revived doubts about reliance on material self-interest. But these essentially transitional problems are overshadowed by the larger issues of how much further to proceed and in what direction. For, important as they are, the reforms to date represent comparatively minor changes in a system that remains highly centralized and regulated, and not very efficient. And despite frequent reference to the need to further develop "the role of the market under the guidance of the plan," there is no consensus yet on how these two institutions might interact, and still no concrete program for further action.

5.51 An early resolution of all the issues of reform is probably not possible - and may indeed not be desirable. The theoretical controversy over the merits and defects of alternative forms of a socialist economic system in terms of efficiency and equity is far from settled. Furthermore, the practical lessons of similar system reform in other socialist countries have not yet been adequately digested. Much will depend on China's further experience with the existing reforms. But although the ultimate destination of the Chinese economic system is a speculative issue, there are several areas in which consideration of further reform seems especially important.

5.52 The Price System. The arbitrary character of many product prices, which was of only limited concern when allocation was entirely subject to administrative decisions, has been changed into a significant problem by the recent reforms. One aspect of this problem - introducing a profit retention scheme when enterprise profitability is erratic - has only been partly and temporarily overcome. In most places the retention rates are being administratively varied to compensate for differences in profitability due to distorted prices and other exogenous factors; ingenious mechanisms have also been devised, such as the use in some industries in Shanghai of shadow prices to calculate profitability for purposes of profit retention. More important, since prices reflect neither costs nor scarcity, profit-motivated enterprises and production teams are likely to make socially suboptimal production and investment decisions, and in particular to waste scarce inputs and fail to produce a sufficient amount of scarce outputs. Provincial governments, with their newly increased interest in expanding profitable enterprises and closing those that operate at a loss, may also be influenced by wrong prices away from socially desirable investment.

5.53 A seemingly obvious solution would be to decontrol most prices, letting the pattern of rises and falls indicate scarcities and surpluses. A difficulty with this approach, however, is that the resulting pattern of

windfall gains and losses would partly reflect the many other distortions in the system, rather than underlying economic factors. In the longer term, these distortions could be eroded by allowing more competition and freedom of entry into profitable sectors. But in the near term, widespread decontrol of prices is probably undesirable.

5.54 The alternative solution is to rehabilitate the old system, and in particular to use administrative means to bring prices more into line with costs or underlying scarcities, as has already been done for coal, natural gas, pig iron and many agricultural products. In this connection, the currently favored approach among Chinese economists is to base most prices on costs plus a margin of profit that would correspond to a standard or normal rate of return on capital employed (this being known as the "production price"). This would in principle be a major improvement over the current situation.

5.55 In practical terms, however, such an approach could not be implemented easily or quickly. The task of calculating unit costs for a large number of commodities is not only vast, but greatly complicated by interdependence between prices, since many commodities are used in the production of other commodities. The Chinese authorities lack the input-output table that would help solve this computational problem directly, and they would have to proceed by more lengthy iterative methods. The complexity of the calculations involved would be further increased by the need to allow higher profit rates on commodities in short supply and lower profit rates on commodities in surplus, which is necessary to encourage the alignment of supply and demand, and the need to devise criteria other than the cost of production for pricing natural resources.

5.56 The possibility that price changes aimed at improving efficiency might lead to undesirable changes in income distribution will also need to be considered. A basic strength of the Chinese economic system is the provision of basic consumer goods at low and stable prices to the poor, and the welfare of the poor should not be ignored in an attempt to increase producer incentives. An additional problem in any adjustment of prices is that at present, high industrial prices and profits serve as the principal source of government revenue in China. Price adjustments that would bring prices in line with costs and adjust supply to match demand could result in smaller profits in most industries, thus reducing government revenues and the ability to mobilize resources for investment. Moreover, price changes will redistribute financial resources among major organizations such as ministries, provinces, and lower units of administration. Thus, the existing price structure can be adjusted only as part of a political process that takes these vested interests into account.

5.57 Thus, price reform, by whatever means, is going to have to be a gradual and carefully planned process, implemented simultaneously with other reform measures designed to avoid or minimize undesirable distributional and budgetary impact. At the same time, price reform is crucial to the success of other changes in the incentive system and any attempt to decentralize economic decision making, and thus cannot be neglected. Because major price reform can only be introduced gradually, other changes in the incentive system and the devolution of economic decision making will also need to be slow.

5.58 A possible approach to begin with may be a mixture of decontrol and change through administrative means - for example, deregulating many producer goods prices, while retaining control of most consumer goods prices - but in any event giving priority to rectifying the most damaging anomalies (e.g. the prices of energy and raw materials). In agriculture, too, a continuing mixture of direct planning and greater use of the price mechanism may be best, since regional price differences at present do not realistically reflect marketing and transportation costs, and since there has been insufficient opportunity as yet to measure the production response to prices. Both within and outside agriculture, more use could advantageously be made of two-tier pricing,^{/1} which can provide substantial incentives at the margin with only a moderate impact on the distribution of income (and government revenues). In addition, although the prices used in actual transactions can be changed only slowly, accounting (or shadow) prices could be used in production and investment decisions which could be brought more rapidly into line with economic realities.

5.59 Investment Decisions. Although some decentralization of investment decisions to enterprises is a necessary concomitant of allowing more autonomy in production decisions, making retained profit a major source of enterprise investment funds would create an undesirably compartmentalized capital market. The current pattern of profits is an imperfect guide to the social returns to new investment, because arbitrary prices generate an erratic pattern of profits. Moreover, reliance on retained profits to finance investment would probably exacerbate the inequalities among enterprises, ministries and localities.

5.60 A possible alternative may be to delegate some investment decisions to financial intermediaries, such as banks and investment companies. The investment needs of collective units, communes and urban collectives in particular, could be supported by such institutions, and the current effort to promote the growth of urban collectives and the independent role of the production team should be accompanied by an expansion of credit to these units. Institutions such as the Agricultural Bank can be important not only in mobilizing savings within the collective sector, but also in serving as a vehicle for the injection of state resources; the latter is especially important in any attempt to promote development in the poorer regions, where the local saving capability is very low.

5.61 Moreover, to the extent that state enterprises will be retaining increasing amounts of funds, it would be desirable to increase the mobility of capital by using financial institutions to channel funds from enterprises with low prospective rates of return on internal investment towards better investment opportunities elsewhere. Recent reports of state enterprises investing in other enterprises or communes, and even forming their own investment companies, clearly indicate that such financial intermediaries are badly needed. Moreover, investment in the coming years is likely to include a large share of minor

^{/1} Such as in agriculture where above-quota sales receive higher prices than sales within quota. A similar system would be to charge energy consumption in enterprises above a given quota at a much higher price than consumption within quota while gradually raising both prices over time to reflect increasing scarcities.

investments in existing enterprises, for instance, to reduce energy consumption, improve a particular process, or modify a product line in response to consumer needs. These might best be appraised by financial intermediaries working with a general set of priorities (which could be expressed, for example, in the form of shadow prices for labor, capital, foreign exchange and important inputs and outputs such as energy and building materials) established by the central planners, leaving the central planners to concentrate on large projects. To be effective, however, delegation of some authority over the allocation of investment funds to financial intermediaries will need to be accompanied by changes in the allocation system of producer goods. Otherwise enterprises and communes may find themselves with investment funds but not the materials and equipment to implement the projects.

5.62 The proposed imposition of charges for the use of fixed capital assets and use of loans (instead of budgetary grants) for new investment will improve investment allocation, although the interest rates charged should be set higher (not lower, as at present) than those on long-term savings deposits. World-wide experience strongly suggests that when investment decisions involve loans, they are more carefully considered and generally more prudent than when resources are available on a grant basis. Loans with appropriate interest rates may not be enough, however, to overcome the present tendency of provinces, ministries and enterprises to attempt to maximize the resources they receive from the central government by starting as many projects as possible, even if funds and raw materials are not immediately available. Once started, projects acquire a momentum of their own and become difficult to cancel or delay. Thus a new system must be designed for the central planners to effectively guide investment decisions of local governments and enterprises.

5.63 Under any reasonable assumption about the extent of future reform, most investment resources in China will continue to be centrally allocated. (Indeed, even in most developing countries with market economies, a large proportion of national investment in areas such as energy, infrastructure and heavy industry is undertaken by the central government or public agencies.) It is thus essential to improve the system of centrally allocating investment funds. A notable problem has been the insufficiently thorough and objective appraisal of individual investment projects. Improved investment analysis will require both the strengthening of technical skills and greater detachment from political considerations.

5.64 In investment planning and project analysis, the use of shadow prices that better reflect relative costs and scarcities should be introduced. Furthermore, with a centralized system of investment, decision making should take account of the interaction of major investment projects: but this can only be done in the sort of medium-term planning framework that is currently lacking in China.

5.65 Foreign Trade System. If China is to increase its participation in the world economy, reform of aspects of the system that deal with the external sector will be urgent. China's best prospects for trade are with market economies, but expanded exchanges with these economies will quickly expose the weaknesses of the present system if concomitant reform of the foreign trade system is not introduced.

5.66 Export procedures and organization at present appear to be seriously deficient by international standards. Procedures can be tedious and slow, but more serious is the continuing lack of direct contact between Chinese manufacturers and foreign buyers (several layers of official bureaucracy may separate the two). This prevents China from attracting potential export customers, most of whom want to work directly with their suppliers, and from capitalizing on a very important potential source of technology, training and manufacturing advice. Arrangements for marketing need to be strengthened, as do those for providing services and spare parts to foreign buyers. Here again, there is a need for participation (and travel) by the manufacturers and their technical experts. To compete in the world market, producers of exportable goods, especially of manufactures, should also be given greater freedom to import materials and components where domestic substitutes are scarce or of poor quality. Throughout the world, most manufactured exports come from places where imported inputs can be freely used in production.

5.67 To make better use of scarce foreign exchange, improved import allocation procedures are needed. These should give economic criteria a greater role and make the criteria in different sectors more uniform. More generally, better choices are needed in all sectors between imports and domestic production, and between exports and domestic sales. In the longer run, individual producers and consumers should be allowed to make export and import decisions on the basis of rational prices. In the short to medium run, prior to price reform, the planners will need to make foreign trade decisions based on shadow prices. In the course of price reform, it will be necessary to address the difficult issue of the appropriate relationship between domestic and world prices in a country of China's size.

5.68 Labor Allocation and Migration. The present system of allocating manpower and restricting population movement has important economic and social advantages, among which is the reduction of unemployment (and its attendant poverty) to very low levels. Thus any modifications should be gradual, selective, and carefully controlled. At the same time, it should be recognized that the present system also has important disadvantages, and that limited changes in it could be very beneficial.

5.69 In the state economy, the present system of assigning jobs for life at the time of graduation from secondary school or university clearly causes inefficiency in the use of manpower, the country's most valuable resource. Thus, the increased freedom for technical and skilled manpower to transfer from one organization to another introduced in the last two years is important and should be extended. With regard to the more general issue of manpower allocation, however, a balance will have to be found between the need to give enterprises some authority over employment as part of their increased autonomy, and the necessity of guarding against creating an incentive system under which enterprises would expand employment at a rate lower than is socially desirable.

5.70 For the longer term, greater population mobility generally may also be desirable. Most of the poorest people in China are in areas whose soil and water conditions are very adverse to agriculture, and whose remoteness gravely handicaps the development of commune industry. In some of these areas,

natural obstacles to income growth are not insurmountable, especially under the current policy of allowing local development to proceed according to each region's comparative advantage. In many of the poorest areas, however, the cost of development would be so high that it might be cheaper (even taking the cost of urban or other infrastructure into account) to achieve the same income increase for the people concerned by allowing some of them to move away, either to a city or to newly developed agricultural land, which up to now has mainly been turned into state farms. The wide reach of basic education in nearly all rural areas of China makes this a more feasible option than in most other low-income countries.

5.71 In any event, the costs of raising poor people's incomes either where they currently live or in some new location need to be considered against the other claims on the Government's and the country's resources. Current urban unemployment and housing problems might make an early increase in rural-urban migration undesirable. But in the medium term it would be sensible to contemplate expanding existing cities - especially medium-sized ones - faster than their natural rates of increase, and to allow migration to them from rural areas where the alleviation of poverty by other means would be particularly costly.

D. Progress of Adjustment

5.72 The effort over the past two or three years to reform the economic system has coincided with a reassessment of economic objectives and a realignment of development strategy. It is now felt that too low a priority was given in the past to raising living standards, and in particular that, given the low returns to much investment, the proportion of national income devoted to investment has been unjustifiably high. The structure of production and the composition of investment were correspondingly biased towards heavy industry at the expense of agriculture and light industry. Even so, the high rate of investment created serious imbalances between supply and demand in individual sectors, which in turn have contributed to the low returns to investment.

Short-Term Measures

5.73 The Government has accordingly taken steps to raise the share of consumption in aggregate demand and the share of consumer goods in aggregate production.

- (a) It planned to reduce the share of capital construction in budget expenditures from 41% in 1978 to 33% in 1980. The proportion of investment allotted to housing, education and health was to be raised (from 17% in 1978 to 29% in 1980), as were the proportions of both investment and current outlays allotted to agriculture and light industry.
- (b) Urban workers received promotions and bonuses that increased the average money wage by 31% between 1977 and 1980. In addition, the

Government has addressed the urban unemployment problem (which has been exacerbated by the return of young people previously exiled to rural areas) in two ways, which together reportedly have created 20 million jobs in the past three years. The first has been by encouraging urban collectives and state enterprises to take on more workers. The second has been by permitting individual self-employment and encouraging (through the allocation of loans, materials and accommodation) the establishment of small collectives, especially in personal service trades. In combination, the wage and employment increases raised the aggregate money earnings of workers and staff between 1977 and 1980 by about 50%.

- (c) Agricultural procurement prices were raised by an average of 4% in 1978, 22% in 1979, and 7% in 1980, in order both to raise rural incomes and to stimulate agricultural production. These increases were only partly passed on to urban consumers: the retail price of staple foods was not changed; and a sharp increase in the retail price of nonstaple foods was compensated for by a special allowance of Y 5 per month to workers and staff./1
- (d) Agriculture and light industry, as well as export industry, generally have been given preferential treatment in the allocation of materials, fuel and power, credit and foreign exchange.

5.74 In important respects, these measures achieved their objectives. Helped by good weather, gross agricultural output rose in real terms by 9.0% in 1978 and a further 8.6% in 1979; but poor weather conditions limited the 1980 increase to 2.7%. In 1979 and 1980, moreover, the gross output of light industry grew by 9.5% and 18.4%, while heavy industry expanded much more slowly (7.7% in 1979 and 1.4% in 1980) - a sharp reversal of the traditional pattern. In aggregate, real net material product grew between 1977 and 1980 at an annual average rate of 8.5%, similar to the rates achieved in the 1950s, and some 70% higher than the 1957-77 trend.

5.75 On the expenditure side, the share of consumption in aggregate material expenditure rose from 63.5% in 1978 to 66.4% in 1979 (and was expected to reach 69% in 1980); increased investment in housing and social services should perhaps be added to these figures. The sharp rise in agricultural and light industry output was supplemented by increased imports of food and manufactured consumer goods, and probably also by expansion of personal nonmaterial services. In real terms, therefore, consumption per capita increased between 1977 and 1979 by over 17% (Annex A, Table A.26), and a 12% rise in the volume of retail sales suggests that a considerable further increase occurred between 1979 and 1980.

5.76 From another point of view, however, the measures were less successful. The extent to which wage and price rises would increase household purchasing power was apparently underestimated and the real resources available for additional consumption overestimated. The absorption of resources

/1 This allowance is included in the wage increases mentioned earlier.

by investment did not decline as much as expected. This was partly because enterprises and local governments could use their newly enhanced financial powers to offset the reduction in budgetary investment. But there was also strong resistance to reducing budgeted investment, in part because of the costs of abandoning projects already under way: thus budget spending on capital construction exceeded its planned level in both 1979 (by 30%) and 1980 (by about 5%).^{/1} Domestic production, moreover, despite its rapid growth, could not provide sufficient resources to match the very large increase in personal incomes.

5.77 The resulting real ex ante gap had some unanticipated (but unsurprising) consequences. The most direct was a large budget deficit - Y 17 billion in 1979 and Y 12 billion in 1980 (4% and 3% of GDP respectively). This happened partly because investment declined less than planned, and partly because the wage and support price increases (which were, as mentioned, only partly offset by retail price rises) reduced enterprise profits, and hence budget revenues, by an unexpectedly large amount.

5.78 The inevitable counterpart of this budget deficit was a change in the net financial position of other domestic sectors and the foreign sector. Specifically, there were sharp rises in enterprise, local government and household bank deposits (assisted by a large increase in interest rates), as well as in the merchandise trade deficit, which rose from \$1.7 billion in 1978 to over \$3 billion in 1979 and 1980, largely because of a steep increase in imports.

5.79 But even the largest of these trade deficits added less than 1.5% to available domestic resources. As a result, excess demand for (especially consumer) goods and services was manifested in upward pressure on prices, especially in urban areas (although the price index for rural free markets also rose slightly in 1980, after declining in both 1978 and 1979). To begin with, this was largely suppressed by the price control system (which partly explains the rise in personal savings); thus the urban cost of living index rose only 9.3% between 1978 and 1980 (chiefly as a result of increases in the official prices of nonstaple foods). But there have been a growing number of reports of disguised price increases, of increases in prices outside the scope of the official indices, and of illicit transactions at prices above official levels.

Short and Medium-Term Choices

5.80 These various developments led to a critical review of the economic situation at the end of 1980, and to a switch in emphasis from medium-term structural adjustment to short-term stabilization. Two elements of this are a stiffening of price controls, aimed at suppressing further inflation, and the issuance of state bonds to local governments and enterprises to absorb excess liquidity in the economy. More fundamentally, on the demand side, the Government

^{/1} Nor, with the exception of a decline in metallurgy and a rise in the energy-producing sectors, was there a marked change in the composition of industrial investment between 1977 and 1979 (Annex D, Table 3.2).

proposes to ease the pressure on resources by slashing state capital construction expenditure (within and outside the budget) from around Y 50 billion in 1980 to Y 30 billion in 1981. On the supply side, it is envisaged that the foreign trade deficit will rise (mainly through a decline in export growth, since import growth is expected to be slow). In addition, efforts are being made to ease some critical constraints on further expansion of domestic production - most notably energy and agricultural raw materials for industry. Inputs in short supply will continue to be channelled to the most efficient plants (the least efficient are to be closed down), while the cuts in industrial investment are to be focused not only on heavy industry (except energy and construction materials), but also on projects that would aggravate existing shortages of energy and materials.

5.81 Although only limited information is available concerning the current financial situation and the Government's course of action, some of the proposed measures could have important disadvantages - even if it is accepted that the alternative of a temporary cutback in consumption would be politically infeasible. Thus, while substantial cuts in the existing investment program are badly needed (especially to increase the Government's room for economic maneuver in the medium term), a 40% reduction within a year may not be attainable. Even if attained, it could involve major costs in terms of the idling of resources and labor for which there is no immediate alternative use. In addition, since these cuts are apparently not being made in the context of an overall medium-term investment program, the costs in terms of future capacity constraints on production in particular sectors could be very great.

5.82 For these reasons, a less costly alternative (or at least a complement) to drastically cutting investment and restraining the output of useful commodities because certain inputs are in short supply might be to substantially increase imports of raw materials such as cotton, petroleum products, timber and metals. Larger imports of finished goods could also contribute to easing inflationary pressures. As mentioned, the Government is in fact contemplating a modest rise in the trade deficit. But the large unused lines of foreign credit and negligible outstanding debt could permit a much more substantial short-term inflow of foreign resources. Such a purchase of (in effect) time for reform and adjustment could be well worth its cost in interest charges.

E. Adjustment, Reform and Planning

Adjustment Versus Reform

5.83 Two years into the period of "Adjustment and Reform," concern has been voiced in China about the possible disharmony between these two objectives. This led, in late 1980, to an official decision that if conflict arises between reform and adjustment, adjustment will be given priority. Although reform is to be pressed further in some areas and consolidated in others, in early 1981 centralized control was reimposed in several areas, including the allocation of capital construction funds, the management of state finances, taxation and credit, and setting of prices.

5.84 In some specific respects, the reform measures of the past two years have indeed made macroeconomic adjustment more difficult. Greater freedom in price setting, for instance, has made it harder to suppress open inflation. Greater financial autonomy and resources for production units - both communes and enterprises - and local authorities have made it difficult to achieve the desired reduction and redirection of investment.

5.85 However, much of the apparent conflict between reform and adjustment is the consequence of trying to reform part of the economic system without addressing its other defects. Material incentives have been offered and greater autonomy given to peasants, workers and managers, while price reform - correction of the signals to which they are responding - has had to be much slower. Considerable funds have been put into the control of enterprises, communes, and local governments: but their use for socially desirable investment has been impeded by misleading price (and hence profitability) signals, by inadequate financial institutions, and by the absence of a national long-term plan. Greater use of the market mechanism has been introduced, while marketing and commercial institutions have not yet been strengthened.

5.86 Thus the appropriate response to the present problems may be increased attention to designing a balanced and integrated program of reforms for the next few years. This need not aim at more than a modest interim stage of reform. Nor need it imply that reform should be implemented quickly, which in fact seems inadvisable given the present structural imbalances, gross price distortions and weaknesses of financial institutions and instruments. But better account should be taken of the linkages between different aspects of reform, and of the need to progress on different fronts at a mutually consistent pace and in an appropriate sequence.

5.87 The latest efforts to regain central control of investment and prices and achieve macroeconomic balance through tighter management are therefore not necessarily incompatible with reform. But it is also important to guard against the risk of going too far in recentralization. Experience in both China and other countries suggests that the central planner is always "partially ignorant" and that attempts to plan everything directly and rigidly from above will result in gross inefficiency and sometimes even a breakdown of the system.

5.88 Finally, it should be emphasized that important complementarities exist between adjustment and reform. On the one hand, macroeconomic stabilization and improvement of structural balance would greatly facilitate the smooth implementation of reform. (Indeed, it should be recognized that some of the difficulties encountered with reform over the past year have been the consequences of errors in macroeconomic management.) On the other hand, the increases in economic efficiency to be expected from reform could ease some of the difficult medium-term tradeoffs and choices mentioned above. In addition, infrastructure projects apart, the reforms (including the devolution of some investment decisions to enterprises) should facilitate the matching of sectoral supplies and demands. More generally, a rigid system of central controls is much better suited to simple objectives, such as increasing steel or grain production, than to the new and more complex objective of raising living standards, which involves very many commodities and the subjective desires of

innumerable households. Allowing consumer preferences to have a direct impact on enterprises' production decisions could thus make a major contribution to achieving the underlying purpose of adjustment.

Planning and Management

5.89 The future of economic reform in China, however, does not lie simply in an expansion of the role of the market at the expense of the plan. More freedom of action for producers, more incentives, and greater reliance on market signals are all necessary for increased efficiency. But these will need to be accompanied by the improvement and strengthening of planning, both aggregate and sectoral. In the 1980s there will be many actual or potential constraints to sustained and balanced growth. There is a clear need for the central planners to take early action on many of them. But little information exists to guide decisions regarding the direction and sequence of actions, particularly in many of the longer-term tasks. Not only are there too few experienced planners, but also China has fallen far behind both the West and Eastern Europe in essential quantitative and empirical planning techniques such as input-output analysis, economic modeling, and benefit-cost analysis.

5.90 Indeed, the present weakness of economic planning in China, the result of almost continuous disruption by political movements over the past two decades, will make the task of adjustment and reform difficult. Without effective planning of the macroeconomic variables and major investment decisions, for instance, many of the prospective benefits of adjustment and reform will be lost. Although no consensus has yet been reached on the future scope of central planning and the exact role of the market mechanism in the economy, the improvement of several aspects of planning work seems to be essential in any attempt to improve the functioning of the economic system.

5.91 Longer-Term and Sectoral Planning. Perhaps the greatest deficiency of the Chinese planning system is the absence of long-term planning. Since the end of the First Five-Year Plan in 1957, five-year plans have never become operational, and planning and management have proceeded largely on a year-to-year basis. Just as the preoccupation with current instead of future output explains the uneconomic extraction/development/exploration ratio for oil and coal, so the lack of a longer-term perspective is probably an important reason for the bottlenecks in infrastructure and energy, where investments have a long lead-time. Efforts in the 1980s to overcome immediate obstacles, without proper anticipation of the obstacles that lie ahead, are unlikely to bring about more than a slow and uncertain advance toward long-term goals. Specifically, what seems urgently needed is a plan that incorporates consistent and realistic decisions in several interrelated areas: balance between demand (investment plus consumption plus exports) and supply (production plus imports), both in aggregate and in each sector; balance between present and future consumption, as expressed in the aggregate investment rate; sectoral allocation of investment, taking account of indirect linkages between sectors; balance between public consumption (some of which is investment in human resources) and private consumption; and distribution of private consumption both between urban and rural households and between households at different income levels.

5.92 Given the large, unpredictable agricultural sector and the current flux in other sectors, it may not be possible to have a detailed plan that will be operationally binding for five years. An alternative might be a "rolling" plan that covers the coming three- to five-year period, but is annually or biennially revised and modified in the light of actual developments. But what is chiefly necessary is to strengthen the planning process itself (both technically and politically), so that sound decisions can be quickly made and implemented when circumstances warrant a change in direction. This can be facilitated by close integration between the planning and budgetary processes.

5.93 Within individual sectors, also, a strengthening of planning is needed to improve coordination in and efficiency of resource use. In transport, for instance, price reform could improve allocation among modes and system reform could reduce unnecessary transshipment. But the major decisions that need to be taken in the coming years - the role of road transport; the choice of railway motive power; the coal transport system - all require centralized planning decisions. But as yet the necessary information on relative costs is not available, projects do not seem to be adequately prepared, and a national transport plan does not exist.

5.94 Similarly, in energy, long-term planning will call for careful forecasts of energy demand - both by individual sectors, and by type of energy. These cannot be based on any simple extrapolation or modification of past trends, but will require study of the experience of other countries, of the technological possibilities, and of the economically optimal degree of conservation (and the probability of being able to achieve it). In the planning and selection of projects within the energy sector, the widest possible spectrum of technologies needs to be considered, drawing on foreign as well as domestic expertise; and alternative ways of achieving any given growth of production should be carefully costed. Close attention should also be paid (for example, by the recently created State Energy Commission) to the linkages among energy subsectors, and to the potential for improving the linkages among regions.

5.95 Energy and transport together accounted for about 40% of total state capital construction in the late 1970s, and this ratio is unlikely to fall in the 1980s. Thus improvement of investment decisions in these two sectors alone could substantially increase the overall efficiency of investment, which could be further increased by improved planning and coordination within and among other sectors.

5.96 Statistical Work. A major problem of economic planning today is the statistical system.^{/1} Apart from the need for restoration after the Cultural Revolution - which is now receiving much attention - the statistical system has several shortcomings. There is excessive reliance on comprehensive (i.e. census-type) administrative reporting, while sample surveys are neglected. A vast amount of data is collected almost on a daily basis, but little is

^{/1} A detailed description of the statistical system and some of its major problems is contained in Annex A.

properly compiled and analyzed, and even less is suitable for planning and economic analysis. Moreover, as in most countries, administrative data in China are liable to falsification and distortion and thus it would be desirable to monitor and cross-check them through sample surveys and in other ways.

5.97 The present statistical organization follows administrative lines established more than two decades ago, and should be changed to meet the needs of planners in the 1980s. For instance, reflecting the concerns of the past, an enormous amount of information is gathered on gross output - not always a useful concept if the concern is with efficiency and income growth - while much less is collected on inputs and costs, including specific important inputs such as energy. A major gap in the range of statistics collected (which is only now being corrected) concerns household and individual consumption patterns and their changes over time - information that is crucial if planning is to be more responsive to consumer needs.

5.98 Finally, much wider dissemination of statistics within the country would be helpful to economic reform. It could help reduce the possibility of false reporting. It could assist the development of empirical economic research and it could help managers of enterprises and communes to exercise their increased autonomy wisely.

5.99 Improvement of Management. An economic system that relies less on administrative decisions and commands, and more on economic instruments and decentralized decisions requires improved management of low-level units as well as changes in the workings of the Government itself, and in the legal relations between the state and enterprises and among enterprises. In recent years there has in particular been much greater awareness of the obstacles that bureaucratic procedures and overcentralization of power could pose for system reform./1

5.100 To overcome some of these problems, efforts are now being made to define by statute the functions and duties of each administrative organ and its subordinate units; to reform the cadre system; and to establish a system of inspection and supervision of government units. Economic legislation and judicial administration are being introduced. Steps are also being taken to alter the past practice of making no distinction between the Party and the Government, or between the Government and the enterprises and communes. Within enterprises and communes, elections of leaders and managers by workers

/1 For example: "In the reform of our economic system we must improve the work of the government at all levels. At present widespread bureaucracy in our government offices at various levels is a very serious problem. In many of its manifestations bureaucracy is tied up with the irrational economic system and the two reinforce each other; reform of the economic management system will help to eliminate a good deal of bureaucracy but bureaucracy in its turn will impede the reform of the economic system or even continue to do harm after the reform of the system. The elimination of bureaucracy, therefore, must be carried out together with reform of the economy." [Chairman Hua Guofeng's speech at the Third Session of the Fifth National People's Congress, September 7, 1980]

and commune members are being held for the first time in more than a decade, and congresses of workers and staff, as well as trade unions, are being given greater roles in management.

5.101 Improved training of managers will also be needed. Most state enterprises and rural communes are today headed by elderly cadres who participated in the revolution. The Government now recognizes that they should be rapidly replaced by "younger, more educated and professionally more competent" managers. If the decentralized economic system is to work, an entirely new generation of managers must be trained. Even for the managers who would remain, a difficult transition period lies ahead. Eastern European experience suggests that managers who are used to a life free of pressure and risks may find it difficult to cope with increasing enterprise autonomy and competitive pressure.

5.102 In the commune sector, even at the lowest level of the production team, responsibility is exercised for a farm unit that is not so small: with arable, largely irrigated, land of 10-15 ha, the average production team operates a farm that is similar in size to the average in France, for example. In the 1980s, returns must be increasingly sought from careful use of the available agricultural technologies; from relatively small variations in cropping patterns and sequence; and from a more carefully calculated balancing of costs and returns in the use of inputs. The complexities of commune and lower level management are also likely to grow as the stock of equipment and facilities in use is augmented, and as brigade and commune managed enterprises play a greater role. The selection and training of production team leaders, as well as of brigade and commune managers, is thus an important concern for the 1980s.

6. PROSPECTS AND OPTIONS IN THE 1980s

A. Introduction

6.01 A fundamental objective of current Chinese economic policies is to improve living standards more rapidly during the next two decades than in the past two decades. Pursuit of this objective, however, will be subject to a rather tight set of interlocking constraints, particularly in the first half of the 1980s. Some of these constraints are of long standing. The amount of agricultural land per worker has shrunk, and both the multiple cropping rate and yields per unit of cropped land are by international standards already high. Scarcity of foreign exchange will also continue to restrain growth. And there are serious shortages of skilled high-level and technical manpower, as the result of past low levels of enrollment, aggravated by serious disruption of the education system during the Cultural Revolution.

6.02 There are also some new constraints. Perhaps the most serious is domestic energy production, which, after growing at 10% per year during 1965-75, expanded by only 5.6% per year during 1975-80. In the first half of the 1980s, primary energy production is not likely to grow faster than 2.2% per year. This will have major consequences for growth, especially in industry, which uses over 70% of all commercial energy. Only about 5% of domestic energy output (mainly oil) is exported, but it provides a quarter of export earnings and (in 1980) a positive energy trade balance of \$4.5 billion. This balance could be substantially reduced by 1985.

6.03 Another new constraint is the obverse of the Government's wish to raise consumption: the domestic saving rate, which has been very high, is being reduced. The existing, overextended investment program, moreover, threatens to more than absorb available savings. There will thus be an acute shortage of funds for vitally needed new investments, especially in industrial restructuring and energy conservation, agriculture, housing and social services.

6.04 In four respects, however, the future looks promising. One is that population growth is now slow. A second is the Government's concern (outlined in Chapter 5) to make the economic system a more efficient user of investment resources, raw materials and energy. Some improvements in this regard have already been made. But, while reform in the sense of greater reliance on market forces will inevitably be gradual, substantial further gains could soon be achieved through more consistent central planning, more careful analysis of investment choices, extending the time horizon of planning decisions, and improving information flows.

6.05 Third, China's attitude toward international trade is more open than in the past. Between 1977 and 1980, exports more than doubled in value, and increased by 40-50% in volume. Manufactured exports grew at an estimated 15% per year in 1978-80, and now account for over 40% of total exports: although they are still small compared, for instance, to those of the Republic of Korea, China's substantial wage cost advantage should enable it to capture a growing share of the world market, provided improvements can be made in marketing, design, and access to foreign raw materials and intermediate goods.

6.06 Fourth, greater external borrowing offers another opportunity for relieving the foreign exchange constraint and importing modern technology. The Government is clearly cautious, particularly as regards terms. But external borrowing (especially with a concessionary element) could be an important supplement to domestic sources of finance and technical know-how.

6.07 The challenge for the 1980s is thus to harness the promise in these four areas to ease the constraints on growth, especially by using resources more efficiently than in the past and taking greater advantage of foreign markets, capital and technology. At the same time, it will be necessary to address the problem of growing interregional income disparities, and to attempt to further reduce rural poverty.

6.08 The Government is aware of the difficulty of this challenge, but has not yet determined a detailed course of action for the medium term (the next five year plan is currently in preparation). For this reason, the country's economic prospects and options can be considered here only in general terms. Key issues can be identified, however, by focusing on (a) population and human resources, (b) agriculture, (c) energy, (d) industry, and (e) foreign trade and borrowing.

B. Population and Human Resources

Population

6.09 The past decade's sharp decline in population growth (to 1.2% p.a.) has transformed the demographic outlook. But further reduction of the crude birth rate will be difficult because of rapid growth in the number of women of child-bearing age (a consequence of high birth rates in the 1950s and 1960s), and because the fertility rate (the number of children borne by each woman) is already extraordinarily low. Thus the Government's population growth target, which would require the fertility rate to decline to less than the replacement level (1.6) by 1995, is perhaps too optimistic. But even with a more gradual drop in fertility, to around 2.2 in 1995, population growth would average 1.2% p.a. from 1980 to 2000 (compared with the Government's target of 1.0% p.a.).^{/1}

6.10 In either case, it will be important to maintain a vigorous birth planning campaign. The economic incentives for conformity with the one-child

^{/1} The Government's official target is to limit the population to 1.20 billion in 2000. The demographic implications of this target were analyzed with a World Bank simulation model (see Annex H, paras. 3.09-12). An alternative scenario, with the fertility rate declining more gradually, was also analyzed. In the alternative scenario, the population growth rate would fall below 1% by about 2000, at which time the population would number 1.24 billion. Thereafter, the two scenarios diverge more substantially: by 2030, the less optimistic fertility assumption yields a population of 1.5 billion (0.4 billion above the official scenario). The stationary population in the alternative scenario is 1.56 billion, attained in 2070.

family policy could prove something of a fiscal burden for poorer localities, unless financial penalties for couples with as few as two children are introduced. Furthermore, people may doubt that pensions promised now will actually be forthcoming when they get old. And the scope for exerting noneconomic pressure has already been extensively exploited. Nonetheless, even if the one child family program is only moderately successful, future population growth will remain far slower than in the past.

6.11 This will have major consequences for welfare. First, the stock of physical capital per person will tend to rise faster. Second, pressure on foodgrain supplies will be moderated, though even modest growth in per capita foodgrain consumption during the 1980s will not be easy to achieve (para. 6.32). Third, the relative (and perhaps also the absolute) size of the school-age population will decline in the next two decades, affording greater scope than in the past for improving the quality and coverage of education.

Employment

6.12 There will also be a decline in the dependency ratio over (at least) the next 20 years, as the proportion of children will decline faster than the proportion of old people is rising. The resulting increase in the proportion of people of prime working age will be beneficial, however, only if there is a commensurate increase in productive employment. The working age population will grow at 1.9% p.a. during 1980-90: with only a moderate increase in participation rates, its absorption would require employment growth of around 2.0% p.a. - or, in absolute terms, over 80 million jobs. The situation will be especially difficult in the first half of the 1980s when growth of the working-age population reaches its peak: in the late 1980s, however, labor force growth will begin to drop sharply (and is unlikely to be much above 1.1% p.a. in the 1990s), giving greater room for economic maneuver.

6.13 Meeting the urgent need to create many more socially useful jobs in the next five to ten years will be difficult. The initial nonagricultural employment base is not particularly large (even by comparison with other low-income countries - see Table 3.7), and absorption of labor in agriculture will be increasingly hindered by inability to expand the cultivated area. The problem will be somewhat eased, though, by the planned changes in economic structure toward light manufacturing and personal services. Even so, it will be vital to maintain the momentum of overall growth and investment, especially during the next five years. It will also be important to ease the potential conflict in particular sectors between employment creation and efficiency improvement by allocating most new entrants to faster-growing sectors, by increased intersectoral labor mobility, by continued use of labor-intensive techniques in both agriculture and industry, and by focussing the drive for greater efficiency on energy, materials and capital.

Health and Nutrition

6.14 China's accomplishments in health and nutrition have been outstanding for a country at its income level. But, especially in health care, there are almost limitless possibilities for additional spending. The issue is thus how much more should be spent, and on what, by a country whose income level is low, which has already exploited the most economical means of progress in these areas, and where there are very strong competing claims for resources.

6.15 The pattern of causes of death in China is now moving away from that in a typical low-income country and toward that in industrialized countries. The widespread provision of preventive and basic curative health care has slashed the proportion of deaths from infectious, respiratory and parasitic diseases. But the proportion from cancer and circulatory diseases has correspondingly risen, and will rise further as the population ages. The treatment of the latter class of diseases is relatively expensive - requiring fully trained physicians and costly drugs and equipment - and relatively ineffective in prolonging life.

6.16 The strongest (and most cost-effective) claim on resources within the health sector is thus probably not expansion of advanced curative care, but consolidating and maintaining the gains that have already been made in basic curative and preventive care, as well as extending state support to commune and brigade-level health posts in the poorest rural areas, where health services are of unacceptably low quality or even nonexistent. (This is important both for reasons of equity, and to strengthen the birth planning program.) Also at fairly low cost, more general improvements could be made in the system of referrals to commune clinics and county hospitals, and the preventive health service could be reoriented somewhat toward the prevention of cancer and circulatory diseases.

6.17 The most important advances in improving nutrition have already been made and acute malnutrition is rare. Some disorders due to micronutrient deficiencies remain, but their treatment is often very cost effective, and the Government has been active in this area. The outstanding problem is widespread chronic malnutrition (as indicated by low height for age), especially in the poorer rural areas, but at present not enough is known about either its causes or consequences. A contributory cause may be the composition of the Chinese diet, with its relatively low oil, fat and high-quality protein content. But the problem is also partly one of distribution: some people live on (or close to) the low state-guaranteed minimum grain supply because their cash income or private production provides an insufficient supplement. Thus part of the solution might lie in raising the guaranteed minimum, while making eligibility to purchase grain from the state contingent on the level of private as well as collective food production. Grants and loans for food purchase could also be increased and general efforts made to raise the earning power of the rural poor.

Education

6.18 The damage inflicted by the Cultural Revolution was perhaps greatest, and will be hardest to rectify, in technical and higher education. Skilled manpower is thus likely to be an important constraint on economic and social development in the next two decades, and efforts to relax this constraint have a strong claim on scarce resources. Nonetheless, it is important to establish clear educational priorities and to effect some economies.

6.19 The highest priority must be to expand the supply of high-level manpower - in economics, statistics and management, as well as in agronomy, engineering, computer technology, and the natural sciences. The Government accordingly plans to expand and improve undergraduate and postgraduate higher education. Over the next decade, the number of universities and colleges is to be nearly doubled, and their enrollment more than doubled. The total cost of this program is relatively modest. But China's stock of high-level manpower, especially in the 1980s, will also be relatively modest. Early expansion of nonformal tertiary education along existing lines (para. 4.105) is thus also urgently needed, with emphasis on upgrading those already working in industry, agriculture and, indeed, education itself.

6.20 There is a further acute need for more middle-level technicians. The Government proposes to expand enrollment in technical and vocational schools over the next decade by 9 million, but first it needs to resolve several policy problems, including the relationship between the schools and prospective employers, and to develop curricula better suited to the many senior general secondary graduates expected to enter these schools. The Government's proposed program will be quite expensive. In addition, implementation of the program is likely to be slower than proposed because of a shortage of qualified teachers, although this shortage could be eased, with little sacrifice in the quality of teaching, by increasing the student/teacher ratio from 10 to 15.

6.21 There is also substantial scope for improving both the quantity and quality of general primary and secondary education, though this is less of a priority. The Government is proposing by 1990 to make primary education universal throughout the country, junior secondary education universal in urban and other economically developed areas, and senior secondary education universal in cities. It also proposes to supply secondary schools with laboratories, to expand production of textbooks and education equipment, and to improve and expand preservice and in-service teacher training.

6.22 Given likely changes in the size of the school-age population (para. 6.11), universal primary education could be achieved with little if any increase in total enrollment. But it could prove difficult and costly to enroll and retain the sorts of children who are not at present enrolled - mainly girls in remote rural areas and the children of nomad families. Demographic considerations suggest that expansion of junior secondary education should proceed more slowly than planned. Since the size of the relevant age

group will peak in the mid-1980s and then decline quite sharply, early universal enrollment would severely strain staff and facilities, thwarting any effort to improve quality. Students denied formal junior secondary education should, however, be offered nonformal alternatives.

6.23 The planned enrollment expansion in senior secondary schools could be attained without any problem peaks, and the aggregate need for new teachers appears within the capacity of existing training institutions. The proposed provision of laboratories would be an essential complement to the planned expansion of higher and technical education, but it should be part of a general revision and updating of curricula in both primary and secondary schools. The latter change will in turn require additional teacher training and in particular a reduction in the proportion of unqualified teachers.

6.24 The proposed educational programs would require a massive increase in educational spending, were it not for the substantial scope for cutting unit costs. At all levels, but especially in the universities, bringing teaching loads closer to the international average could substantially reduce the pupil/teacher ratio with no rise in class size. Physical facilities could be better utilized by more appropriate scheduling, and modern location planning techniques could assist in reducing the need for boarding in new higher education institutions. Improvements in educational quality could be facilitated by greater use of modern methods of evaluating student achievement, and by the more systematic compilation of statistics.

6.25 Over the long term, therefore, the Government could probably achieve almost all of its educational targets while keeping public expenditure on education (currently 3.1% of GNP) quite close to the average of 4% in all developing countries. In the near term, however, the capital expenditure required would be substantial in relation to total investment. Moreover, much of the substantial increase in recurrent costs would occur when the budget is already strained by the Government's efforts to raise private consumption. While people might accept lower private consumption in exchange for better education, it is more likely that the proposed improvements in general primary and secondary schooling, and to a lesser degree in formal technical and vocational schooling, will have to be stretched out over a much longer period than currently planned.

C. Agricultural Constraints and Perspectives

6.26 The challenges facing agriculture in the 1980s largely echo similar themes in the past. The social reforms of the 1950s set a pattern of effective demand for agricultural produce dominated by low-income, mass-market requirements for staples such as grain, vegetables, cooking oil and simple cotton clothing. As the population continues to grow in the 1980s, so will the demand for these basic goods. Food security in particular will need to be maintained. And if per capita consumption rises as fast as the Government hopes, demand for a better quality diet will further increase pressure on food supplies. Likewise, light industry, which will continue to rely heavily on agricultural raw materials, will expand rapidly under the new policies. With

the vast majority of China's 800 million peasants still depending primarily on agriculture for their livelihood, ways must be found of sustaining and improving agricultural earnings. And all this must be achieved in the face of a land constraint that is increasingly severe. The cultivated area per rural person, already very low in 1952, dropped sharply during the last three decades, and will probably decrease even further during the next two decades.

Food Supply

6.27 As in many other low-income developing countries, food crops account for an overwhelming proportion of the cropped area in China.^{/1} The need to provide minimum foodgrain supplies for a growing population has dominated, and will continue to dominate, agricultural strategy. Even though China's recent foodgrain imports (averaging 10 million tons p.a., net of rice exports, during 1978-80) have been substantial, they are equivalent to only about 4% of total output. Even meeting a proportionately small increase in the share of domestic requirements from imports would be difficult, since the country's requirements are already large in relation to the international market. Pressure on foreign exchange resources will also limit the possibility of expanding foodgrain imports. The bulk of incremental foodgrain requirements will thus have to be met from increased domestic production.

6.28 Since little new arable land is likely to become available and the cropping intensity is already very high, all of the future increase in grain output must, as in the recent past, come from yield improvements. China's recent performance in this regard has been rather remarkable, with foodgrain yields ^{/2} increasing from an already high level of about 2.0 tons/ha in 1970 to about 2.8 tons/ha at the end of the decade, a rate of growth of over 3% p.a.^{/3} As discussed in Chapter 4, this considerable achievement was supported by massive increases in chemical fertilizer availability (which more than quadrupled over the decade) and in the use of agricultural machinery; moreover, the irrigated area was probably increasing at about one million hectares per year. The aggregate yield increase was also helped by a shift in the cropping pattern, from comparatively low-yielding crops such as soybean and millet (with yield per ha of 1-2 tons) towards rice and corn (with yields of 3-4 tons).

6.29 None of these factors seems likely to help so much in the future; plans for future irrigation development ^{/4} suggest future targets for new development of 0.2-0.4 million ha p.a., i.e. less than half as much as in the 1970s. No details of plans to increase chemical fertilizer production were available, but clearly the past rates cannot be sustained (especially in view of the growing shortage of oil). Finally, it is unlikely that future changes

^{/1} In 1979, 80% of the total cropped area was under foodgrains.

^{/2} Following the Chinese practice of including soybean and the grain equivalent of tubers (one fifth the weight) as foodgrains.

^{/3} In 1980, yields averaged 2.74 tons/ha, but were affected by poor weather. In 1979, a good year for weather, yields averaged 2.78 tons/ha.

^{/4} As discussed with the Ministry of Water Conservancy.

in the cropping pattern will have a significant effect, mainly because the area under low-yielding crops has already been considerably reduced, and because low-yielding (but high protein) soybean production is now being encouraged.

6.30 On the other hand, substantial gains could be realized through improved policies and management. Especially important is the Government's present emphasis on stronger incentives and greater producer autonomy (including diversification of marketing arrangements and encouragement of private plots). Similarly, although a lot of chemical fertilizer is applied, its quality is often poor, the nutrient balance is probably inappropriate in many areas, and distribution at the local level could be rationalized and improved through greater attention to local fertilizer trials and soil analysis. In addition, there is probably considerable scope for upgrading many of the older irrigation systems, to reduce water losses and improve drought and flood protection standards. Substantial drainage programs in areas of salinity would also make a significant contribution to improving yields. Moreover, although it will be some time before agricultural research fully recovers from the impact of the Cultural Revolution, the Government is giving it high priority, and there may be fairly rapid gains from fuller access to international germ plasm collections, research results (especially for crops and cropping systems in which Chinese research has not been especially impressive), and scholarships. The scope for improving average yields in maize and other coarse grains seems considerable, while average wheat yields (considering that the crop is largely irrigated) are still moderate; and for all foodgrains, average yields could be raised significantly by advances in the technically more backward parts of the country.

6.31 With a major effort along these lines, and with the sown area maintained at its 1980 level of 116 million ha, aggregate foodgrain production could probably increase to about 410 million tons by 1990. This would imply an average yield of about 3.5 tons/ha in 1990 - an increase of 0.7 tons/ha, or about 2.3% p.a., over the average yield in 1980 (making allowance for the poor weather in that year).

6.32 The continuing small margin of error for planners in the 1980s is illustrated in Table 6.1, which compares (a) the increase in foodgrain requirements needed to maintain 1980 per capita consumption standards /1 with (b) a range of assumptions concerning production and imports. If production in 1990 were indeed 410 million tons, and grain imports were maintained at their 1980 level, the margin for raising foodgrain consumption standards in 1990 would be only 7%. And if production faltered (10% below the 410 million tons projection), just to maintain 1980 consumption standards would require more than a doubling of imports. On the other hand, production 10% above the 410 million tons projection would provide a 14% margin for raising consumption standards even if grain imports were eliminated.

/1 Requirements in 1990 are higher than in 1980 for two reasons: (a) population increase and (b) other demographic factors, most notably rising body weight and an increasing ratio of adults to children. A rise in animal feed requirements, to maintain the 1990 meat supply at its 1980 per capita level, is the main factor increasing 'other uses'.

Table 6.1: ILLUSTRATIVE FOODGRAIN BALANCES
(million tons, unmilled)

	1980	1990		
		Low production	Medium production	High production
<u>Supply</u>	<u>337</u>	<u>396</u>	<u>422</u>	<u>450</u>
Production	325/a	370	410	450
Net imports	12	26	12	0
<u>Utilization</u>	<u>337</u>	<u>396/b</u>	<u>396/b</u>	<u>396/b</u>
Direct consumption	272	318	318	318
Seed, feed, and other uses	65	78	78	78
Surplus	-	0	26(7%)/c	54(14%)/c

/a Adjusted to allow for poor weather in 1980.

/b At 1980 per capita standard of consumption (direct consumption and meat). See footnote to para 6.32.

/c As % of 1980 standard.

Source: Annex C, Table 4.1.

6.33 The outlook for foodgrains has many implications. First, continued government efforts will be necessary to ensure minimum food security. Food-grain supplies are more equitably distributed in China than in most other developing countries, through urban rationing and guaranteeing minimum supplies to production teams. However, substantial inequalities in rural food consumption do exist, largely because of disparities in production. If overall per capita supplies are growing slowly, the problem of food deficits in slow growth areas is likely to be compounded. Thus a careful balance will still be necessary in the 1980s between the need to ensure adequate supply in food deficit areas and the current objective of giving surplus areas greater freedom in disposing of their production.

Nongrain Agriculture

6.34 Second, the small margin of foodgrains above minimum requirements will limit development possibilities in other areas of agriculture. Pig raising, for instance, accounts for half of agricultural production other than crops and about three quarters of animal husbandry; it also provides the major source of meat for the population. In the past, fodder-based feeding has predominated, and probably little more than a quarter of hog feed today is in the form of grain. The technical limits of this approach appear to have been reached, however, and meeting the growing demand for meat will increase the demand for grain more than proportionately. Grain requirements (unmilled) for fattening are likely to be about 4 kg of grain per kg of meat. Rising demand for meat in areas where incomes grow faster under the new policies will thus accentuate the difficult equity issue of the demand for meat in prosperous areas competing with the demand for subsistence grain in poorer areas.

6.35 Finally, because there is likely to be little scope for releasing land from foodgrain production, the prospects for other field crops (especially cotton and oilseeds) will also depend primarily on yield increases. Indeed, cotton provides another excellent example of how agricultural potential could seriously impair growth of aggregate output and consumption. The planted area has recently increased - back to its 1965 level - and the 1980 cotton crop was a new record. But (with a 30% increase since 1977) yields are currently about in line with those in developed countries, and will probably increase in the 1980s by only 2-3% p.a. Thus production is likely to continue to be outstripped by actual and potential (restrained through rationing) domestic demand. Cotton imports already constitute one fifth of domestic supply - and one fourth of world trade in cotton. To raise them substantially, even if foreign exchange were freely available, would drive up world prices, while the potential for increased use of synthetic fibers will remain subject to constraints both on foreign exchange availability and on domestic oil production. In this sort of way, then, the limited scope for increasing the domestic production of agricultural raw materials could restrain the development of light industry in the 1980s.

6.36 If foodgrain output were to grow at 2.3% p.a., agriculture as a whole (excluding industrial and sideline activities) would be unlikely to grow at more than 3% a year in the 1980s. Even this would require rapid growth of oil-bearing crops and of some lesser field crops such as sugarcane, vegetables and fruits, as well as vigorous development of ruminant livestock and cash crops. Rapid growth in these higher-valued subsectors is consistent with faster per capita income growth, which would shift the demand structure from basic to more desirable foods. But it is highly dependent on the success of production teams and localities in exploiting their local comparative advantage and on the provision of grain for food in areas specializing in cash crop production.

6.37 What are the implications of an agricultural growth rate of around 3% for accelerating overall consumption growth? Given the likely changes in population size and age structure, per capita consumption growth at about 3.5% p.a. (no higher than in the 1970s) would probably cause demand for agricultural products also to grow at about 3.5% p.a. Thus if agricultural production were to grow at only 3%, and substantial imports were not feasible, some of the growth in consumer demand could not be satisfied. This would mean continued rationing of the most important items (grain, cotton and oilseeds) and, as in the past, satisfying incremental consumer demand mostly through industrial consumer goods.

Rural Incomes

6.38 The limited potential for agricultural growth also has important implications for rural/urban income disparities and overall income distribution. The threat of a widening gap between rural and urban incomes is inherent in a situation where agricultural growth lags substantially behind nonagricultural growth and rural/urban migration is restricted. The policy options that would avoid, or at least minimize, the adverse impact of slow agricultural growth on rural incomes include:

- (a) permitting greater rural to urban migration than in the past, especially by promoting urban employment opportunities in the service sectors;
- (b) maintaining rapid expansion of brigade and commune industry;
- (c) improving productive employment opportunities in agriculture by restraining the use of labor-replacing inputs and encouraging labor-intensive techniques; and
- (d) improving the agricultural terms of trade, possibly in conjunction with heavier taxation of higher income segments of the rural population.

6.39 All these options have both advantages and possible disadvantages. Greater rural to urban migration, since the rural population is so much larger than the urban population, could have no more than a small initial impact on the total numbers in rural areas. But if concentrated on particular poor areas (a strategy which is more feasible in China than in other developing countries, since migration can be administratively controlled, and since the level of education among the rural poor is high), migration could have a comparatively large impact on rural poverty. Such concentration on limited areas, moreover, would minimize the possible tendency for greater freedom of movement to weaken the social pressures that have contributed to the success of the birth planning policy.

6.40 On the other hand, urban industry is already generally overstaffed, and urban unemployment is already regarded as a problem. There is substantial scope for absorbing labor in services (with the possible exception of public administration), especially in collectives, which are receiving increased governmental support. But the extent to which this would be possible, and the institutional changes that would be needed, are matters which require further investigation. Urban infrastructure needs must also be considered: if all population growth over the next decade were to be absorbed by the cities, their population would double; the costs of providing the necessary additional housing, roads and social services would be huge (though it should of course be compared with the cost of other options).

6.41 Absorbing all increments to the labor force outside agriculture would require nonagricultural employment to grow in the 1980s at 5.5% p.a., compared with 4.0% p.a. during 1957-79. This is unlikely but not impossible, especially since much of the nonagricultural employment growth could occur (as in the past) in rural rather than urban areas. More generally, the role of brigade and commune enterprises in providing supplementary income in the 1980s will clearly be critical. In the mid to late 1970s, commune and brigade enterprises became "an engine of growth" in rural areas: their output growth averaged 18% p.a., and their share in rural net output and income rose from a very low level in 1970 to about 15% in 1979. If growth of these enterprises can be maintained at high rates, their contribution to future rural income growth could be significant. For example, the combination of 9% p.a. growth of enterprise income and 3% p.a. growth in agriculture would cause total rural income to grow at 4% p.a.

6.42 Some of the factors that have stimulated past rapid growth of enterprise income may be less in evidence in the 1980s. One is favorable tax treatment (a three-year tax holiday, and low rates for certain types of enterprises). Another is a cost-price structure permitting substantial profit from transforming low-priced agricultural materials into high-priced industrial commodities. A third is limitation of investment opportunities in agriculture proper by the discouragement of specialization.

6.43 Thus reforms in pricing, taxation and agricultural policy could all worsen prospects for rural enterprise development. Shortages of energy and industrial raw materials are also adversely affecting growth, and have led to the closure of inefficient enterprises. In addition, continued rapid growth of commune and brigade enterprises will depend heavily on maintaining rapid growth in urban industry and services, which could be affected by the various constraints discussed elsewhere in this chapter. On the other hand, the vigorous development of manufactured exports should continue to stimulate rural enterprise development. Promotion of agricultural sidelines and specialized crop potential should likewise create many new local processing opportunities.

6.44 An important source of rural income growth in the past has been adjustment of the terms of trade in favor of agriculture - through both increased agricultural procurement prices and reduced prices of industrial goods sold in rural areas. To add one percentage point to rural income growth in the 1980s would require procurement prices to rise about 18% over the decade (if the amount procured increased in line with gross output). By 1990, the resulting annual resource transfer would be about Y 14 billion - similar to that achieved by procurement price increases between 1970 and 1979.

6.45 Improvements in the agricultural terms of trade, which are a way of transferring some of the faster growth of urban labor productivity to rural people, may be desirable not only on equity but also on efficiency grounds, since they could encourage faster growth of agricultural production. But they will be limited by the need both to keep urban real incomes growing (which will make consumer price rises difficult) and to avoid further strain on the budget (through larger subsidies). However, some of the cost of raising the relative prices of agricultural commodities could be financed through increased taxation of agricultural income or land in higher income areas.

6.46 Finally, it is important to increase the earning capacity of agricultural workers through appropriate choice of production techniques. For example, more careful attention should be given to the net profitability of various types of labor-displacing agricultural machinery - taking account of the value of the displaced labor in alternative activities (including leisure, more of which might be desirable in areas where working hours are currently very long). Better technology choices should also help to keep up the ratio of value added to gross output.

Rural Poverty

6.47 Though some poor areas will be among the biggest gainers, it is likely, as the Government recognizes,^{/1} that the current agricultural policy of allowing each region to develop according to its comparative advantage will on balance tend to widen regional income disparities. Commune and brigade industry growth, too, is likely to continue to be slowest in the poorest areas, whose financial resources are small, and which tend to be far from the best markets and sources of inputs. Even increased agricultural prices will do least for the poorest groups, whose marketed surpluses are small, and will actually harm those of the poor who are net purchasers of food. It is thus essential, as the Government also recognizes,^{/2} to take special measures to attack rural poverty. But although a fund for backward areas was created in the 1980 budget, the amount involved (Y 500 million) was small, and a detailed anti-poverty program has yet to be formulated.

6.48 Some of the potential elements of such a program have already been mentioned. One is selective migration. Another is redistribution of rural income through more progressive taxation (i.e. higher tax rates for higher income groups), which could help to finance increased state support in poor areas for the development of agriculture and nonagricultural activities, and the provision of more food and better social services.

6.49 In addition, however, experience in other countries indicates considerable merit in developing special approaches to the problems of such disadvantaged areas as the Loess plateau, the southern uplands, and saline floodplains through long-term regional development plans. These can address

^{/1} "We should advance in a series of waves instead of covering the whole area with scattered efforts. The financial and material resources for agricultural use should be managed in order of priority so that they can be fully and effectively utilized. Priority should be given to localities possessing the required conditions and greater efforts should be made in these localities. If the production in these localities rises markedly and peasant incomes increase rapidly, that is good and not bad, because it will produce a great demonstrative and encouraging effect in the whole country." (Decision of the CPP Central Committee on "Some Questions Concerning the Acceleration of Agricultural Development," published in Wen Hui-Bao, October 6, 1979, p. 1.)

^{/2} "Crop yields have been low and grain shortages have existed for a long time in some parts of North-West and South-West China and in remote mountainous areas, minority nationality regions and border areas. Consequently, the people there live in poverty. The slow development of production in these areas is not only an economic but also a political problem. The State Council will set up a special committee, composed of responsible comrades from departments concerned, to make overall plans and organize forces to support these areas materially and technically, and to help them lift themselves out of poverty by developing production. It is also necessary to help poor communes and brigades in other parts of the country to better their situation as soon as possible. Funds allocated by the state as aid for poor communes and brigades must be used for purposes of production and construction." (Same source as previous footnote.)

the particular needs of the areas, as well as facilitating special allocations of money and skilled staff. They can be of particular value because: (a) regional problems usually call for actions and subprograms under various ministerial or agency jurisdictions that need special coordination mechanisms to work effectively; and (b) initiatives may be called for that are beyond the resources of individual local administrations (e.g. major research institutes to focus on the particular region's farming systems). Giving such regional plans a long time horizon (perhaps 20-25 years) facilitates appropriate phasing, with actions in each phase laying the basis for and leading into the next phase.

6.50 More generally, it is important to take a balanced view of the future. Increased specialization and stronger incentives in agriculture, even if they were not supplemented by special anti-poverty measures, would be unlikely to reduce the real incomes of more than a small fraction of the rural poor, and would indeed probably raise the real incomes of many poor people in absolute terms. If, in addition, there were well-designed programs of the sort outlined above, there could be not only a major reduction in absolute poverty but probably also some narrowing of the proportional gap between the lowest rural incomes and the average.

D. Energy Outlook and Consequences

Domestic Energy Production

6.51 Although energy production has grown rapidly since the 1960s and potentially exploitable energy resources appear to be abundant, China may face a very difficult energy situation in the 1980s, largely as a consequence of inappropriate policies and inadequate investment over the past 10-15 years. Even though coal still dominates overall energy supply, the rapid expansion of domestic oil production has been a major factor in the growth of energy output, accounting for about a third of the total increase during the 1970s. However, exploration and development activity have been ineffective over the past decade, and existing fields have been poorly managed. Thus oil production apparently peaked in 1979, at 106 million tons, and now faces a period of decline. The large Daqing field, which supplies nearly half of China's oil, has been producing for 20 years; its geology, pattern of development, and records of oil production and water injection indicate that the field is now entering its decline phase. Output from existing wells in the field is expected to decline steadily over the 1980s, possibly at an average of 2-3 million tons per year. Development of some new wells in Daqing is under way, but the extent to which these new wells can slow the overall decline in output is not yet known. The downtrend at Daqing will be partly offset by increased output in other important fields, and by developing lesser fields; but no new large fields have been discovered since 1975, and even major discoveries in the near future will require five to ten years to be developed. Currently available information therefore indicates that China's oil production will remain at a plateau of around 100 million tons up to 1985.

6.52 Prospects beyond 1985 are more uncertain and will depend on improved management of existing fields, as well as on the discovery and development of new fields. Immediate steps should clearly be taken to improve reservoir engineering in the older oilfields, particularly Daqing. High priority deserves to be given to oil exploration, including early agreement with contractors for offshore exploration and more effective methods of land-based oil exploration. Greater emphasis on development and exploitation of natural gas reserves in Sichuan and elsewhere is also important. Foreign technical assistance in all phases of exploration and development and increased use of imported equipment are likely to have a big payoff and will be especially important for offshore development. Given the long lead time required for some of these activities and the uncertainty of exploration efforts, however, output in the second half of the 1980s is difficult to predict. For illustrative purposes, a slight decline from 100 million tons in 1985 to 95 million tons by 1990 is assumed in the rest of this chapter. Even with major efforts in improved recovery, management of existing fields and expanded exploration, this may prove to be somewhat optimistic.

6.53 Prospects beyond 1990 seem much brighter, however. Potentially oil-bearing sedimentary layers cover a total of 4.2 million sq km of Chinese territory onshore, much of it in remote and inhospitable terrain. About two thirds of the area has scarcely been explored at all, and almost no drilling to depths of over 3,000 meters has been undertaken. Geologists are also optimistic about the likely offshore oil reserves in over 1 million sq km of the continental shelf. (In early 1981, exploratory drilling revealed more oil in the Bo Hai, as well as indications of oil in the South China Sea.) Thus, major discoveries could be made in the early 1980s and lead to substantial output by the early 1990s. The expectation of rising output from such discoveries would alter the energy outlook considerably; for instance, it could help to justify and provide credit for oil imports on an interim basis.

6.54 Coal production in the next few years will suffer from the over-emphasis in the past decade on immediate production and the relative inattention paid to opening new mines and developing existing ones. As a consequence of increased underground tunneling, removal of overburden in open-pit mines, and other development work (which will allow yields to be sustained and raised over the long run), coal output fell by 2.4% in 1980, to 620 million tons, and is expected to drop further in 1981. This is a temporary decline, as several major new coal mine projects are under way, though some will not come on stream until 1986 or 1987. Even with the high priority being given to the sector, total coal production is not likely to exceed 700-750 million tons in 1985; taking transport problems into account, production of around 730 million tons seems likely.

6.55 The potential for expanding coal output after 1985 will be constrained both by the possibilities for opening new mines and by the difficulties of expanding transportation on the scale required. Since the mid-1960s, China has increased its coal output by 120-130 million tons every five years. Based on present investment programs, a similar increase seems possible during the 1980s, which would give an output of about 870 million tons in 1990. A strenuous effort to accelerate the pace of mine development, coupled with heavier investment, could possibly raise the level to 900 million tons or a little more.

However, shipment of the coal produced might encounter transport difficulties. The amount of coal carried by rail, 413 million tons in 1979, could probably be raised by about 4% p.a., or by roughly another 200 million tons by 1990, if a well-designed program of investment (based on increased electrification, double tracking, new lines, bulk handling, larger trains and other system improvements) in China's already efficient railway system were implemented. Moreover, projected improvements in inland waterways such as the Grand Canal, Huai He and Xi Jiang will contribute to easing the transport problem. But making effective use in 1990 of up to a 300 million ton increase in coal output would probably require, in addition, construction on a large scale of mine-mouth thermal power plants, together with long-distance transmission lines, and major investment in coal washing and processing facilities (to reduce bulk and so economize on transport requirements).

6.56 Electric power is also expected to set severe constraints on growth up to 1985. Given the power projects now under construction, the supply of electricity is expected to grow at 4-5% p.a. during 1980-85, or only about half the rate (9% p.a.) of 1975-80, and far below the rate (over 11% p.a.) of 1965-75. This will limit growth rates in industry, the major user of electricity.

6.57 In the longer run, growth of electricity output will thus need to accelerate. While continuing to expand small-scale hydroelectric capacity (which is currently growing at close to 400 MW per year), China is placing increasing emphasis on new medium-sized hydrostations (50-500 MW each), which can often be built within 4-6 years. As a result, the share of hydroelectric output within the total, 19.4% in 1980, is projected to increase. However, a majority of the new capacity will have to come from coal-fired thermal plants. Increased long-distance power transmission, mainly from west to east, is also planned to link energy-rich regions with energy-deficit industrial centers. Expansion of power output is therefore expected to accelerate to 6-7% p.a. in the second half of the 1980s.

6.58 To summarize, assuming oil output of 100 million tons and coal output of no more than 730 million tons, a decline in natural gas output (which began to occur in 1980), and about a 29% increase in hydroelectric power generation, primary energy production in China in 1985 is not likely to be much above 715 million tons of standard coal equivalent, compared to 649 million tons in 1979 and 641 million tons in 1980. Thus the average growth rate of energy supply will be about 2.2% p.a. during 1980-85, compared to rates of over 10% p.a. up to 1975 and 5.6% p.a. in 1975-80.

6.59 Opportunities for influencing the production of energy in 1980-85 are relatively limited because of the long lead time required for major development projects. For the same reason, actions taken in the near future will critically affect the growth rate of primary energy production in 1985-90 and beyond. But the need for immediate investment in the energy sector (which is already absorbing over 40% of industrial investment) will conflict with vital needs for new investment in other sectors, including industrial restructuring and housing. The conflict will be especially sharp because the existing investment program is so large, and because the Government is trying to hold

down the aggregate investment rate. Moreover, even if large investments are made in energy, and output growth speeds up in the second half of the decade, the preceding discussion suggests that China's primary energy supply is not likely to grow much faster than 2.8% p.a. over the whole period 1980-90.

Energy Saving and Switching

6.60 Thus the main burden of coping with the energy shortage over the next few years, and a large share of the burden throughout the decade, must fall on energy conservation. This must include not only reducing energy use per unit of output within the various sectors, but also (as has already begun to happen) shifting the pattern of output away from sectors that have high energy requirements.

6.61 There is also a need to switch on a large scale from using oil as a fuel to coal. At present, China still burns large amounts of crude oil and heavy fuel oil directly as fuel. In 1979, this included about 17 million tons for electric power generation and about 19 million tons in boilers, furnaces and kilns in other industries, plus several million tons used as fuel in petroleum refining. With oil output falling, the available oil must be switched progressively to uses such as motor fuel (in transportation, agriculture, and construction),^{/1} and feedstock for petrochemicals, plastics, and synthetic fibers. A rapidly increasing supply of these products will be needed to expand the output of consumer goods industries, as well as to substitute for wood, which is scarce. Greater use of plastics and synthetic fibers will in many industries also reduce overall energy use by replacing more energy-intensive materials such as metals.

6.62 Energy saving and interfuel substitution will require a variety of policy initiatives, including better use of the present allocation system, as well as substantial investment. Oil is an easier and cleaner fuel to use than coal. (Transportation, handling, storage, firing, flame and temperature control, and ash disposal are all troublesome when coal is burned; and a larger scale of output tends to be required to achieve comparable heat efficiency.) Moreover, increasing the use of coal as a fuel in place of oil requires the conversion or replacement of existing boilers and other units, or the closing of oil-fired plants in favor of new coal-fired ones. No financial incentive to do this exists in China, since fuel oil is actually cheaper (per calorie of heat) than coal (this is in sharp contrast to the situation in most countries). Conversion from oil to coal will also require new investments such as coal gasification plants and cogeneration of electricity and steam to serve the needs of small users. The conversion of existing units will be easiest, but nevertheless expensive, in thermal power stations originally designed to use coal but subsequently switched to oil; these now burn about 9.5 million tons of oil a year.

^{/1} This may also call for major new investment in cracking facilities.

6.63 Energy price adjustments could make an important contribution to energy saving and switching, especially since the sensitivity of industrial enterprises to costs and profit has been increased by the recent reforms. Despite recent rises in natural gas and coal prices to nonhousehold users (25% for gas, 29% for coal), the prices of several forms of energy - including fuel oil, coal, crude oil and industrial electricity - are, at the official exchange rate, still well below international prices (Table 6.2). Equally important, the current relative prices of different forms of energy seem inappropriate - for example, as already mentioned, encouraging the use of heavy oil rather than coal for fuel. In adjusting energy prices, an interim two-tier pricing system might prove useful, with a gradually increasing base price for below-quota consumption and a sharply higher price for amounts consumed in excess of quotas. The quotas could then be tightened year by year.

Table 6.2: ENERGY PRICES
(\$ per ton)

	China	International
Coal	19-33	41
Crude oil	90	250
Heavy fuel oil	37	220
Diesel fuel	280	320
Gasoline	533	310
Kerosene	453	360
Electricity		
- average	4.3 /a	5.2 /a
- heavy industry	4.0 /a	5.2 /a
- household lighting	10-13 /a	5.2 /a

/a Cents per kWh.

Source: Annex E, Table 1.5.

Energy Conservation and Growth

6.64 To assess the relationship between economic growth and improved energy use, alternative scenarios have been constructed to analyze energy demand in 1985 and 1990. In one set of scenarios (Table 6.3), moderate savings and switching of energy over the 1980s is assumed, while the second set of scenarios (Table 6.4) assumes greater success in these areas. (Details of the assumptions regarding moderate and high energy savings and switching are given in Annex E, paras. 1.30-1.45.) Lack of information on the detailed pattern of energy use and on the Government's future plans makes these analyses

Table 6.3: ENERGY REQUIREMENTS OF MODERATE AND FASTER GROWTH SCENARIOS WITH MODERATE ENERGY SAVINGS AND SWITCHING

A. <u>Growth Rates</u>	1980 weights --(%)--	Moderate growth scenario		Faster growth scenario	
		1980-85	1985-90	1980-85	1985-90
Gross Domestic Product					
Heavy industry	26.5	2.5	5.0	4.0	6.5
Light industry	18.5	7.0	6.0	8.0	8.0
Agriculture	30.0	3.0	3.0	3.5	3.5
Services and other	25.0	4.5	5.5	5.0	6.5
<u>Total GDP /a</u>	<u>100.0</u>	<u>4.0</u>	<u>5.0</u>	<u>5.0</u>	<u>6.0</u>
Energy Demand					
Electricity	n.a.	4.2	5.6	5.4 /b	7.2 /b
Oil	n.a.	2.1	2.5	3.1	4.1 /b
Coal	n.a.	2.7	4.5	3.9	6.1 /b
<u>Total Energy /c</u>	<u>100.0</u>	<u>2.5</u>	<u>4.2</u>	<u>3.6 /b</u>	<u>5.7 /b</u>
B. <u>Energy Balances</u>					
	1980	1985	1990	1985	1990
Oil Balance (million tons)					
Production	106.0	100.0	95.0	100.0	95.0
Consumption	89.0	98.7	111.9	103.8	127.1
Net exports (imports)	17.0	1.3	(16.9)	(3.8)	(32.1)/b
Coal Balance (million tons)					
Production	620	727	900	730	900
Consumption	619 /d	707	884	751	1,008
Net exports (imports)	6	20 /e	16	(21)	(108)/b
Overall Energy Balance (mln tce)/c					
Production	640.9	712.6	841.0	714.8	846.1
Consumption	615.4	696.4	854.3	735.3	970.0 /b
Net exports (imports)	25.5	16.2	(13.3)	(20.5)	(123.9)/b

/a Growth rates are rounded to nearest 0.5.

/b Believed to be infeasibly high.

/c In tons of standard coal equivalent (one tce = 7,000 calories).

/d Including 5 million tons from stocks.

/e Assumed to be limited by port capacity.

Source: Mission estimates (see text).

only illustrative.^{/1} However, they do suggest what growth rates may be feasible in China in the 1980s, given the energy situation, and they indicate the importance and potential quantitative effect of energy conservation measures.

6.65 Table 6.3 shows the implications of moderate energy savings and switching for energy demand, and the resulting energy balances in the 1980s, under two different assumptions concerning the growth of the economy. Under the moderate economic growth scenario (with GDP growing at 4% p.a. in 1980-85 and 5% p.a. in 1985-90), the growth of energy demand coupled with a relatively slow growth of energy production would lead to a progressive deterioration of the balance of trade in oil, changing from net exports of about 17 million tons in 1980 to net exports of a little over a million tons in 1985 and net imports of about 17 million tons in 1990. This level of oil imports, without rapidly growing exports of manufactured goods, would mean that other types of imports could grow only very slowly (para. 6.108 below). This might in turn imply that the 5% annual growth rate assumed for the second half of the 1980s would not be feasible.

6.66 With only a moderate energy saving effort, the faster growth scenario (GDP growing at 5% p.a. in 1980-85 and 6% p.a. in 1985-90) would appear to be definitely infeasible. An oil deficit would already have emerged by 1985 and would reach 32 million tons by 1990. Furthermore, electricity supply would fall short of demand, as would coal supply and transport facilities.

6.67 Much wider options would be available to planners in the 1980s if high energy savings and switching can be achieved, as is demonstrated by the projections in Table 6.4. Moderate economic growth combined with high energy savings would require less coal and electricity output than could potentially be attained. Moreover, net oil exports of 11 million tons in 1985, and perhaps about a million tons in 1990, would be possible, giving much more room for maneuver in the management of trade and foreign exchange.

6.68 High energy savings and switching would also increase the feasible growth rate. The faster growth case, which would be impossible with only moderate savings and switching, becomes potentially feasible. Indeed, with GDP growth averaging 5.5% p.a. over the decade, overall energy (and electricity and coal) requirements are roughly the same as in the moderate savings case with GDP growth one percentage point lower. The faster overall growth of the economy would, however, reduce oil exports to 6.5 million tons in 1985 and require 14 million tons of oil imports in 1990. This seems a manageable level of imports if the country's potential for exporting manufactured goods is successfully exploited and greater use is made of foreign capital (para. 6.110 and Table 6.8 below).

^{/1} Underlying assumptions about electricity, oil and coal consumption by sector in 1980 have been constructed, where possible, on the basis of data obtained for 1979, but only rough estimates could be made to fill the gaps and assess changes from 1979 to 1980.

Table 6.4: ENERGY REQUIREMENTS OF MODERATE AND FASTER GROWTH SCENARIOS WITH HIGH ENERGY SAVINGS AND SWITCHING

A. <u>Growth Rates</u>	1980 weights --(%)--	Moderate growth scenario		Faster growth scenario	
		1980-85	1985-90	1980-85	1985-90
(% p.a.) -----					
<u>Gross Domestic Product</u>					
Heavy industry	26.5	2.5	5.0	4.0	6.5
Light industry	18.5	7.0	6.0	8.0	8.0
Agriculture	30.0	3.0	3.0	3.5	3.5
Services and other	25.0	4.5	5.5	5.0	6.5
<u>Total GDP /a</u>	<u>100.0</u>	<u>4.0</u>	<u>5.0</u>	<u>5.0</u>	<u>6.0</u>
<u>Energy Demand</u>					
Electricity	n.a.	3.3	4.7	4.2	6.0
Oil	n.a.	-0.3	1.1	1.0	3.1
Coal	n.a.	1.3	3.4	2.4	4.8
<u>Total Energy /b</u>	<u>100.0</u>	<u>1.0</u>	<u>2.9</u>	<u>2.1</u>	<u>4.5</u>
<hr/>					
B. <u>Energy Balances</u>	1980	1985	1990	1985	1990
<hr/>					
<u>Oil Balance (million tons)</u>					
Production	106.0	100.0	95.0	100.0	95.0
Consumption	89.0	88.7	93.9	93.5	108.9
Net exports (imports)	17.0	11.3	1.1	6.5	(13.9)
<u>Coal Balance (million tons)</u>					
Production	620	680	821	717	900
Consumption	619 /c	660	781	697	881
Net exports (imports)	6	20 /d	40 /d	20 /d	19
<u>Overall Energy Balance (mln tce)/b</u>					
Production	640.9	677.5	779.6	705.5	842.2
Consumption	615.4	646.7	750.3	681.7	848.8
Net exports (imports)	25.5	30.8	29.3	23.8	(6.6)

/a Growth rates are rounded to nearest 0.5.

/b In tons of standard coal equivalent (one tce = 7,000 calories).

/c Including 5 million tons from stocks.

/d Assumed to be limited by port capacity.

Source: Mission estimates (see text).

6.69 Thus high energy savings would offer the option, in the 1980s, of either maintaining a moderate economic growth rate (4.5% a year) and remaining a net exporter of oil and coal, or aiming at a higher growth rate (5.5% a year) and importing a significant amount of oil (coal exports could be continued, however). The implications of these two strategies for external sector management will be discussed further below. But it is important to stress not only the importance for China of energy saving efforts in the 1980s, but also the difficulty and complexity of the task involved. Even the achievements implied in the moderate energy saving and GDP growth scenario (Table 6.3) are not trivial. In this scenario, for each 1% increase in GDP, total energy consumption over the decade increases by only 0.75% and oil consumption by only 0.52%. Per unit of final output, total energy consumption is assumed to decline over the decade at an average rate of 1.0% a year, and oil consumption at 1.5% a year. Under the two higher energy saving scenarios, every percentage point of growth in GDP is assumed to increase energy consumption by only 0.45-0.60% and oil consumption by only 0.12-0.37%; energy consumption per unit of final output is assumed to decline at 2.2-2.3% a year, with oil consumption per unit of final output declining at 3.4-3.8% a year.

6.70 Energy conservation at such high rates is by no means out of the question in China, since ratios of energy use to output are very high by international standards, and since little was done to conserve energy before 1979 (when a 5% reduction in energy use per unit of industrial output was achieved). In 1980, total net material product grew at 6.9% while energy consumption fell by 0.93%, implying a 7.3% reduction in energy use per unit of net output. However, nearly two thirds of this gain was due to the declining share of heavy industry in industrial output. Over the next ten years, the further expansion of light relative to heavy industry will run into obvious limits,^{/1} and reducing oil consumption at the rates required will be difficult.

6.71 More generally, even if the energy savings postulated are physically attainable in China within the time frame indicated and with feasible levels of investment, serious difficulties may arise in organizing and motivating these savings. The experience of most countries shows that a considerable part of the energy saved in industry has been a result of numerous small changes initiated by the enterprises themselves to reduce costs - a motivation practically absent in China unless substantial further reforms adjust energy prices and increase direct concern about profits. However, China may be able to find alternative ways of achieving savings, for example, by closing uneconomic plants.

6.72 Although in some respects energy savings might be easier to achieve with moderate GDP growth,^{/2} on balance they would probably be facilitated by

^{/1} In the high savings scenarios, increases in the share of light industry would provide roughly one fifth of the overall energy savings, leaving 1.7-1.9% p.a. to be attained by other means.

^{/2} More import capacity could be devoted to foreign-made, energy-saving equipment; engineering skills and machine-building capacity could be concentrated more narrowly on energy saving and switching and the design of energy-efficient equipment; and existing energy-inefficient capacity could be more easily kept idle.

faster GDP growth. One reason for this is that, in some industries, faster output growth would justify the installation of new - energy-efficient - capital equipment. Another reason is the present system of administrative rationing of energy. Under this system, an enterprise or local government would be concerned that, if it did well in conserving energy while its output grew slowly, it would be required to relinquish its energy savings to other units and could not recover these savings when it wanted to expand. Enterprises, municipalities, and other organizational units have thus been planning, and would much prefer, to pursue energy conservation as part of modernization and expansion programs that allow them to make use of their own energy savings. (Typically, the local plan is based on making better use of the exact mix of energy now available, since switching from one fuel to another is administratively difficult.)

6.73 The detailed oil, electricity, and coal demand projections in the three feasible scenarios already discussed are shown in Table 6.5. Energy demand in the two moderate growth scenarios can be compared to see the effects of the postulated differences in energy savings and switching; a comparison between the two high energy savings scenarios shows the effects of different economic growth rates. These comparisons help to illustrate that the largest potential for energy conservation exists in heavy industry. However, large savings could potentially be achieved in the household and commercial use of coal, through the use, for instance, of more fuel-efficient stoves and of briquettes or other forms of processed coal (which would also help to reduce urban air pollution); through centralized provision of heating, using fuel-efficient systems; and through price changes to encourage user economy. Potential energy savings are also large in petroleum refining; this is an area where other countries have been attaining high returns from modest investments. In such sectors as transportation and agriculture, however, only modest progress appears feasible in the next decade since energy savings will principally occur through adding more energy-efficient equipment without replacing much of the equipment already in use.

6.74 In all projections, the largest increase in the demand for oil takes place in transportation. Thus, for example, in the high savings and faster growth scenario, demand for oil in the transport sector grows by 19 million tons in ten years and accounts for practically all of the net increase in the total demand for oil. Such an increase is likely to be unavoidable; already in 1979, motor trucks consumed over 70% of the oil used in the sector, and in recent years this type of transportation has been expanding at rates reportedly as high as 14% p.a. Continued emphasis on expansion of consumer goods rather than heavy industrial output will further increase the need for road transport. This suggests that establishing a more fuel-efficient motor truck fleet - with associated changes in petroleum refining, bridges, road pavements and support facilities - deserves rather high priority, but that even major advances on this front will not prevent fuel demand in this sector from continuing to grow rapidly.

6.75 This and other fast-growing demands for oil are offset in part, in all scenarios, by switching away from the use of oil as a fuel. Even the moderate savings case assumes that the amount of oil burned as fuel is reduced by 4 million tons in 1985 and by 12 million tons in 1990, based on switches from oil to coal; in the high savings case, these amounts are 6 million tons in 1985 and 18 million tons in 1990.^{/1} Without this conversion from oil to

^{/1} For details, see Annex E, paras. 1.32-1.45 and Table 1.9.

coal, China's capacity to export (or need to import) oil would, at any given GDP growth rate, correspondingly deteriorate. Difficult and expensive as it is, the conversion from oil to coal clearly deserves high, immediate priority.

Table 6.5: SECTORAL DEMAND FOR ENERGY IN ALTERNATIVE SCENARIOS

	Base year 1980	1985			1990		
		Moderate growth, moderate savings	Moderate growth, high savings	Faster growth, high savings	Moderate growth, moderate savings	Moderate growth, high savings	Faster growth, high savings
<u>Oil Consumption (mln tons)</u>							
Power generation	16.5	12.5	10.5	10.5	8.5	4.5	4.5
Other heavy industry	27.5	27.7	24.5	26.2	32.3	26.9	30.9
Light industry	8.0	10.7	10.1	10.6	14.3	12.7	14.7
Transportation	14.0	19.5	19.2	20.8	28.0	26.8	33.1
Agriculture and construction	15.0	18.5	18.3	18.9	22.6	22.0	23.6
Interfuel substitution outside power	0.0	0.0	-2.0	-2.0	-4.0	-6.0	-6.0
Refining losses	8.0	9.8	8.1	8.5	10.2	7.0	8.1
<u>Total</u>	<u>89.0</u>	<u>98.7</u>	<u>88.7</u>	<u>93.5</u>	<u>111.9</u>	<u>93.9</u>	<u>108.9</u>
<u>Electricity Consumption</u> (bln kWh)							
Electric power system	45.0	53.4	50.0	51.6	67.1	59.3	64.4
Other heavy industry	160.0	181.0	174.7	184.3	231.0	213.3	238.9
Light industry	48.0	73.1	69.3	72.8	105.2	95.1	110.4
Agriculture	27.0	34.7	33.9	35.1	45.8	43.6	47.0
Services & households	20.6	26.2	25.2	25.7	34.2	31.5	34.3
<u>Total</u>	<u>300.6</u>	<u>368.4</u>	<u>353.1</u>	<u>369.5</u>	<u>483.3</u>	<u>442.8</u>	<u>495.0</u>
of which hydroelectric:	58.2	75.0	71.3	75.0	104.0	93.9	106.4
<u>Coal Consumption (mln tons)</u>							
Power generation	117	157	154	162	219	209	233
Other heavy industry	305	307	272	290	358	299	342
Light industry	65	87	82	86	116	104	119
Transportation	25	29	28	29	33	32	35
Household & commercial	107	124	117	123	146	122	137
Interfuel substitution outside power	0	3 /a	7 /a	7 /a	11 /a	15 /a	15 /a
<u>Total</u>	<u>619 /b</u>	<u>707</u>	<u>660</u>	<u>697</u>	<u>884</u>	<u>781</u>	<u>881</u>

/a Includes 3 million tons as replacement for natural gas.

/b Assumed to include 5 million tons taken from stocks.

Note: For derivation see Annex E, paras. 1.30-1.45 and accompanying tables.

E. Industrial Issues and Challenges

6.76 In terms of output growth, industry has been, and will continue to be, the leading sector in China. The industrial sector is also at the center of discussions and actions on both adjustment and reform. The Government now acknowledges that the swift expansion of industry in the past was at the expense not only of diverting resources from other potential uses, but also of creating deficiencies within industry itself. Industries making producer goods (especially machinery) were overexpanded, those making consumer goods were neglected, bottlenecks were not anticipated, and capacity was not well matched to demand. Opportunities for an efficient division of labor were sacrificed to other objectives. Many industrial enterprises, especially very small plants, are now considered highly inefficient in their use of capital, energy and raw materials.

6.77 But, despite a promising start in both adjustment and reform, the task of China's industrial planners will be extraordinarily difficult. There are many actual or potential constraints or imbalances, and although early action is clearly needed, inadequate information exists to guide decisions on the direction and sequence of measures.

6.78 The inherent difficulty of the challenge, and the need for simultaneous action on many fronts, is apparent from the constraints on China's ability to raise aggregate output of useful industrial products within the next few years: (a) energy in all forms, especially oil and electricity; (b) raw materials for light industry; (c) exports and foreign exchange; and (d) system performance, i.e. matching output to demand, managing the financial aspects of readjustment and restructuring, coordinating different units, stimulating production in appropriate directions, and improving the quality of investment programs and project designs. Over a longer period, additional constraints will become increasingly important: above all, shortages of skilled people, especially managers with technical or economic training, designers, engineers, and scientists; and technical know-how, particularly in design technology and in moving from designs to assembly line production, and in fast-changing areas such as electronics, computers, and precision instrumentation and control systems.

6.79 The above-mentioned constraints will depress industrial output growth in the next few years. However, in a somewhat longer time frame, the performance of the industrial sector itself will determine whether or not bottlenecks in energy, raw materials, foreign exchange and domestic savings can be successfully eased. Manufactured exports will be crucial to raising foreign exchange earnings. Improving the efficiency of industrial enterprises in the use of materials and investment funds as well as energy will also be vital. And of course developments in heavy industry will affect the rest of the economy also because of the very substantial linkages that exist, for instance, through the supply of chemical fertilizers, petrochemicals, and building materials, as well as machinery and equipment.

Industrial Energy Conservation /1

6.80 Because industry accounts for the great bulk of all commercial energy use, industrial energy conservation will be of critical importance. Further gains are attainable through continuing the shift in the composition of output toward light industry and away from all but the most essential energy-intensive products. At the same time, energy saving can usefully be combined with restructuring and modernization of existing industries, especially those that use large amounts of energy, such as iron and steel, fertilizers, other chemicals, petroleum refining, nonferrous metals, pulp and paper, and building materials. The potential for energy savings is vast, since most of these industries now make very inefficient use of energy. Indeed, China has many plants (notably small ones) that consume inordinate amounts of energy relative to output. Thus large savings could be accomplished by closing these plants or reducing their output, though this would require careful planning and expansion of transportation to serve the same markets from energy-efficient plants.

6.81 As in other countries, there is much scope for energy savings throughout industry at low cost by such simple means as waste heat recovery, better insulation, and improved operating procedures (for example, better preparation of raw materials, better furnace maintenance, procedural or valve system readjustments to avoid heat losses, and reduced wastage of metals and other materials in manufacturing). In addition, with somewhat larger investments, substantial energy savings could be obtained by modifying existing plants. Examples of this include: replacing the least efficient of China's 180,000 industrial boilers; using heat and steam along with other by-products that are now wasted, for instance through cogeneration of steam in power plants or generation of power from blast furnace gas; and converting to processes that are more energy-efficient, such as, in cement making, from wet to dry process with cold firing and preheaters, or, in steel making, coke dry-quenching, use of oxygen converters in place of open-hearth furnaces, and continuous casting. Energy can also be conserved by switching to product designs that require less or different materials and thus, indirectly, less energy. Improved standard designs of equipment such as boilers and stoves are much needed.

6.82 Energy plans are needed in each of the larger energy-using industries, analyzing energy consumption, identifying major potential sources of energy savings and switching, and instituting improved monitoring systems and exchange of information on conservation and switching programs. Such plans could also assess costs and benefits at alternative prices, determine the most economical way of modernizing and restructuring the industry with energy conservation as the focal point, and identify a plan of action for each plant, as well as providing for the needed equipment supply, instrumentation, transportation, coordination among ministries, and implementation. In each industry the plan should cover financial arrangements, including long-term loans for the required investments, and appropriate incentives for enterprises, such as higher profit retention rates and accelerated depreciation schemes. At the same time, measures are also needed in other industries to encourage, evaluate, facilitate and finance many small, decentralized investments to save and switch energy.

/1 A fuller discussion of this subject is contained in Annex D.

Raw Materials

6.83 Raw materials are likely to limit growth of light industry, thus restricting not only growth in consumption, but also China's ability to switch the composition of output in order to counter energy shortages. Natural materials already in short supply include cotton, wool, silk, leather, timber, alternative sources of cellulose (such as reeds and crop residues), and various foodstuffs. The production of most of these materials (especially timber) cannot be increased quickly. Imports are limited by the projected scarcity of foreign exchange, and in some instances also by a narrow world market (in cotton, where China recently bought about one fourth of the amount sold internationally, its purchases have significantly raised the price).

6.84 There is potentially more flexibility in the supply of industrially based inputs, but in many key subsectors output growth is held back by capacity limitations (for example, cold reduction mills to produce sheet steel and tinsplate, and polyester yarn mills). Moreover, there has been a reluctance to continue expanding capacity in the petrochemical, synthetic fiber, plastics, and other synthetic materials industries, because declining oil output is making feedstocks scarce. But these petrochemical-based materials are usually more energy-efficient than their closest substitutes, and they often have other advantages, so that capacity expansion will be generally desirable over the next decade. Because of current imbalances, investment appears needed first in "downstream" capacity - for example, plastics and their products. Materials shortages can also be counteracted by rapidly expanding the output of consumer goods that have a high input of human capital (skills and technical know-how), such as consumer electronics products, and by improving the quality (and value) of finished products.

Manufactured Exports

6.85 Another immediate challenge is to expand manufactured exports. In this regard, China's potential appears excellent, given its abundance of low-wage workers, its shop-floor skills and craftsmanship, its large underutilized capacity, and its enormous potential for economies of scale. Prospects for expansion appear promising in labor-intensive light industries and, in the long run, in the production of machinery, equipment, and components.

6.86 In 1978 China's share of total developing country exports of manufactures to all markets was only about 5%, and even in 1980 it was probably less than 6%. Moreover, roughly three fifths of China's present manufactured exports consist of products other than machinery or equipment, sold to oil-importing developing countries or to European socialist countries. Thus, China must increase its exports faster in the richer markets: in 1978, China supplied only 3.1% of OECD manufactured goods imports from non-OECD countries outside Europe; OECD countries' imports from China were less than a fifth of their imports from either Hong Kong or the Republic of Korea.^{/1} The most

^{/1} OECD manufactured imports (SITC 5-8 less 68) from China totaled \$1,605 million in 1978, compared, for example, to \$8,921 million from Hong Kong, \$8,105 million from the Republic of Korea, \$3,007 million from Mexico, \$2,653 million from India, \$1,925 million from Singapore, and \$1,922 million from Brazil.

successful of China's exports to these markets - textile yarn and fabrics - and its increasingly important exports of clothing are already limited in many places by quota agreements.^{/1} If protectionist barriers do not increase significantly, however, total manufactured exports of developing countries as a group are expected to rise in the 1980s by at least 10% p.a. in real terms. Moreover, export successes have been pushing up wage levels in such economies as Hong Kong and the Republic of Korea to the point where they are beginning to shift out of the simplest labor-intensive products, leaving more room for export expansion by poorer countries. Thus, China's manufactured exports could grow at 10-15% p.a. in the 1980s if suitable policies are followed and if new markets can be aggressively penetrated. However, as a latecomer in the scramble for shares in the biggest markets, China is quite vulnerable to increasing protectionist measures. Along with favorable import policies in major markets, manufactured export success will also depend on improvements in China's export procedures and organization (para. 5.66).

6.87 A serious impediment at present is that the design of China's finished manufactured goods (both consumer goods and capital equipment) tends to be deficient or unsatisfactory by international standards, if not in performance characteristics, then in styling. Though they may be well suited to Chinese tastes and conditions, these goods usually appeal only to overseas Chinese or people in the poorest developing countries. To expand exports swiftly, Chinese industries must produce goods styled and designed for the world's bigger and more open markets. To do this, Chinese manufacturers and designers need to be exposed to foreign manufacturing methods, product designs, tastes, styles and practical requirements; and direct measures are also needed to strengthen Chinese design capabilities. Organizational improvements to increase direct contacts between Chinese manufacturers and foreign buyers could potentially play a large role in this area. These measures are also important because of the need to update Chinese product designs, which can help to modernize the economy directly.

6.88 Manufacturers also need to be allowed to use imported components and materials to produce exports, if Chinese alternatives are inferior or poorly suited to customer requirements. (This is allowed in almost all countries that export manufactured goods successfully.) The possibility of supplying the same inputs in China, in competition with imported inputs, could then be promoted, for example, by cancelling indirect taxes and reducing profit markups on inputs used in making exports. As it is, Chinese exports are often eliminated from the market or their value is greatly reduced because of deficiencies in small components or raw materials, or the lack of some feature (such as numerical controls on machine tools) that could be supplied by using imported accessories.

^{/1} Japan has no quotas and those against China in the United States allow considerable room for growth, but those in Western Europe are fairly restrictive. China's share of OECD imports from non-OECD countries outside Europe in 1978 was 11.7% in textile yarn and fabrics, where China ranked as the third supplier after Korea and India, but only 2.8% in clothing.

Modernization and Restructuring

6.89 Chinese manufacturing methods and product designs are far from stagnant. Technology acquisition is being actively pursued in most industries, even in those where there have not been major purchases of foreign technology and equipment. But the process should be made more cost effective and quicker, so as not to hold back progress in linked industries. This depends on measures to increase incentives and reduce practical obstacles in introducing and spreading innovations, along with increased direct contact with foreign methods and ideas; it calls for revised rules for the small amounts of investment needed in many cases to implement improvements; and finally, it requires improving the quality of decisions on whether, when and how to purchase technology from abroad - decisions that are inherently complex because of the many economic, practical, and technological considerations involved.

6.90 In this regard, China could sometimes benefit from expert foreign consultant advice. In some cases, for example, it may be cheaper to bring in people familiar with needed technology, or to build up Chinese exports as part of an exchange - for instance, by exporting "software" in exchange for technology in the electronics or computer industries. It is also important to anticipate problems of assimilation and repercussions on surrounding processes, and to judge whether or not particular foreign technologies are appropriate in Chinese circumstances, or can serve as a springboard for further advances. Some Chinese enterprises are struggling with advanced borrowed technology, largely because essential complementary inputs are difficult to get.

6.91 Newly emerging and rapidly changing fields of technology are likewise encountering difficulty in China if they cut across existing organizational lines. Thus, in the semiconductor industry, there is a need to improve the quality of silicon crystals (now made by the Ministry of Metallurgical Industry) and pure chemicals (now supplied by the Ministry of Chemical Industry), and to acquire technology and construct super-clean and vibration-free buildings for manufacturing (by the Fourth Ministry of Machine Building, except where other users are trying to acquire their own capabilities). It is necessary simultaneously to build forward links to potential users in several separate industries, each struggling with its own technological problems - such as the computer and associated software industries, and those making precision instruments and control systems. Compared to a market system, reassignment and coordination of responsibility, and creation of new organizations, are difficult in China, while the forces working to create geographical agglomerations of specialized but complementary enterprises, which could advance their related technologies together, are practically absent. Thus technological advance can easily be held back by fragmentation and bureaucratism, especially in areas where existing organizations are weak or poorly coordinated.

6.92 A related difficult task is the physical restructuring of China's industries, as well as the reassignment of labor that becomes redundant or unproductive. Some restructuring is already taking place, through efforts to create a greater division of labor (including networks of parts suppliers); through creation of new corporations that can potentially shift resources among their component enterprises; through "socialist competition" for markets; through closure of some inefficient enterprises, and giving reduced or different

tasks to others; through efforts to prevent the proliferation of small plants where they are redundant, but to create more of them where they complement large plants; and through further construction of modern, large plants. This process could be made more cost effective by the development of appropriate rules for scrapping and replacing old capacity.

6.93 A more difficult challenge, however, is the reassignment of workers in redundant or unproductive jobs, including those at plants that are closed down. Throughout China, there are already many underemployed workers - including skilled technical people - using scarce housing, food, services and public facilities. More generally, the existing system of labor assignment appears too rigid for the needs of an advancing industrial sector. New arrangements, under which people - especially those with scarce skills - are transferred more often, may be needed to help spread technical know-how and high standards from one enterprise to another, and to allow scarce manpower to be redeployed as needs shift.

F. Foreign Borrowing Options

6.94 Foreign trade and capital can play an important part in the difficult period of reform and structural adjustment that lies ahead. Imports can be used to overcome many of the supply bottlenecks in the economy while domestic productive capacity is being restructured. Foreign technology, either in the form of imported equipment or licensing arrangements involving technical assistance, can help ease many of the technological constraints and allow scarce domestic technical manpower to concentrate on solving selected problems. More generally, a rapidly expanding supply of goods and services, made possible partly through sharply rising imports, can facilitate the difficult tasks of demand management and price reform. Efforts to increase the efficiency of domestic industries can be assisted by allowing some competitive pressure from foreign firms in domestic markets, and permitting domestic firms to compete in the world market. These potential benefits have been increasingly recognized by the Chinese planners, as is evident from: real growth of merchandise trade over the 1970s at twice the rate of GNP and, in the last few years, a modest start in foreign borrowing; the incipient program to promote exports of manufactured goods from the more advanced industrial areas such as Shanghai and the northeast; and the institutional reforms to facilitate foreign trade.

Foreign Exchange Earnings

6.95 In the 1980s, however, especially the first half, foreign exchange is likely to be a much tighter constraint on development than it was in the 1970s. A major reason for this is the energy situation discussed earlier. Aided by sharp price rises over the past few years, energy-related exports (crude oil, oil products, coal) amounted to nearly \$5 billion in 1980, a quarter of total foreign exchange earnings. Energy-related exports will almost certainly decline substantially in the 1980s. The analysis of energy supply and demand prospects presented earlier indicates that continued oil exports in the decade would be possible only with a combination of moderate GDP growth and highly successful efforts in energy saving and in switching from oil to

coal (para. 6.67 and Table 6.4). Even in this scenario, the volume of oil exports would decline from the 17 million tons of 1980 to 11 million tons in 1985 (\$3.2 billion)/1 and to slightly over 1 million tons in 1990 (\$0.4 billion). Coal exports, on the other hand, could grow rapidly, from the 6 million tons in 1980 to 20 million tons in 1985 (\$0.8 billion)/2 and 40 million tons in 1990 (\$1.9 billion). Thus energy-related exports could total \$4.0 billion in 1985 and \$2.3 billion in 1990 (Table 6.6, high oil and coal projection).

6.96 If the Chinese authorities decided to pursue a faster growth strategy, however, even with highly successful energy savings, oil exports would decline to 6.5 million tons in 1985 (\$1.8 billion) and by 1990, oil imports of nearly 14 million tons (\$4.6 billion) would be required, while coal exports would remain at about 20 million tons between 1985 and 1990 (para. 6.68 and Table 6.4). Thus total energy exports would be less than under the slower growth scenario, amounting to \$2.6 billion in 1985 and \$0.9 billion in 1990 (Table 6.6), while GDP per capita in the latter year would be about 10% higher than in the slower growth scenario. If energy conservation efforts were only moderately successful, the trade prospects in energy would be much worse, with substantial imports of oil necessary by the mid-1980s (paras. 6.65-6.66, Table 6.3). Although these moderate energy saving scenarios are not considered in the following projections of trade prospects, they do underline the fragility of China's foreign exchange situation in the 1980s and the crucial role of energy conservation.

6.97 The situation is better as regards nonenergy exports. About one third of current exports are primary products, mostly less land-intensive agricultural products (hogs and their by-products, tea, fruits, etc.) and rice, exported in exchange for cheaper cereals, and some minerals. The volume of these exports is unlikely to expand by more than 4-5% a year, mainly because of supply constraints and competing domestic demands.

6.98 Export prospects for manufactured products are more favorable (see also paras. 6.85-6.88). Growth of many textile product exports is potentially subject to quotas in importing countries (in value terms, perhaps \$2.4 billion in 1980), though at present Japan imposes no quotas and the USA's quotas allow considerable opportunity for further expansion. These textile exports might therefore grow at about 9% per year up to 1985 and at about 7% subsequently.

/1 Crude oil prices are projected to be \$280 per ton in 1985 and \$328 per ton in 1990. International inflation has not been taken into account in these projections.

/2 Coal prices are projected to be \$40 per ton in 1985 and \$47 per ton in 1990, again excluding international inflation.

6.99 The best prospects are for other manufactured exports, which totalled an estimated \$5 billion in 1980. As discussed earlier, future growth of this large and expanding source of export earnings depends on changes in policy and pricing, as well as on reform of the foreign trade system. A 10% annual growth rate over the 1980s seems likely, but an aggressive policy and major improvement of the system could boost this to 15% in 1980-85 and perhaps to 20% thereafter. With rapid growth, manufactured exports could amount to about \$14 billion (in 1980 prices) by 1985 and \$31 billion by 1990 (Table 6.6). If this happened, China's manufactured exports would increase from roughly 3% of its gross output of manufactures in 1980 to only about 7% in 1990, while China's share of OECD imports from non-European developing countries would probably have to rise to around 12% (from 3% in 1978). These amounts would be feasible only if market prospects in the industrialized and other countries remain favorable.

6.100 China also enjoys a substantial surplus in the service and private transfer account (\$1.9 billion in 1980). Reflecting in part the very large investment in the ocean shipping fleet in recent years (para. 4.89), net earnings from transport and insurance (about \$780 million in 1980) should continue to grow rapidly, as should tourist earnings (\$460 million in 1980) once some of the capacity constraints are overcome. Net transfers, mostly remittances from overseas Chinese, are also very large (about \$700 million) but appear to have reached their limit. Other sources of expanding service earnings are returns on investments in Hong Kong and from construction and engineering contracts in other developing countries. In total, net earnings from services and private transfers could grow by 6-8% in the 1980s, with faster growth from the smaller base in the first half.

6.101 In the aggregate it thus seems certain that foreign exchange earnings will grow only moderately, at least in the first half of the 1980s. Possible trends in foreign exchange earnings during the 1980s are presented in Table 6.6. Under an optimistic assumption about manufactured exports (which, however, implies reduced energy exports because of greater domestic demand to maintain faster growth of the economy), the growth of earnings, in constant prices, is unlikely to be much above 6% a year in the first half of the decade, though it could accelerate to 11% in the second half. A more conservative assumption would be a growth rate of about 5% p.a. over the 1980s.

Table 6.6: PROJECTED FOREIGN EXCHANGE EARNINGS

	<u>1979</u> Actual	<u>1980</u> Estimate	<u>Projected</u>		<u>Annual growth rate</u>		
			<u>1985</u>	<u>1990</u>	<u>1980-85</u>	<u>1985-90</u>	<u>1980-90</u>
	(\$ billion)				(% a year)		
Primary products	5.1	5.6	6.8	8.7	4	5	5
Services and transfers (net)	1.8	1.9	2.8	3.7	8	6	7
Manufactures							
Textile products							
subject to quotas	2.0	2.4	3.7	5.2	9	7	8
Other manufactures							
High projection	4.2	5.2	10.5	26.1	15	20	18
Moderate projection	4.2	5.2	8.4	13.5	10	10	10
Oil and coal							
High projection /a	2.7	4.7	4.0	2.3	-3	-12	-7
Moderate projection /b	2.7	4.7	2.6	0.9	-13	-24	-18
<u>Total Earnings</u> -High /c	15.8	19.8	26.4	44.6	6	11	8
-Moderate /d	15.8	19.8	25.7	33.4	5	5	5

/a High energy savings combined with moderate growth of GDP, which would result in maximum exports of oil and coal.

/b High energy savings combined with high GDP growth.

/c High manufactured exports combined with moderate energy exports, i.e. high growth of GDP and manufactured exports and high energy savings. High growth of manufactured exports is considered to be possible only with high growth of GDP.

/d Moderate growth of manufactured exports combined with high energy exports, i.e. moderate growth of GDP (which permits higher energy exports) and manufactured exports, but high energy savings.

Source: See text.

Foreign Capital Inflows

6.102 Prospects for continued rapid expansion of imports to support the country's modernization and structural adjustment effort will also depend in part on the possibilities for accelerating foreign capital inflows. One potentially valuable source of foreign capital is direct investment and other trading arrangements, a number of which have been negotiated in recent years. But because the volume of direct investment can inevitably expand only slowly, the most important prospective source of external capital in the medium term is borrowing. For ease of presentation, the rest of this section assumes that all foreign capital inflows are in the form of borrowing, although a significant proportion may, in fact, be direct investment through joint ventures and other arrangements.

6.103 China's external debt is at present very small: total external debt outstanding at the end of 1980 was officially estimated at only \$3.4 billion (less than one fifth of foreign exchange earnings), with perhaps \$200-300 million as official loans and the rest as export and supplier credits, deferred import payments and commercial bank loans. This low debt position, together with a potentially huge market, has in recent years attracted about \$12 billion in officially guaranteed export credits (Annex G, Table 5.3) and even more in short- and medium-term commercial bank credits. The authorities have been reluctant, however, to draw on these credits because of concern about the country's debt servicing capability. On the other hand, China's access to concessionary official capital is limited relative to that of other countries at a comparable level of development. The cumulative total of commitments as of the end of 1980 was only \$0.6 billion, with the largest amounts coming from the Japanese Overseas Economic Cooperation Fund, and much smaller amounts from Belgium and Australia. In the 1980s, the general international environment of possibly contracting real aid flows will make it difficult for China to obtain the amount of concessionary capital it might deserve solely on the basis of the country's needs and low level of income.

6.104 Thus Chinese planners in the coming years will have to strike a difficult balance between the undesirable consequences of foreign borrowing at terms less favorable than they might hope for, and the possible setbacks to the country's development and modernization effort that could be caused by a slow growth of imports. These choices will be especially difficult to make until medium- and long-term plans are better developed.

6.105 In the rest of this section, the implications of alternative foreign borrowing strategies for imports and debt service requirements are examined, essentially to illustrate some of the trade-offs the planners will need to consider. In the first set of projections (Table 6.7), gross foreign capital inflows are assumed to rise only moderately, reaching \$2.7 billion (in 1980 prices) in 1985 and \$4.6 billion in 1990.

6.106 With this level of capital inflows and moderate growth of export earnings (from Table 6.6), the projections show the country's capacity to import expanding by nearly 6% a year over the 1980s. There are few opportunities for reducing consumer goods imports - mostly cereals, vegetable oils and a small amount of industrial consumer goods - which probably need to grow by 5% a year to meet domestic requirements. Thus imports of raw materials, machinery and equipment will have to be moderate at a time when they need to rise if the country is to meet its objectives of increasing consumption (which requires imports of cotton, synthetic fibers, etc.) and of technological modernization. As shown in Table 6.7, imports of intermediate and capital goods could expand by about 6% over the decade.

6.107 Table 6.7 also shows the implications of faster GDP growth as well as of a more optimistic assumption about the growth of manufactured exports. Largely because of the latter assumption, the country's capacity to import under this scenario would grow considerably faster, at 6% a year during the first half of the 1980s and 11% a year during the second half. Producer goods imports could also expand at 6% and 9%, respectively, despite the need

Table 6.7: IMPORT CAPACITY WITH MODERATE CAPITAL INFLOWS
AND HIGH ENERGY SAVINGS

	<u>1979</u> Actual	<u>1980</u> Estimate (\$ billion)	<u>Projected</u>		<u>Annual growth rate</u>	
			<u>1985</u> (At 1980 prices)	<u>1990</u>	<u>1980-85</u>	<u>1985-90</u>
	----- (\$ billion) -----				---- (% a year) ----	
<u>Moderate GDP and Manufactured Exports Growth Scenario</u>						
Foreign exchange earnings /a	15.8	19.8	25.7	33.4	5	5
Plus: Gross borrowing	1.5 /b	1.2 /b	2.7	4.6		
Less: Debt service payments /c			0.8	1.9		
<u>Capacity to Import</u>	<u>17.3</u>	<u>21.0</u>	<u>27.6</u>	<u>36.1</u>	<u>6</u>	<u>6</u>
Food and consumer goods imports	3.2	3.9	5.0	6.4	5	5
Producer goods imports	14.1	17.1	22.6	29.7	6	6
<u>Faster GDP and Manufactured Exports Growth Scenario</u>						
Foreign exchange earnings /d	15.8	19.8	26.4	44.6	6	11
Plus: Gross borrowing	1.5 /b	1.2 /b	2.7	4.6		
Less: Debt service payments /c			0.8	1.9		
<u>Capacity to Import</u>	<u>17.3</u>	<u>21.0</u>	<u>28.3</u>	<u>47.3</u>	<u>6</u>	<u>11</u>
Food and consumer goods imports	3.2	3.9	5.0	6.4	5	5
Oil imports	-	-	-	4.6		
Other producer goods imports	14.1	17.1	23.3	36.3	6	9

/a Moderate export projections from Table 6.6.

/b Includes short-term capital movements and changes in reserves, which are not included in the projection. Gross long-term capital inflows amounted to an estimated \$800 million in 1980, excluding \$1.3 billion of credit under compensation trade arrangements.

/c Terms of borrowing are assumed to be moderately concessionary (see para. 6.112). Harder terms would require larger debt service payments in 1985 and 1990, and would result in a smaller capacity to import with the same amount of gross borrowing.

/d High export projections from Table 6.6.

to import significant amounts of oil by 1990 (a projected 14 million tons, or \$4.6 billion, see para. 6.68 and Table 6.4) to support the more rapid growth of the economy.

6.108 Both sets of projections in Table 6.7 assume high rates of energy savings, however. As shown in Table 6.3, with only moderate energy savings, oil exports would decline sharply in the early 1980s and nearly 17 million tons of oil imports would be necessary by 1990, while coal exports would remain at around 20 million tons, even if GDP growth were kept at a moderate rate. Exports of manufactured goods would also be unlikely to grow rapidly in view of the slow growth of the economy. In this scenario, foreign exchange available for non-oil producer goods imports would be less than \$20 billion in 1985 and about \$23 billion in 1990, implying a growth rate of somewhat less than 3% p.a. through the 1980s. The impact of such a slow expansion of producer goods imports would be quite serious for the country's modernization efforts.

6.109 The implications of a larger borrowing program are analyzed in Table 6.8. Gross capital inflows are assumed to rise to \$4 billion in 1985 and to \$10 billion in 1990 (both in 1980 prices). This level of foreign borrowing would probably be viable only with a high overall growth rate and high energy savings, so these are taken as given in this set of projections. The growth of manufactured exports, on the other hand, depends not only on policy in China but also in the major markets, so that alternative projections, based on both moderate and high growth of manufactured exports, are examined.

6.110 As shown in Table 6.8, higher capital inflows would make possible not only the imports of oil that may be necessary to support a GDP growth rate of about 5.5% over the 1980s, but also substantial growth of other producer goods imports. With moderate growth of manufactured exports, foreign exchange available for imports of producer goods other than oil would grow by an average of 5% over the decade, only slightly lower than under the scenario of moderate GDP growth and moderate capital inflows. (However, unless borrowing can be obtained at concessionary terms, high external borrowing with only moderate growth of manufacturing exports may lead to debt management problems. See paras. 6.114 and 6.116.) With fast growth of manufactured exports, these imports could grow by 8% p.a. in 1980-85 and over 10% p.a. in 1985-90. Looked at another way, the combination of rapid growth of manufactured exports and higher foreign borrowing would allow China's total imports in 1990 to rise to 12% of a much higher level of GNP (about \$430 billion in 1980 prices). This seems a desirable target, especially during a period when foreign technology needs to be rapidly absorbed, partly to compensate for low absorption in the past.

Debt Management Issues

6.111 Although a high foreign borrowing program can clearly ease some of the constraints on rapid growth and modernization in the 1980s, there are costs involved: to China, in the debts it will have to repay and in the constraints these debts may impose on future development options; to the international community, in the amount of official development capital it will need to make available for China to achieve this level of borrowing.

Table 6.8: IMPORT CAPACITY WITH HIGH CAPITAL INFLOWS
(High energy savings, high GDP growth scenario)

	<u>1979</u> Actual	<u>1980</u> Estimate (\$ billion)	<u>Projected</u>		<u>Annual growth rate</u>	
			<u>1985</u> (At 1980 prices)	<u>1990</u>	<u>1980-85</u>	<u>1985-90</u>
	----- (\$ billion) -----				--- (% a year) ---	
<u>Moderate Growth of Manufactured Exports</u>						
Foreign exchange earnings /a	15.8	19.8	24.3	32.0	4	6
Plus: Gross borrowing	} 1.5	1.2	4.1	10.2	-	20
Less: Debt service payments /b			0.9	3.4	-	30
<u>Capacity to Import</u>	<u>17.3</u>	<u>21.0</u>	<u>27.5</u>	<u>38.8</u>	<u>6</u>	<u>7</u>
Food and consumer goods imports	3.2	3.9	5.0	6.4	5	5
Oil imports	-	-	-	4.6 /c		
Producer goods imports	14.1	17.1	22.5	27.8	6	4
<u>High Growth of Manufactured Exports</u>						
Foreign exchange earnings /d	15.8	19.8	26.4	44.6	6	11
Plus: Gross borrowing	} 1.5	1.2	4.1	10.2	-	20
Less: Debt service payments /b			0.9	3.4	-	30
<u>Capacity to Import</u>	<u>17.3</u>	<u>21.0</u>	<u>29.6</u>	<u>51.4</u>	<u>7</u>	<u>12</u>
Food and consumer goods imports	3.2	3.9	5.0	6.4	5	5
Oil imports	-	-	-	4.6 /c		
Producer goods imports	14.1	17.1	24.6	40.4	8	10

/a Derived from Table 6.6 by combining moderate growth of manufactured exports with moderate energy export projections (i.e. high energy savings plus a high GDP growth rate).

/b Terms of borrowing assumed as in Table 6.7.

/c See Table 6.4 and para. 6.107.

/d High projections of Table 6.6, i.e. rapid growth of manufactured exports combined with moderate energy exports.

6.112 Some of these costs and trade-offs are analyzed in Table 6.9. In this table, projections from Tables 6.7 and 6.8, which are in 1980 prices, have been converted to future prices by applying the World Bank's projection of international inflation between 1980 and 1990.^{/1} Debt service requirements are projected under two alternate assumptions. In the first scenario (moderately concessionary terms), the average terms for external borrowing are assumed to be 6.5 years' grace, 16.5 years maturity and a 5.7% interest rate.^{/2} The second scenario (with harder terms) assumes an average of 5 years' grace, 12 years' maturity and a 7.4% interest rate.^{/3} A World Bank computerized debt model has been used to calculate the implied debt service requirements, debt outstanding, and the debt service ratio (defined as interest and amortization payments on all debt, divided by exports of goods and net services).^{/4} Because differences in debt servicing requirements only show up some years after debts are incurred (because of the assumed grace period), these projections are extended to 1995.^{/5}

6.113 A country's demand for foreign capital should in principle be limited by one of two, quite different, considerations. The first is the need to maintain sufficient liquidity (i.e. a low enough debt service ratio) to secure the confidence of lenders and thus avoid foreign exchange and refinancing crises. The second is the need to ensure that the value of resources obtained by borrowing (and other forms of capital inflow) exceeds their real cost.

6.114 In many developing countries, the first consideration is dominant. But in China, the projections in Table 6.9 show that the country's debt servicing capability will be of little concern if moderate borrowing continues. With higher borrowing but moderate export growth, however, debt servicing becomes a major issue. Debt service requirements would exceed 15% of export earnings by the 1990s even if the average terms of borrowing were moderately concessionary; with harder terms, the debt service ratio would exceed 20% in the 1990s. On the other hand, if the growth of manufactured exports could be accelerated, the debt service ratio would be about 10% with moderately concessionary terms, though it would be close to 14% with harder terms. Again, all these projections assume highly successful energy conservation efforts. If

^{/1} Eight percent a year between 1980 and 1985 and 6% thereafter.

^{/2} This is equivalent to assuming that half of the country's external borrowing will be in the form of official development credits, with terms of 10 years' grace, 25 years' maturity and a 2.5% annual interest rate, and the other half in export credits and commercial borrowing (3 years' grace, 8 years' maturity, and a 9% annual interest rate).

^{/3} This is equivalent to assuming a mix of 25% official development credit and 75% export and commercial credit.

^{/4} Including remittances, though the amount should be relatively insignificant by 1990.

^{/5} By assuming the same trends in 1980-95 as in 1985-90; debt service requirements in 1995 are determined almost entirely by debt incurred before 1990.

energy saving efforts were less successful, the country's ability to service external debt would be substantially reduced, not only because of lower foreign exchange earnings, but also because a larger proportion of earnings would be needed for imports of oil.

Table 6.9: ILLUSTRATIVE DEBT PROJECTIONS
(\$ billion, at projected prices of years concerned)

	<u>Moderately Concessionary Terms</u>			<u>Harder Terms</u>		
	1985	1990	1995	1985	1990	1995
<u>Moderate Borrowing, Moderate Growth of GDP and Manufactured Exports</u>						
Exports and net services	38.0	66.1	111.4	38.0	66.1	111.4
Gross borrowing	4.0	9.0	14.0	4.0	9.0	14.0
Interest payments	0.6	1.7	3.5	0.8	2.1	4.1
Amortization payments	0.5	2.1	5.0	0.7	3.1	6.9
Debt outstanding and disbursed	14.5	40.5	82.1	14.2	36.8	70.5
Debt service ratio	2.9%	5.7%	7.6%	3.9%	7.9%	9.9%
<u>High Borrowing, High Growth of GDP and Manufactured Exports</u>						
Exports and net services	39.0	88.3	193.6	39.0	88.3	193.6
Gross borrowing	6.0	20.0	46.0	6.0	20.0	46.0
Interest payments	0.8	3.3	8.9	1.0	4.1	10.7
Amortization payments	0.6	3.4	11.1	0.8	5.1	16.0
Debt outstanding and disbursed	18.9	79.1	214.1	18.5	73.8	191.6
Debt service ratio	3.6%	7.6%	10.3%	4.6%	10.4%	13.8%
<u>High Borrowing, High Growth of GDP and Moderate Growth of Manufactured Exports</u>						
<u>As above, except:</u>						
Exports and net services	36.0	63.4	111.7	36.0	63.4	111.7
Debt service ratio	3.9%	10.6%	17.9%	5.0%	14.5%	23.9%

Source: Mission estimates, see text.

6.115 Although the capital flows projected in Table 6.9 appear very large in absolute terms, they are moderate relative to China's size and projected world capital flows. In the moderate borrowing scenario, total debt outstanding and disbursed in 1990 would amount to only about \$20 billion in 1980 prices (\$41 billion at 1990 prices), not much larger, for instance, than the present levels of external debt in India, Indonesia, or the Republic of Korea. In the

higher borrowing scenario, total debt outstanding and disbursed in 1990 would be about \$40 billion in today's prices (\$79 billion in 1990 prices). This may be compared with the total debt outstanding of developing countries, which was estimated at \$440 billion in 1980, and is projected by the Bank to be around \$1,400 billion in 1990 (in the prices of that year). For a country with about one third of the developing world's population, these projected levels of debt are indeed quite modest.

6.116 An important constraint will probably be the availability of official development credit. As shown in Table 6.9, moderately concessionary terms would be needed to keep the debt service ratio below 20% under the assumption of higher borrowing and moderate growth of manufactured exports. This would probably imply disbursement of concessionary official credits rising to \$3 billion by 1985 (i.e. 50% of gross inflows of \$6 billion, in current prices) and to \$10 billion by 1990. In commitment terms, this would mean \$5-6 billion p.a. by 1985 and \$12-15 billion p.a. by 1990. To make resources of this order of magnitude available to China would require an international environment of substantially expanding development assistance. If this proves to be impossible, then the scenario of a high level of external borrowing with only moderate growth of manufactured exports would not be a feasible option; the higher level of borrowing projected in Table 6.8 would be manageable only if growth of manufactured exports were accelerated.

6.117 Apart from the need to keep the debt service ratio within manageable bounds, the amount of borrowing that the Chinese Government undertakes should depend on the value of the additional resources obtained, in relation to the real cost of borrowing. In the long term, this is essentially a matter of comparing the marginal real return on domestic investment with the expected real rate of interest on external debt. But in China's short- and medium-term situation of disequilibrium and adjustment, it may also be necessary to take account of: (a) the social or political utility of additional present consumption, if this (temporarily) exceeds the value of marginal investments; (b) the prospective benefits from fuller use of installed capacity, where this would otherwise be constrained by the availability of fuel, materials and spare parts; and (c) the damping effects of increased imports on domestic inflation. All these considerations argue for some external borrowing (in addition to borrowing for investment projects) to support a reasonable growth of imports of raw materials and perhaps even some essential consumer goods, if necessary, in the possibly difficult transitional period of the next few years.

6.118 In the past year or so, the Government has clearly begun to address the issue of the relationship between the cost of foreign borrowing and the returns to investment. As part of the general reappraisal of the country's investment program, the economic feasibility of externally assisted projects has been re-examined, which has led to the cancellation of import contracts for several large investment projects - some of which were extraordinarily ill prepared, even in engineering terms. These cancellations have caused problems with potential suppliers, and financial penalties may have to be paid. Nonetheless, the apparently difficult decisions to cancel ill-prepared projects indicate that the management of foreign trade and capital may in future be based on economic considerations - a change that should be welcomed by potential exporters and lenders to China.

6.119 Looking further ahead, the key determinants of the optimal level of China's foreign borrowing, namely, the rate of growth of manufactured exports, progress with energy conservation, and the efficiency with which capital is used, are ultimately dependent on improvements in planning and management and reform of the economic system. Indeed, there is a dual relationship between foreign borrowing and the problems of adjustment and reform. On the one hand, the experience of some Eastern European countries in the 1970s suggests that liberal foreign borrowing without a concomitant effort to increase efficiency can quickly lead to serious problems. On the other hand, substantial foreign borrowing could be a key element of a policy package for the 1980s that would also include system reform, structural adjustment, energy conservation and export promotion. Such a policy package would ease the serious constraints the economy is facing and would permit growth of consumption and acceleration of the pace of economic modernization. But its success would depend in part on an international environment that could make possible a reasonable flow of official credits to China and, more important, rapid growth of Chinese exports.

G. Overview

6.120 China's options for the 1980s are constrained by the availability of agricultural land, energy, foreign exchange, and skilled manpower. But the Government has room for maneuver in two general areas. The first is the choice (via investment decisions) between present and future consumption, and the allocation of consumption between the poor and other groups. The second concerns the improvement of efficiency, especially in the use of energy, materials and capital, through better policies and planning, system reform, and exploitation of opportunities for foreign trade, borrowing and technology transfer.

6.121 The degree of success achieved in the second area will substantially affect the Government's freedom of action in the first area. Using capital more efficiently, for example, would permit higher growth for any given rate of investment, thus easing the tradeoff between present and future consumption. Energy and material conservation would likewise diminish the need for imports of oil and other agricultural and industrial inputs, thus reducing the amount of foreign borrowing needed to attain any given growth rate. And faster growth would ease difficult social and political problems, especially by enabling more help to be given to the poor without a slower increase in the living standards of other groups.

6.122 The actual outcome will of course depend not only on the Government's choices and policies, but also on unpredictable factors such as weather, success in oil prospecting, growth of overseas markets, and the availability of foreign capital on concessionary terms. But the range over which the Government's actions could affect the outcome may be illustrated by the tentative projections in Table 6.10, which summarize some of those made in earlier sections of this chapter. It should be emphasized (a) that these are not the mission's forecasts, but simply illustrative projections aimed at demonstrating the possible impact of development policy; and (b) that they are

Table 6.10: ILLUSTRATIVE MACROECONOMIC PROJECTIONS
(1979 Chinese market prices)

	Estimated shares of total, 1980 (%) /a	Growth rates (% per year)		
		Actual 1970-79/b	Projected	
			1980-85	1985-90
<u>Production (net output)</u>				
Agriculture	30 /c	3.2	3.0- 3.5	3.0- 3.5
Light industry	19	} 8.9 {	7.0- 8.0	6.0- 8.0
Heavy industry	27		2.5- 4.0	5.0- 6.5
Services /d	25	4.3	4.5- 5.0	5.5- 6.5
Total (GDP)	100	6.0	4.0- 5.0	5.0- 6.0
<u>Expenditure</u>				
Investment /e	29	6.8	4.1- 5.2	5.0- 6.1
Consumption /e	72	5.4	4.1- 5.2	5.0- 6.1
(consumption per capita /f)	--	3.5	2.8- 3.9	3.8- 4.8
Foreign trade deficit /g	-1	40.2	9.6-21.7	7.3-16.3
Total (GDP)	100	6.0	4.0- 5.0	5.0- 6.0

/a On Western accounting conventions.

/b Annex A, Tables A.8 and A.26. Double-deflated output, with brigade industry in industry. Services, consumption, and total exclude nonmaterial services.

/c Assuming average weather conditions.

/d Including construction and (in projections) nonmaterial services.

/e Assuming (i) that the "accumulation ratio" (investment as a ratio of investment plus material consumption) was 31% in 1980, (ii) that after 1980 investment and (material plus nonmaterial) consumption grow at the same rate.

/f Assuming population growth at 1.2% per year in the 1980s.

/g Future growth measured by net foreign resource inflow (gross borrowing less debt service payments). Range corresponds to moderate and high borrowing scenarios in Tables 6.7 and 6.8.

based on limited information and informal judgements concerning both sectoral prospects and intersectoral relationships.

6.123 For simplicity, Table 6.10 considers only two cases. In the first (Moderate) case, agricultural policy, energy conservation and other measures to increase efficiency are only moderately successful, and exports and foreign borrowing expand at only a moderate pace. In the second (High) case, agricultural policy and measures to use energy, materials and capital more efficiently are much more successful, and manufactured exports and foreign borrowing expand rapidly.

6.124 The projected differences between these two cases in terms of output growth are considerable (although both compare quite favorably with the projected growth of other low-income countries). In the first half of the decade, in the Moderate case, the aggregate growth rate would be about 4% p.a., while in the High case it would be 5%. In neither case, however, is the rate as high as that attained in the 1970s, when energy and foreign exchange constraints were less pressing. In the second half of the decade, when these constraints should have eased somewhat, the growth rate in the Moderate case is 5% p.a., while in the High case, at 6%, it equals the rate achieved in the 1970s.

6.125 Future output growth is of course dependent upon investment. In these projections, in both cases, it has been assumed that the 1980 investment rate is on average more or less maintained throughout the decade,^{/1} with the necessary cuts in the inherited investment program being offset by increases in new investment. The differences between the two cases in terms of efficiency are reflected in the implied incremental capital-output ratios (ICORs). Over the whole decade, the ICOR in the Moderate case is nearly 7, while in the High case it is about 5. The latter figure, despite the assumed increases in efficiency, is not very different from past ICORs in China (see para. 3.36); this is because the composition of investment will have to shift in the 1980s toward nonproductive sectors (especially housing) and productive sectors in which gestation periods are long (especially energy, education and transport).

6.126 Despite the urgent need for investment in economic and social infrastructure, as well as for directly productive investment in industry (especially in restructuring and energy conservation), agriculture and services, it might be possible to maintain a lower investment rate in the 1980s than is assumed in these projections. Such a reduction (provided that the composition of investment were suitably adjusted) would have little effect on output growth in the first half of the decade. But it could cause the growth rate in the late 1980s to be below that projected here; and if the investment reduction were focussed on infrastructure, the adverse effect on the growth rate would be even larger in the 1990s.

^{/1} More precisely, the ratio of investment to total consumption is held constant. As a ratio of GDP, investment rises slightly because foreign capital inflows increase. As a ratio of investment plus material consumption (the "accumulation rate"), it probably also increases somewhat, since the ratio of nonmaterial to material consumption is expected to rise.

6.127 Clearly, the Government's choice of an investment rate in the 1980s should be determined by the priority it attaches to present as compared with future consumption (though the scope of this choice is constricted by the difficulty of increasing the volume of consumer goods available - either from domestic production or from imports). But, given any particular investment rate, the Government's desire to raise living standards will of course favor the various efficiency-increasing measures (discussed in preceding sections of this chapter and Chapter 5) that underlie the High case. On average over the 1980s, growth of per capita consumption in the Moderate case is below the rate achieved in the 1970s - though above the 1957-79 trend growth rate. In the High case, with significantly faster growth also of investment, per capita consumption growth in the 1980s averages 4.4%, which is above the rate of growth in the 1970s and more than double the 1957-79 trend./1

6.128 Similarly, the Government's concern for the rural poor may be expected to favor the sorts of measures that underly the High case. With appropriate safeguards, especially as regards employment and consumer prices, and maintenance of the existing food security and social service framework, measures to increase efficiency are unlikely to reduce the real incomes of poor people in absolute terms. They might tend to increase relative inequality: but even this could be offset by well-designed anti-poverty policies (see paras 6.47-50); and the resources available to implement such policies would clearly be increased by greater efficiency in production and investment.

6.129 For China, as for other developing countries, the 1980s will be a difficult period, 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 very favorable. The already low population growth rate will slowly decline (probably to under 1% p.a. by 2000), easing the pressure on agricultural land. By 1990, the great majority of 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, while continuation of recent export trends would provide a foreign exchange-earning base large enough to permit greater confidence (and less concern about terms) in the use of foreign capital. Thus if the country's immense wealth of human talent, effort and discipline can be combined with policies that increase the efficiency with which all resources are used, China will be able, within a generation or so, to achieve a tremendous increase in the living standards of its people.

/1 Only a very small part of the faster growth of consumption in the High case, moreover, arises directly from greater foreign borrowing.

Annex A

Statistical System and Basic Data

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1. STATISTICAL DEVELOPMENT

Early History

1.01 Although the origins of a modern statistical system in China can be traced to 1931, the system was rudimentary at that time and little useful statistical work was undertaken. The Bureau of Statistics in the Directorate General of Budgets, Accounts and Statistics was responsible for statistical methodology, appointment of personnel, and coordination of statistical work carried out by various ministries and provincial governments. No attempt was made to build statistical infrastructure below the provincial level. The development of a statistical system assumed little importance since statistics were not used in decision making.

1.02 The commitment of the People's Republic to central planning of the economy, patterned on the Soviet model, dictated the establishment and development of a statistical system that would support the goals of reconstruction, development and socialization of the economy. A Department of Statistics, located in the Bureau of Planning in the Financial and Economic Commission of the Political Affairs Council (later redesignated the State Council), was set up in 1949. Statistical offices were organized in the six regional administrations. However, only after 1952 was the statistical system expanded to the provincial and local levels.

1.03 In 1949-52, some attempts were made to develop the statistical system, which had no uniform coverage or content. The only significant initiative was a national survey (in 1950) of industrial enterprises in both the state and joint sectors; this survey established a unified set of schedules and computation methods. In each reporting unit, a small representative group was constituted and charged with the completion of questionnaires. The data from this survey were used as the basis for formulating the first Five-Year Development Plan. The Department of Statistics had to confine its attention to the state and semi-socialist sectors, with particular emphasis on the industrial sector. With Soviet technical assistance, the scope of statistical collection was systematized and gradually extended to the construction, agricultural and internal trade sectors. Even so, the statistical system remained rudimentary and fell far short of what was needed for planning and managing a vast economic system.

1.04 With the recovery and development of the economy, the Government, recognizing the urgency of establishing a soundly structured statistical system, created the State Statistical Bureau (SSB) directly under the State Council in late 1952. The SSB, organized along functional lines into 15 units with some 600 technical staff, was one of the larger units of the central

government. The responsibilities of the SSB were defined by the bureau's Director in a report to the Third National Statistical Conference:^{/1}

"...A centralized and unified statistical system is to be created in which the State Bureau will be responsible for organizing all the work in statistics in the country, for standardizing methods of checking accuracy and computation, and for centralizing the distribution of all basic statistical schedules..."

1.05 The Chinese authorities drew heavily on the Soviet experience in organizing their statistical work. Statistical units were set up at the provincial and municipal levels by the end of 1953, and thereafter at the county level. Some units were self-contained but many were part of a planning and statistical division with a total staff of six to eight technical workers. In addition to the so-called "comprehensive" statistical system, various government agencies and ministries developed statistical reporting systems that reached to the lowest levels of government. "Business affairs" agencies established their own reporting procedures. Agricultural statistics continued to be collected by part-time workers.

1.06 The goals of the state statistical organization encompassed: (a) the collection of data; (b) accurate and timely reporting; (c) application of data for the preparation of national plans, supervision and implementation of these plans, aiding the socialization of the economy, and assisting in the establishment of appropriate accounting systems; (d) analysis and dissemination of data; and (e) training of statistical manpower. During the First Five-Year Plan period (1953-57), the state statistical system developed a national reporting network and generated a fairly wide range of basic statistics.

The Great Leap Forward

1.07 The Great Leap Forward was a movement that encouraged the masses to make rapid advances on all economic fronts, in particular to surpass established production targets and quotas. It began in the agricultural sector in late 1957 when the communes assumed a more important role in their own management. In early 1958, just prior to the launching of the Second Five-Year Plan, decentralization of control over industrial and commercial enterprises was also instituted.

^{/1} TCKTTH - 1: April 4-11, 1954.

1.08 During the Great Leap Forward, national quotas became automatically larger at each successive level of government. Central agencies had previously established quotas in consultation with provincial authorities, but now two sets of targets were used. The first set of quotas were realistically established by the center; the second (higher) set was used at the provincial level as the actual targets. The provinces in turn set higher targets for the lower echelons of the system. In the opposite direction, achievements were revised upwards at intervening levels until they were finally reported to the center.

1.09 The implications of these developments for statistical work were immense. Given that "progress statistics" became indispensable for both policy making and for further enhancing the Great Leap Forward program, local officials began to take a keen interest in statistics. The statistical system established by the central SSB was questioned by local cadres. They claimed that the system was "detached from politics and reality," i.e. not directly relevant to the needs of the Great Leap Forward program, and did not meet the needs of the local Party and political leadership. Officials of local statistical units were increasingly co-opted to undertake statistical compilations to meet local needs; non-statistical personnel were also used for gathering data. As a consequence, false reporting and exaggeration ^{/1} began to pose a serious threat. The operational independence and integrity of the statistical system were in jeopardy.

1.10 In late 1958, reforms were introduced under the "national statistical work reform movement." Statistical work was integrated into the campaigns of the Great Leap Forward; statistical authorities were required to focus on providing local cadres with "background statistics," "progress statistics" and "comparative statistics," though this was largely achieved at the expense of meeting national data requirements.

1.11 Corrective steps were taken by 1959. The need for a unified statistical system was recognized. Statistical units at all levels were gradually strengthened and a uniform national statistical system revived.

1.12 In April 1962, the Central Committee of the Party and the State Council jointly issued new guidelines ^{/2} to govern statistical work. In March of the following year, the State Council issued the "Provisional

^{/1} As an example, agricultural and industrial output figures for 1958 needed to be drastically revised the following year.

^{/2} "Decision for the Strengthening of Statistical Work," Statistical Work in China, SSB, 1979.

Regulations of Statistical Work" to correct the bias of inaccuracies in figures and guarantee the sound development of statistical work. As a consequence earlier biases were largely eliminated, and more reliable data were being collected and published between 1963 and 1966.

The Cultural Revolution

1.13 The impact of the Cultural Revolution (1966-76) on the statistical system was to be far-reaching. The SSB was abolished in 1968. Its trained and professional manpower (about 400 staff in 1966) with considerable competence were assigned to other jobs; many were sent to the countryside for re-education. Statistical work was put on a "care and maintenance basis." A handful of statistical personnel were placed under the State Planning Commission but minimal statistical work was done.

1.14 Similar disruption of the statistical system occurred at the provincial level, as can best be illustrated by the events in two provinces visited by the mission and in Shanghai. In Gansu, the Provincial Statistical Bureau (PSB) had a staff of 120, with another 500 at the county level, in 1966. Statistical units existed in 81 counties. During the Cultural Revolution, the PSB was abolished. Between 1968 and 1976, minimal statistical work was carried out at the provincial level by two or three persons attached to the Revolutionary Committee's leading production group. At the county level, a handful of people worked on statistical matters under the supervision and guidance of the local planning group. In Hubei, the PSB had a staff of 136 and an additional 780 persons were working at the prefecture and county levels in 1966, but thereafter, statistical work virtually ceased. The Shanghai Municipal Statistical Bureau had a staff of 200 in 1966; it was abolished during the Cultural Revolution and statistical work virtually ceased. A core of four persons attached to the planning group continued to function.

1.15 Units at the grassroots level (communes and enterprises) continued to compile and record data throughout the Cultural Revolution. Thus basic data gathering continued, but the work was uncoordinated and unsupervised. Recording was carried out by untrained staff; hence the quality of some data is highly suspect. Moreover, the work of the government at all levels was disrupted and some local cadres resorted to falsification of data to exaggerate the achievements of their units or localities. No aggregation of data at higher levels of the system was possible because county, provincial and state statistical agencies had been abolished.

Post-Cultural Revolution Developments

1.16 The chaos caused by the Cultural Revolution has been gradually recognized and corrective measures gradually introduced. In 1971, the

Government directed that the statistical system be restored, so that data could be collected and used for planning and managing the economy. There was an acute awareness that rebuilding the economic system and restoring some semblance of order could not proceed without basic economic and social statistics.

1.17 Rebuilding the statistical infrastructure actually started in 1970, but progress was necessarily slow and the task has not yet been completed. Experienced staff had been assigned to other work and could not all return; some have already retired. New staff with the requisite training and skills could not be hired because of disruptions in the education system (statistical departments in tertiary-level institutions had ceased to exist for many years during the Cultural Revolution, so no new graduates with relevant training had been produced for almost a decade). Old records had been destroyed. The few data collected during the Cultural Revolution period were highly suspect and had to be reviewed, evaluated and adjusted.

1.18 The SSB presently has a staff of no more than 200 (excluding 160 computer staff newly recruited to man the Computer Center), compared to its staff of 400 in 1966. While 80% of the present staff have some formal training in either statistics, mathematics or economics, almost half have only limited working experience.

1.19 The situation at the provincial and county levels is even more serious, as can be seen from data on Gansu, Hubei and Shanghai. In Gansu, the PSB has a staff of 60, of whom 50% are untrained (vs. 120 staff, over 75% of whom had formal training in 1966). In only 20 of the 81 counties have statistical units been re-established. Staff shortages continue to hamper work at the county level. The Hubei PSB now has 72 staff members (vs. 136 in 1966). However, at the county level, restoration of the system has progressed faster and the complement of staff is almost at its 1966 level. In Shanghai, the Municipal Statistical Bureau has a staff of 120 (vs. 200 in 1966), approximately a third of whom have formal training. Only a fifth of the present staff were employed by the Bureau in 1966.

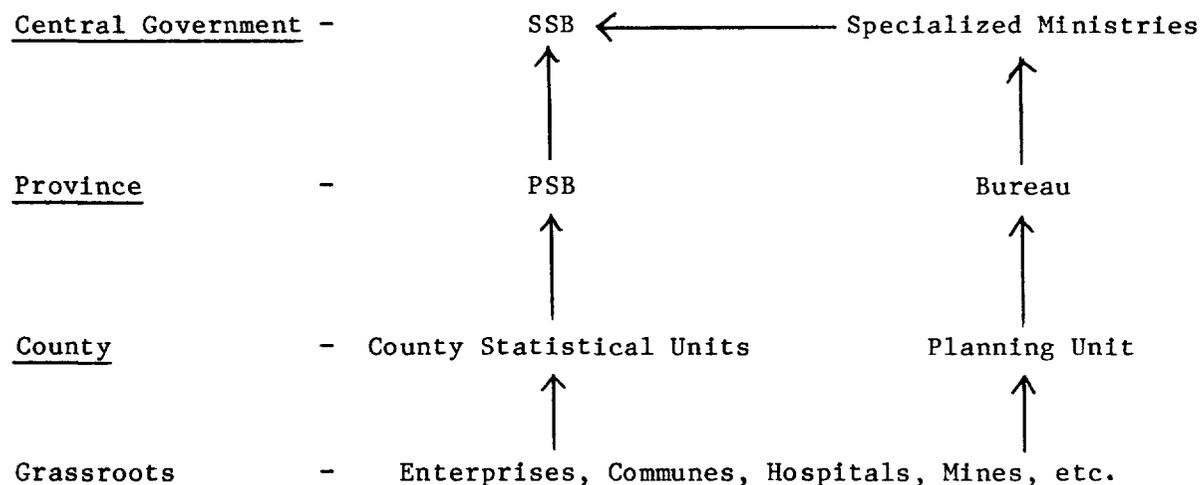
2. PRESENT STATISTICAL SYSTEM AND WORK

Organization

2.01 China's statistical system is made up of three major components: (a) the government statistical system, comprising the SSB, the PSBs and the county level units; (b) the statistical units in the specialized ministries,

and the corresponding bureaus at the provincial and county levels; and (c) the statistical units at the grassroots level (in the communes, enterprises and production units). The linkages between these components are shown in Chart 1.

Chart 1: STATISTICAL ORGANIZATION



2.02 The SSB heads the government statistical system. The system's total staff, including workers at the county level, amounts to about 18,000. The SSB's functions are those of a central statistical bureau, i.e. it has responsibility for organizing, coordinating and establishing statistical standards. The SSB produces some 170 statistical reporting schedules, largely in the form of tables to be completed at the county level on the basis of information reported by the grassroots units. The SSB specifies data for collection and the methods to be used. It establishes statistical targets, coverage, time schedules for reporting, and the design of statistical tables. Although the PSBs may request lower level units to collect data on additional subjects, in practice few do so, mainly because they have limited resources.

2.03 The central ministries and specialized bureaus at the provincial and county government levels all have statistical units. These agencies collect and tabulate statistical data in their field of interest, which are then reported to units at the next highest level of government. These statistical units establish their own standards, collection procedures and other guidelines. Although there appears to be no formal system of coordination, the SSB stated that the demarcation of fields of interest prevents overlap and duplication. The SSB does not intervene in the collection of data but does receive aggregated data from the ministries.

The ministries have devised some 2,600 forms or tables to collect data (many basic level reporting units are currently complaining about the amount of form filling required of them).

2.04 Statistical units at the grassroots level employ statistical personnel on a full-time or part-time basis, depending on the size of the undertaking or unit. These units record, compile, collate and tabulate data, which are reported to either the government statistical system or the bureaus of the specialized ministries. Enterprises and production units in certain sectors (e.g. industry, construction and agriculture) report statistical information to both the government system and the specialized bureaus, although only summary and aggregate data are supplied to the former. No overall estimate of the number of personnel engaged in statistical work at the grassroots level was available.^{/1} A difficulty here is that strictly statistical functions in the Western sense cannot be completely separated from the maintenance of administrative, accounting or bookkeeping records. This has been well explained by Director Hsueh at the Sixth National Statistical Conference in the 1950s:

"In socialist countries, statistical computation is generally built on the computations for financial accounts and for operation records. For the sake of facilitating statistical computation of the national economy and utilizing statistical materials for operational control, uniformity in computation methods for statistical, financial accounting, and operations records must be striven for as far as possible."

Statistical Coverage

2.05 The general objectives of statistical work in China have not altered significantly over the past three decades, despite political and social changes. In a paper ^{/2} presented to the 42nd Session of the International Statistical Institute in Manila in late 1979, the SSB stated:

"The task of statistical work in our country is to serve the general purpose of turning our country into a country with socialist modernization of agriculture, national defense, and science and technology. Concretely speaking, it includes the following three items:

^{/1} But, for example, in the Shanghai municipal area, some 30,000 individuals were reportedly engaged in statistical work at the grassroots level.

^{/2} Statistical Work in New China, SSB, Beijing, 1979.

"First, to collect, compile and analyze correctly, punctually, comprehensively and systematically economic and social statistical data, so as to provide a basis for formulating plans and policies, strengthening economic management, and developing scientific researches and thus to enable the economic plans and policies conforming with the reality of our country and reflecting the requirements of socialist economic law.

"Secondly, to check and supervise statistically the implementation of the economic plans and policies by inspiring the advanced, spurning the backward, so as to benefit the improvement of work and to promote the development of national economy with greater, faster, better and more economical results.

"Thirdly, to provide data for mass participation in the economic management and for socialist emulation drives, and to promote the mass movement for increasing production and practising economy."

2.06 Within these broad goals, statistics are compiled and tabulated in the following areas:

- Population
- Family Planning
- Natural Resources
- Industrial Production
- Agricultural Production
- Communications, Transportation, Post and Telecommunications
- Capital Construction
- Domestic Commerce
- Supply of Means of Production
- Foreign Trade
- Public Finance
- Cost of Production
- Prices
- Labor and Wages
- Urban Dwellings and Public Utilities
- Science and Technology
- Culture, Education and Broadcasting
- Public Health and Sports
- People's Livelihood
- National Income

In addition, efforts are being made to establish statistical work on the environment and tourism. A broad description of the work being undertaken in some key areas follows.

Population Censuses and Demographic Data

2.07 Population Censuses. Since 1949, two population censuses have been taken. The first, in 1953, was a modest effort. A central census office was organized under the control of the Ministry of the Interior, but with the Ministry of Public Security, the SSB and other relevant agencies playing a major role. The 1953 census included five questions:

- (a) name and address;
- (b) relationship to head of household;
- (c) sex;
- (d) age; and
- (e) nationality (e.g. Han or minority).

2.08 The second population census was taken in 1964. It was somewhat more ambitious in scope and included additional questions on class status, education and occupation.

2.09 A third population census was planned for 1981 but has been postponed to July 1982. Reasons for the postponement were: the extra time needed for planning and setting up a census organization; delay in acquiring computing equipment from overseas and training computer personnel; and, to some extent, the difficult budgetary situation (since the census will be costly).

2.10 As with the two earlier censuses, the State Council has established a Census Leading Group to plan and coordinate census activities. This group, under the leadership of Vice-Premier Madame Chen Muhua, includes representatives of all major agencies involved in the census including the SSB, which plays a key role. Census offices will be established at all levels of the administrative system, as will special units at the street committee level in the cities and communes in rural areas. The monumental task of enumerating almost a billion people can best be illustrated by the SSB's estimate that over six million census workers will be required to handle the operation. Training these enumerators (staff from statistical offices, local household registration offices, part-time workers, commune workers and students) will in itself be a major undertaking.

2.11 The Chinese authorities have fully recognized the complexity of undertaking this census and have taken steps to ensure its success. Technical assistance, together with resources for purchasing computing

equipment, has been sought from the UN. A computing center will be established in each of the 29 provincial capitals and linked to a central unit in Beijing. Five of the computer configurations will be domestically produced machines. An IBM 4341 will be installed at the Beijing center and 20 IBM 4311s in the provinces. These are being acquired through UNFPA funding (amounting to a total of \$15.5 million). In addition, eight Wang machines are being acquired with Chinese resources. Computing staff and other census specialists are being trained in China and abroad.

2.12 A meticulously planned and well executed pilot census was undertaken in July 1980 in the city and county of Wuxi. It covered 0.95 million persons in 260,000 households. Observers from other provinces participated in the census. The Wuxi census questionnaire covered 13 topics for individuals and 5 for households, as shown below.

For Individuals

- (a) Name.
- (b) Relationship to head of household:
 - (i) head of household; (ii) spouse; (iii) children and their spouses; (iv) grandchildren and their spouses; (v) parents; (vi) grandparents; (vii) other relatives; (viii) other non-relatives.
- (c) Sex: (i) male; (ii) female.
- (d) Age: full age and date of birth, born in first or second half of the year.
- (e) Nationality.
- (f) Educational level:
 - (i) university (general); (ii) university (other); (iii) senior secondary school; (iv) junior secondary school; (v) primary school; (vi) somewhat literate; (vii) illiterate.
- (g) Industry (Is it a commune managed industry?).
- (h) Occupation.
- (i) Nonworking population:

(i) student attending school; (ii) waiting to be assigned to work; (iii) responsible for housework; (iv) awaiting work in city and town; (v) aged 7-15 not attending school; (vi) under 7 years of age; (vii) retired; (viii) other.

(j) Marital status:

(i) single; (ii) married; (c) widowed; (d) divorced.

(k) Fertility of women in 1979:

(i) given first birth; (ii) given second birth; (iii) given third or higher birth.

(l) Household registration and residence status:

(i) registered, present; (ii) registered, absent; (iii) registration status to be settled.

(m) Present address of those registered but absent (this question was not asked in the pilot census).

For Households

(a) Type of household: (i) domestic household; (ii) collective household.

(b) Place of household registration.

(c) Total number of persons in the household.

(d) Population change in 1979: numbers of births and deaths by sex.

(e) Population change in the first six months of 1980: number of births and deaths by sex.

For each person who had died in the past 18 months, the name, sex, date of birth, and date of death were requested on a separate questionnaire.

2.13 The industrial classification used in the Wuxi census matches that used in industrial statistics. It is a two digit classification that has 10 major divisions and 75 divisions in all. It differs from the International Standard Industrial Classification but is somewhat similar to that used in other socialist countries. An occupational classification was constructed specially for the census and consists of 15 major groups, 85 medium groups and 254 minor groups.

2.14 Three methods of enumeration were used in the pilot census:

- (a) Enumeration Stations. Stations were established in each neighborhood. People were told when they should visit the station to provide the census information.
- (b) Household Visits. Enumerators visited households that had difficulty in getting to the enumeration stations (because of the distance involved, illness, etc.).
- (c) Mail Enumeration. Absent residents were covered by mailed questionnaires.

Almost 62% of respondents were enumerated at stations, 36% through home visits, and the rest by mail. UN officials who observed the census were very impressed by the thorough verification of data, the small degree of underenumeration, and the accuracy of data collected.

2.15 A full list of the tabulations to be used is provided in Table 1. The authorities have so far processed a 10% sample of census districts on a priority basis to obtain early results.

2.16 Based on the experience gained from the Wuxi census, the State Council has directed that census organizations be established in all provinces and autonomous regions, pilot censuses be carried out in 1981, computer centers be established, and household registers be revised. The procedures that proved successful in Wuxi will be used in this nationwide effort. The questionnaires and tabulations are likely to be modified slightly in the light of experience gained in Wuxi.

2.17 The national census will be the largest single population count carried out anywhere in the world. Its content and scope can also be viewed as ambitious. The country's data requirements have dictated this approach. Sampling is not being used to reduce the work load (though this could be done without measurably reducing accuracy), perhaps because the Chinese lack experience in using sampling techniques and the general approach to statistical work in China is for a complete count of all populations. This effort will provide valuable lessons for census takers in many countries.

Table 1: PILOT CENSUS TABULATIONS

No.	Contents	Geographic level
1	Private and collective households. Population by sex	Street/commune
2	Age (single years and 5-year groups) by sex	"
3	Nationality by sex	"
4	Population 7 years and over: Education by age (7, 8, 9... 24, 25-29, 30-34... 80-84, 85+, not stated) and sex	"
5	Population 12 years and over: Literacy by age (as above) and sex	"
6	Residence status by sex	County/city
7	Size of household by age of head	"
8	Marital status by age (14, 15...29, 30-34... 80-84, 85+, not stated) and sex	Street/commune
9	Births and deaths in 1979 and first 6 months of 1980	"
10	Children born in 1979 by order of birth	"
11	Students by education level, age (7, 8...29, 30-34, (35-39, 40+, not stated) and sex	"
12	7-15 year old children out of school by single years of age and sex	"
13	Industry (75 divisions) by sex	"
14	Industry (10 divisions) by 5-year age groups and sex	County/city
15	Industry (10 divisions) by education and sex	"
16	Occupation (254 groups) by sex	"
17	Occupation (15 groups) by 5-year age group and sex	"
18	Occupation (15 groups) by education and sex	"
19	Industry (10 divisions) by occupation (86 groups)	"
20	Occupation (86 groups) in rural communes by 5-year age group and sex	Commune
21	Not working persons by category	Street/commune
22	Persons awaiting assignment by 5-year age group sex and educational level	County/city

2.18 Current Demographic Data. A formalized system of population registration, under the auspices of the Ministry of Public Security, has been used in urban areas /1 since 1951. All urban residents, except military and security personnel, must register. Births must be registered within a month, while deaths must be reported within 24 hours. Movement from one jurisdiction to another must be reported to the police. The system was extended in 1955 to rural areas.

2.19 The Ministry of Public Security provides the SSB with annual and quarterly population counts. Annual reporting covers:

- (a) the total number of households;
- (b) the total population;
- (c) sex;
- (d) agricultural and nonagricultural population; and
- (e) births and deaths, and migration.

2.20 In addition, small-scale model surveys are used to obtain information on age distribution, cause of and age at death, etc. Generally, the data reported through the administrative machinery are satisfactory, but SSB officials admitted that data from outlying areas were perhaps less accurate, particularly in view of the disruptions the country had suffered. In view of this, the census would contain questions covering vital events.

Labor Statistics

2.21 The SSB collects monthly data on the numbers employed in state-owned enterprises and quarterly data from collectively owned enterprises. Annual collections cover detailed data from both types of enterprises, as well as data on self-employed and commune workers. These reports also cover data on payrolls and wages, expenditures on employee and child welfare, and labor productivity. On a quarterly basis, the SSB collects data from the cities and towns on the number unemployed and waiting for jobs. Information

/1 The definition of urban areas as all cities, municipalities and county towns is purely administrative. It thus counts small county towns with rural characteristics as urban areas. The State Council designates cities and municipalities, of which there 203; the county towns are the seats of county government, designated by provincial governments. The total population of these units is 128.62 million, but without agricultural workers located in these administrative units, the urban population is 93.97 million, including suburban residents.

on the numbers entering the labor force and placed in jobs is collected semi-annually. Statistics on total work hours are collected monthly at the local level for two industries, selected by the local authorities. Figures on the number of accidents and injuries are also collected on a monthly basis. Figures on vocational training are compiled annually.

2.22 The SSB has conducted ad hoc surveys of urban and rural employment in 1952, 1955 and 1978. A similar ad hoc inquiry into salary and welfare costs was carried out in 1957. In 1960 and 1978, surveys of scientists and technicians were also conducted.

2.23 All statistical data on labor are compiled from the records of the work units within enterprises. Households do not complete statistical forms, a practice common in most other countries.

2.24 To determine the size of the economically active population, age cutoffs are used. For rural areas, the cutoffs are 16-60 for males and 16-55 for females; within these ranges, all those who work at collective activities for three months or more are included in the labor force. (In practice, older people are also included if they work at collective activities for three months or more - but this is rare.) For urban areas, males aged 17-64 and females aged 17 or 18 to 55 are included, if gainfully employed or waiting for jobs.

Household Budget Surveys

2.25 Prior to the Cultural Revolution, family budget surveys were carried out regularly to obtain information on incomes and expenditures. They have only recently been reinstated. Procedures have been established by the SSB and guidelines issued to all PSBs, but considerable flexibility is permitted. Not all provinces have yet launched surveys, as many are hampered by resource and staff constraints; but some results have been published in the Chinese press (see Appendix, paras. A.45, A.47).

2.26 Details of these surveys were obtained primarily from the Shanghai Municipal Statistical Bureau, which, in June 1980, launched a survey covering 10,000 households, approximately 0.65% of the total number of households in Shanghai. Respondents for the survey were chosen by first selecting 29 urban-based enterprises and organizations representative of the municipality and a particular subsector. From the records of these units, 10,000 households were selected representing various occupational groups. Data on their wage incomes were obtained from the employers and calculations made of average earnings. A smaller sample of households was then selected, taking into account the number of people in the household, per capita income, dependency ratios, and income of the main earner. The 500 households finally selected for the survey were asked to keep daily records of

income and expenditure. These households are visited four to five times a month and information is obtained monthly. The survey households are given an incentive payment of Y 2 a month. No decision has yet been made on the duration of the present survey (in the 1950s and 1960s, the selected households were surveyed for as long as ten years).

2.27 The income concept employed in the survey calls for the recording of all cash income, as well as transfers to and from other households. Expenditure data are collected for commodities (food, clothing, other necessities such as soap, toothpaste and consumer durables, and fuels) and services (rents, electricity, water, repair expenditures, school fees, expenditures on transportation, cultural and recreational activities, and other services). Very detailed data are being collected, including information on weight, price and place of purchase. Given the burden this places on households, some difficulties are being encountered, but the authorities were generally satisfied with the progress of the survey.

2.28 In Hubei, the PSB has launched a similar survey covering six cities (the SSB requirement was for two cities to be covered) with a total sample of 9,282 households. Instead of a cash payment, households were provided with writing materials valued at Y 2.

2.29 The SSB also requires all provinces to carry out an agricultural incomes survey, but some have not yet been able to initiate the surveys. The SSB provides guidelines on the minimum sample size, but the provincial authorities may cover additional households. In Hubei, the SSB requirement was 650 households, but a sample of 955 farmers was being canvassed. The information being collected covered: number of household members, numbers capable of working, educational level, floor area of living quarters, area available from the commune for sideline production, and transfer receipts from the cities and relatives. In addition, data on expenditure for food, repairs, clothing and consumer durables were being collected.^{/1} The responding households were required to keep diaries and record all transactions.

Family Planning

2.30 Most of the information compiled on acceptors and the progress of family planning programs is the responsibility of the health authorities, which provide the SSB with summary data.

^{/1} In 1973/74, after the Cultural Revolution, only income data was collected; the SSB added expenditure information in 1979.

Industrial Statistics

2.31 An elaborate scheme for the collection of industrial statistics has been established. Output data for 25 major industrial products are collected and reported to the State Council at frequent intervals. The 11 industrial ministries, which obtain reports from the enterprises under their control, are responsible for compiling these data. The SSB itself collects monthly data on the gross value and volume of output of 100 major industrial commodities; these are also reported to the State Council. In addition, the SSB assembles information for computing eight major economic and technical indicators (output, product variety, product quality, energy and material use, labor productivity, costs, profits, and working capital) for key enterprises. Profit and cost data are collected by the Finance Ministry through its local units and then transmitted to the SSB.

2.32 The SSB compiles annual industrial statistics for the 12 major industrial sectors: metallurgy; electric power; coal; petroleum; chemicals; machine building; building materials; timber; food; textiles, apparel and leather; paper, cultural and educational supplies; and other industries. The data collected using standardized tables include:

- (a) gross and net value of output, both in 1970 and current prices;
- (b) output of 422 major industrial commodities. The output of an additional 3,000 products is estimated by the industrial departments;
- (c) eight major economic and technical indicators;
- (d) production capacity and inventory of metal cutting lathes, processing and forging equipment;
- (e) fixed assets; and
- (f) basic conditions in some 4,400 large- and medium-sized enterprises.

In addition to the above, information is collected on employment, wages, investment, assets, working capital, production costs, etc.

2.33 Statistical reporting by the 350,000 enterprises is in most instances timely, since procurement, the allocation of inputs and materials, and the remitting of profits make the reporting mandatory. Data are used for management and control, but seldom for research.

Agricultural Statistics

2.34 The reporting of agricultural data is also fairly elaborate. Some reports are required at regular intervals from grassroots units; comprehensive data are collected and compiled annually. Four major aspects covered by the collection system are: (a) agricultural mechanization (inventories of farm equipment, area cultivated mechanically, use of chemical fertilizers, energy use, and acreage irrigated); (b) output (crop acreage, the volume and value of output of all crops, animal husbandry, forestry, fisheries, and sideline activities); (c) income distribution (total income of the communes, production costs, taxes, incomes from all activities, reserves, and welfare funds); and (d) the basic situation (comprehensive coverage of the socioeconomic situation, with some 1,200 communes surveyed annually).

2.35 Most of the data on agriculture are gathered using 13 detailed schedules/tables filled in at the commune and production team levels and transmitted upwards through the administrative/statistical system. At the brigade level, production team accountants complete the forms. If the production teams are dispersed over a wide area, the brigade accountants visit the teams to gather the data. While the SSB has established the standard and content of data to be collected, local authorities may incorporate additional indicators. The schedules/tables cover:

- (a) number of communes, brigades, production teams, households, population, and labor force;
- (b) sown area and yields of 42 crops;
- (c) silkworm cocoon output, and tea and fruit acreage and output. Fruits are broken down into eight kinds, including apple, pear, and peach;
- (d) forestry production, including afforestation, seedlings, strengthening of seedlings, renewal of growing areas, and the output of major forestry products;
- (e) livestock production, including year-end number of hogs, cattle, horses, mules, sheep and goats, fattening pigs, and meat output;
- (f) fishery production, including 13 categories of freshwater and saltwater products;
- (g) plan fulfillment in grain, cotton and hogs. Grain and cotton data are expressed in yields per mu and hog data as the average number per household. The data are compared with the targets in the 12-year National Agricultural Development Program;

- (h) cultivated area, with primary emphasis on changes in the size of the cultivated area;
- (i) capacity of agricultural mechanization at the end of the year. The data cover 39 items in the following ten categories: plowing machinery, irrigation and drainage equipment, harvesting machinery, processing machinery, transport equipment, plant protection equipment, animal husbandry machinery, fishing machinery, semi-mechanized equipment, and other;
- (j) farm mechanization, with data covering 22 items in 4 categories: agricultural machinery, chemical fertilizer, water conservancy, and rural electrification;
- (k) crop, forestry, fishery, and animal husbandry production in state enterprises, including personnel and output of major products by state farms;
- (l) gross value of agricultural output, including crops and forestry, fishery, animal husbandry, and sideline activities, in 1970 and current prices; and
- (m) commune income and expenditures, covering 38 items similar to those in enterprises' financial statements.

The frequency of reports required for the sown area, production and for particular crops varies according to the crop cycle. Thus the reports may be at two monthly intervals for some crops but annually for others (e.g. spring wheat).

2.36 In addition to the regular reporting described above, three annual and periodic surveys are undertaken:

- (a) The Farm Output Survey is used to estimate agricultural output. In each province, 10% of counties, which are considered representative, are selected. Within each county, representative communes are selected, and in the final selection, representative brigades and teams are picked. The use of scientific sampling techniques is not common, however.
- (b) The Peasant Household Income/Expenditure Survey collects information on sideline production, income and expenditures, including subsistence consumption. Some 6,000 households in about 200 counties and 20 provinces were covered in 1978. Estimates of noncollective income in rural areas were based largely on the results of this survey.

- (c) The Agricultural Cost of Production Survey is a joint undertaking of the SSB, the Bureau of Prices, and the Ministries of Commerce, Food and Agriculture. The survey collects data on materials consumed and labor used in the production of grain and livestock.

Price Statistics

2.37 Price indices are calculated at the provincial level and aggregated by the SSB. The five major price indices are:

- (a) Cost of Living Index for workers and staff;
- (b) Retail Price Index;
- (c) Index of Procurement Prices of Agricultural and Sideline Production;
- (d) Rural Market Price Index; and
- (e) Index of Industrial Products Sold in Rural Areas.

2.38 Data from 130 cities and county towns are used to calculate the Cost of Living Index. The main commodities and items included in the computation are: (a) food (fine and coarse grains, cooking oil, salt, sugar, vegetables, meat, etc.); (b) clothing (cotton and synthetic textiles, woolen goods, piece goods, footwear, etc.); (c) daily necessities (soap, toothpaste, consumer goods, furniture, bicycles, etc.); (d) cultural and recreational goods (paper, stationery, books, etc.); (e) medicines; and (f) fuels (electricity and cooking fuels). Rents, utility costs and personal care are also included. The commodities that are actually priced vary in each locality. The weights used are adjusted annually using data on retail sales of commodities, which are reported to the statistical authorities by retail outlets. The importance of each locality is reflected in the overall computation by taking retail sales in each locality into account.

2.39 The Retail Price Indices are compiled using similar techniques and methods. However, the Retail Price Indices cover only material commodities and exclude services.

2.40 The Rural Market Price Index covers items sold in rural markets and was discontinued during the Cultural Revolution.

2.41 The Index of Industrial Products Sold in Rural Areas covers both consumer and producer goods. The weighting system is the same as for the Cost of Living Index.

Foreign Trade Statistics

2.42 Responsibility for the collection and compilation of external trade statistics rests with the Ministry of Foreign Trade. The provincial branch offices of the foreign trade corporations are required to fill out statistical schedules and submit them to their headquarters in Beijing on a regular basis. These schedules are then submitted to the Ministry of Foreign Trade for compilation and synthesis. The results are reported to the SSB. The statistics are used to evaluate progress in trade plan fulfillment, and to enable enterprises to improve management.

2.43 The basic methods used to compile import and export statistics differ considerably from those used in most countries.^{/1} In China, import statistics are based on orders, deliveries and arrivals of goods. Data on the quantity and value of commodities ordered come from contracts signed between foreign suppliers and Chinese trade corporations. Statistics on import deliveries provide information on the execution of import orders (including the quantities and value of goods delivered) and overdue deliveries. The value of import deliveries is calculated according to prices specified in the import contracts. Statistics on import arrivals, which are compiled from the notices issued by the Chinese port authorities and from banking documents, show the value and quantities of actual imports by commodity and by country. Imports are valued on a c.i.f. basis.

2.44 Export statistics are gathered in a similar way. Statistics on export contracts cover the quantity and value of commodities ordered by foreign buyers. The figures are derived primarily from the export contracts signed by Chinese foreign trade corporations with foreign importers. They show the quantity and value of goods that should be available for shipment at a given date. Statistics on export deliveries include information on the execution of export contracts (including delivery dates), the quantity and value of goods delivered, and overdue deliveries. The value of export deliveries is calculated according to contract prices. Statistics on actual exports are compiled from bills of lading and shipping documents. The value of exports is based on f.o.b. prices.

2.45 The system of commodity classification used is unique to China and follows neither the Standard International Trade Classification (SITC) nor the Brussels Tariff Nomenclature. Commodities are classified according to the specialized nature of the trade corporations. Some attempt is now being made to fit trade statistics into the SITC framework.

2.46 Imports and exports are valued in US dollars and then converted into Renminbi (Yuan) at the prevailing exchange rate; thus, they do not reflect domestic prices. Growth rates are calculated by multiplying all quantities in the current period by the unit prices of a previous period, then comparing the results with the current price series of that period.

^{/1} Customs clearances are usually used, but in China, the Customs Administration was abolished during the Cultural Revolution and only re-established in 1980.

3. NATIONAL ACCOUNTS

Methods and Concepts

3.01 The SSB estimates the national accounts using a framework modelled on the Soviet system of the 1950s. Although Soviet practice has been modified in recent years to conform to the UN's Basic Principles of the System of Balances of National Economy,^{/1} the Chinese system has not been modified since the 1950s. Descriptions of the methods and underlying concepts are covered comprehensively in two excellent books,^{/2} which were based on a careful review of Chinese journals and official documents published in the 1950s and early 1960s. Discussions between the mission and officials of the SSB confirmed that the descriptions in these books are generally correct and represent current practice. Below is a summary of the system.

3.02 As under the UN system, China's national income is computed in terms of production, distribution and final expenditures. National income, measured from the production angle, represents value added to the country's material wealth by the five "material production sectors" (i.e. agriculture, industry, construction, transport and communications, and commerce). From the gross output of each sector, deductions are made for depreciation and other intermediate inputs to arrive at the value added; the figures for each sector are then aggregated to arrive at the national income produced (or "net material product").

3.03 In theory, the national income produced by these sectors is distributed in two stages, namely, primary distribution and redistribution. The first is confined to personal income from material activities and the net revenue of enterprises and undertakings in these sectors. Personal income consists of wages and welfare benefits paid to workers; expenses incurred by enterprises for meeting health, education and welfare payments; and income in cash and in kind of agricultural workers and commune members, including income from sideline activities. Net revenue of enterprises includes profits, taxes, and payments of interest and for training workers.

3.04 The use of the income originating from these sectors is subdivided into social and individual consumption and accumulation, which is in turn disaggregated into fixed accumulation and circulating assets. Social consumption refers to government and communal consumption (including expenditures by the state and enterprises on cultural, educational, public health and welfare services). The framework provides an element for depreciation

^{/1} Series F, No. 17, New York, 1971.

^{/2} Nai-Ruenn Chen, Chinese Economic Statistics: A Handbook for Mainland China, Chicago 1967; Shigeru Ishikawa, National Incomes and Capital Formation in Mainland China, Institute of Asian Economic Affairs, Tokyo, 1965.

on private buildings to be included in consumption, along with depreciation and costs of minor repairs to assets of government agencies, the armed forces and all nonproductive enterprises. Accumulation represents the part of the national product that leads to increases in fixed capital assets, inventories and other material reserves. Circulating assets comprise increases in inventories.

3.05 The distinction between material and nonmaterial production is that all activities and services contributing to the production of goods are material; all other services are nonmaterial. Essentially, all personal and most public services are excluded from the concept of material production. In terms of the International Standard Industrial Classification (ISIC), the following activities are viewed as nonmaterial:

- 6320 rooming houses, camps and other accommodations
- 810 financial institutions
- 820 insurance
- 831 real estate
- 832 business services other than machinery and equipment rentals and leasing (except 8324: engineering, architectural and technical services)
- 910 public administration and defense
- 920 sanitary and similar services
- 931 education services
- 932 research and scientific services
- 9331 medical, dental and other health services
- 934 welfare institutions
- 935 business, professional and labor associations
- 939 other social and related community services
- 941 motion picture and other entertainment services (except 9411: motion picture production)
- 942 libraries, museums, botanical and zoological gardens, and other cultural services not classified elsewhere
- 949 amusement and recreational services not classified elsewhere
- 953 domestic services
- 959 miscellaneous personal services
- 960 international and other extra-territorial bodies

Some additional activities in the ISIC groups are treated as nonmaterial activities:

- (a) certain services incidental to transport (part of ISIC 7191), such as tourist agencies and tourist development services;

- (b) certain types of activities included in engineering, architectural and technical services, notably those not connected with construction (part of ISIC 8324); and
- (c) part of veterinary services, namely those not connected with agriculture (part of ISIC 9332).

Another major difference is that the ownership of dwellings is not treated as an activity, and no imputation of rent is made.

3.06 Although national income estimated using either the production or the distribution approach should yield the same aggregate figure, after adjustment for the balance on external transactions, this is not necessarily so. The absence of complete statistical information and weaknesses in the data lead to a statistical discrepancy. The SSB places major emphasis on estimating national income from production, by estimating the net value of output in each of the five major sectors.

3.07 In industry, which includes manufacturing, mining, power generation and lumbering, the gross value of industrial output is computed by valuing the volume of output at ex-factory prices. The output of commune industry is included in this sector, but that of brigade industry is excluded. In principle, to obtain the net value of output from the industrial sector, deductions should be made from gross output for outlays for raw materials, fuels, electricity, depreciation and miscellaneous expenses. The rates of depreciation are changed infrequently and are low by Western standards, because equipment is amortized over a longer period. Furthermore, equipment discarded by large enterprises is passed down to smaller units and continues to be used long after it has been written off. Depreciation on "nonproductive assets," such as mess halls and workers' housing, are not included in material outlays. Net values contributed by workers' welfare (e.g. education, health, etc.) are included in the net value of output. Detailed information on production costs is generally not available, however. The SSB therefore uses the income approach in estimating value added, since the enterprises' accounting records provide detailed and more reliable information on wages, fringe benefits, profits and other charges, which represent value added.

3.08 Agriculture consists of three principal activities: crop growing, animal husbandry and sideline production, including brigade industry. The collection and hunting of natural products, such as herbs, minerals, wild animals and fowl, and handicrafts are also included. For clothing, footwear and other miscellaneous household items produced for the family's own consumption, crude estimates used to be made and incorporated into the estimates of value added, but given the statistical difficulties of making realistic estimates, this practice was discontinued after 1957. While these exclusions understate the overall value of output, some double counting in other areas is unavoidable (e.g. grain used to feed animals counts in the estimates of both grain output and animal output).

3.09 Gross agricultural output is valued at prices prevailing in the locality. Procurement prices are used to value output procured by the state. Output consumed is also valued at procurement prices. Theoretically, output sold on the open market is valued at market prices less transport costs, but in practice the prices used reflect procurement prices.

3.10 The net value added by agriculture is obtained by deducting the value of inputs of seed, fertilizer, insecticide, animal feed, fuel and electricity. Depreciation charges on farm machinery and equipment are also deducted, but, as in the industrial sector, the rates are low. Outlays on welfare services (health, education and welfare benefits), while not strictly of a productive nature, are implicitly included in the net output of the sector.

3.11 The construction sector covers the building of productive and nonproductive structures, housing being the major element in the second category. Other activities include the construction of highways, railroads, and irrigation and drainage facilities; the installation of equipment; and drilling, and geological prospecting and surveys. The total cost of these activities constitutes the gross output of the sector. To obtain the net value added, deductions should be made for materials consumed; charges for transportation, communications and utilities; and depreciation on fixed assets. However, the paucity of data prevents the SSB from taking this approach. An alternative "income" approach is used, whereby value added is estimated by adding wages and salaries, fringe benefits in cash and kind, and the operating surplus of enterprises in the sector. The operating surplus includes profits, taxes and miscellaneous charges, such as interest paid and expenditure on training.

3.12 The transport and communications sector covers all modes of freight transportation (water, air, road and rail), along with the postal and telecommunications services to material-producing sectors. Thus passenger transportation and outlays on private postal and telecommunications services are excluded. The value added is estimated using the income approach (para. 3.11).

3.13 Commerce covers all wholesaling and retailing activities, including restaurants, which are viewed as an extension of material production. For practical purposes, the SSB includes all value added by the sector, although only transportation, storage and packaging costs should in fact be included. Value added is estimated either by taking the difference between purchases and sales, then deducting outlays on transportation, storage and packaging, office expenses and depreciation, or by the income method.

3.14 The net output of the above five sectors represents national income produced. For the agricultural and industrial sectors, constant-price net output is derived by deflating current-price net output by output price

indices. The net output of construction is deflated by an index of building material prices, and that of commerce by the retail price index, while the net output of transport is taken to be the same in constant as in current prices. The series for aggregate national income in constant prices is published only in index number form.

3.15 National Income Distributed. The lack of statistical data has prevented the SSB from computing workers' income, profits, interest, and indirect taxes in its estimates of the national income distributed. This results from the SSB's focus on producing national income estimates using the broad production approach, supplemented by estimates for some sectors using the income approach, taking into account data on "factor incomes" (e.g. wages, profits, etc.).

3.16 National Income Available. The SSB calculates ratios for consumption (comprising personal and social consumption, see para. 3.04) and accumulation.

3.17 Personal consumption, also referred to as residents' consumption, includes household expenditures on food, clothing, consumer durables, cost of utilities and an element for housing depreciation. In addition, residents' collective expenditure encompasses social expenditures (covering health, education, etc.) incurred by enterprises and production units. These two categories of expenditure are broadly identified as private expenditure in the Western framework of national accounts or the System of National Accounts.

3.18 Social consumption has been described as "the material consumption of nonproductive organizations and enterprises" or as "consumption in the public sector covering defense and administration." /1 This would correspond to the material part of what in the SNA is "government consumption." Overall estimates of consumption are made from budget data and accounting records of enterprises, supplemented by data gathered in model surveys of household expenditure.

3.19 Accumulation corresponds to domestic investment, but with several differences. First, capital expenditures on equipment and construction by the military are included, whereas the SNA convention treats these as current government consumption. Second, accumulation is net of depreciation. Maintenance and repair of productive fixed assets are excluded from both national income and accumulation, while for nonproductive assets they are

/1 Ishikawa, op. cit.

considered as part of current consumption. An increase in working capital in the productive sectors (inventories, stocks, goods in process, young farm animals and stockpiles) is the second element of accumulation.

3.20 Accumulation is estimated on the basis of data on fixed assets, working capital and material reserves that are compiled by production units. Problems arise in estimating accumulation in the agricultural sector. Labor inputs used in land improvement, terracing, drainage, etc., are valued on the basis of work points, but often the distinction between labor uses is difficult to make.

Conversion from Chinese National Accounts to SNA Aggregates

3.21 Net Material Product. In the Chinese estimates, national income, or net material product (NMP), defined from the production side, is the excess gross output value of goods and material services over intermediate consumption of goods and material services and consumption of capital. The NMP defined from the income side is the sum of the primary incomes of the population and enterprises. The NMP defined from the expenditure side is the sum of final consumption of goods and material services by households and by units serving individuals and the society as a whole; net capital formation (i.e. net of depreciation and losses); replacement of losses; and the balance between exports and imports of goods and material services.

3.22 Conversion from NMP to SNA. The following relationship between GDP and NMP ^{/1} can be broadly identified.

GDP = NMP plus - nonmaterial services produced

- tips, and the value of services by self-employed actors, composers, etc.
- imputed rents from owner-occupied dwellings (net of maintenance costs)
- the undepreciated value of scrapped fixed assets

minus - nonmaterial service inputs for the production of goods and material services (Cs1)

- all intermediate inputs (goods, and material and nonmaterial services) for the production of nonmaterial services (Cs2)

^{/1} Charts 2 and 3 show the relationship of GDP/NMP for the production sectors and final demand components, respectively.

Chart 2: Derivation of Sectoral Value-Added

	Material Production Sectors					Non-material Production Sectors		NMP/GDP	
	Agriculture	Industry	Construction	Transportation & Communication	Commerce	Non-material services ^(c)	Adjustment items ^(d)		
Intermediate inputs	-Goods and material services	a ₁₁	a ₁₂	a ₁₃	a ₁₄	a ₁₅	a ₁₆	-	-
	Non-material services	a ₂₁	a ₂₂	a ₂₃	a ₂₄	a ₂₅	a ₂₆	-	-
	Other inputs ^(a)	a ₃₁	a ₃₂	a ₃₃	a ₃₄	a ₃₅	a ₃₆	-	-
Factor Inputs	Wages & Salaries	f ₁₁	f ₁₂	f ₁₃	f ₁₄	f ₁₅	f ₁₆	-	-
	Tips	-	-	-	-	f ₂₅	f ₂₆	-	-
	Contributions to Social Insurance	f ₃₁	f ₃₂	f ₃₃	f ₃₄	f ₃₅	f ₃₆	-	-
	Operating Surplus ^(b)	f ₄₁	f ₄₂	f ₄₃	f ₄₄	f ₄₅	f ₄₆	-	-
	Consumption of Fixed Assets	d ₁	d ₂	d ₃	d ₄	d ₅	d ₆	-	-
	Gross Output Value (in current prices)	a ₁₁ ⁺ f ₁₁ ⁺ f ₃₁ ⁺ f ₄₁ ⁺ d ₁	a ₁₂ ⁺ f ₁₂ ⁺ f ₃₂ ⁺ f ₄₂ ⁺ d ₂	a ₁₃ ⁺ f ₁₃ ⁺ f ₃₃ ⁺ f ₄₃ ⁺ d ₃	a ₁₄ ⁺ f ₁₄ ⁺ f ₃₄ ⁺ f ₄₄ ⁺ d ₄	a ₁₅ ⁺ f ₁₅ ⁺ f ₃₅ ⁺ f ₄₅ ⁺ d ₅		-	-
	Net value (MPS)	f ₁₁ ⁺ f ₃₁ ⁺ f ₄₁ ⁺ -P ₁	f ₁₂ ⁺ f ₃₂ ⁺ f ₄₂ ⁺ -P ₂	f ₁₃ ⁺ f ₃₃ ⁺ f ₄₃ ⁺ -P ₃	f ₁₄ ⁺ f ₃₄ ⁺ f ₄₄ ⁺ -P ₄	f ₁₅ ⁺ f ₃₅ ⁺ f ₄₅ ⁺ -P ₅			P ₁ ⁺ +P ₂ ⁺ +P ₃ ⁺ +P ₄ ⁺ +P ₅ ⁺ - NMP
	Value added (SNA)	P ₁ ⁻ a ₂₁ ⁻ a ₃₁ ⁺ d ₁ -Y ₁	P ₁ ⁻ a ₂₂ ⁻ a ₃₂ ⁺ d ₂ -Y ₂	P ₃ ⁻ a ₂₃ ⁻ a ₃₃ ⁺ d ₃ -Y ₃	P ₄ ⁻ a ₂₄ ⁻ a ₃₄ ⁺ d ₄ -Y ₄	P ₅ ⁻ a ₂₅ ⁻ a ₃₅ ⁺ f ₂₅ ⁺ d ₅ =Y ₅	f ₁₆ ⁺ +f ₂₆ ⁺ f ₃₆ ⁺ +f ₄₆ ⁺ -a ₂₆ ⁻ -a ₃₆ ⁺ +d ₆ -Y ₆	Y ₀	Y ₁ ⁺ +Y ₂ ⁺ +Y ₃ ⁺ Y ₄ ⁺ +Y ₅ ⁺ +Y ₆ ⁺ +Y ₀ ⁺ =GDP

^(a) Other inputs include: (1) business travel expenditures; (2) business expenditures on public relations; (3) business expenditures to provide cultural and recreational services for employees; (4) losses of stocks and fixed assets due to accidental damage minus undepreciated value of scrapped fixed assets; and (5) transfer costs for purchases of intangible assets, land and mineral deposits and existing second-hand fixed assets.

^(b) Operating surplus is defined within the System of Material Product Balances. This means that the operating surplus implicitly includes value of the non-material service inputs and of the other inputs listed in the above footnote (a).

^(c) Excluding: (1) ownership of dwellings; and (2) services of self-employed actors and composers, etc.

^(d) Adjustment items include: (1) imputed rents from dwellings (net of maintenance costs); (2) value of services by self-employed actors and composers, etc.; (3) imputed value of casualty insurance for producers; and (4) income originated in the country's embassies and missions abroad minus income originated in foreign embassies and missions stationed in the country.

Note: a_{ij}, f_{ij}, d_i, P_i, and Y_i refer to values (and not coefficients, prices, etc., as in the standard input-output framework).

Chart 3: FINAL DEMAND

	Consumption	Net investment	Exports <u>minus</u> imports	Losses
Goods and material services	C_1	I_1	X_1	L_1
Nonmaterial services	C_2 <u>/d</u>	-	X_2	-
Depreciation	-	D	-	-
Adjustment items	A_1 <u>/a</u>	A_2 <u>/b</u>	A_3 <u>/c</u>	-
Final demand in the SNA	$C_1+C_2+A_1$	I_1+D+A_2	$X_1+X_2+A_3$	-

/a A_1 = Government expenditures on military durables plus imputed rents from owner-occupied dwellings plus value of domestic services by individuals and of services by self-employed actors, etc., plus purchases abroad by residents minus consumption in the domestic market by foreign embassies and other nonresidents minus material part of business travel expenses, material cost of cultural and recreational facilities for employees and material cost of business public relations activities minus material costs included in nonmaterial services consumed.

/b A_2 = Losses of fixed assets and stocks due to accidental damage plus transfer costs for purchases of existing fixed assets plus fixed investment by the country's embassies and missions abroad minus government expenditures on military durables minus fixed investment by foreign embassies and missions.

/c A_3 = Purchases by foreign embassies and nonresidents in the domestic market minus purchases abroad by the country's embassies and other residents.

/d C_2 = Value of nonmaterial services purchased by households or financed by government for households plus cost of nonmaterial services produced for own use by government and private nonprofit bodies.

- the material part of business travel expenses, business expenditures for cultural and recreational facilities for employees, and business expenditures on public relations (Cs3)
- foreseen losses in stocks (Cs6)
- income originating in foreign embassies, etc.
- plus - depreciation and losses of fixed assets, and unforeseen losses of stocks.

Equivalently,

- GDP = NMP plus
- compensation of employees in the nonmaterial sphere
 - contributions to social insurance in the nonmaterial sphere
 - operating surplus in the nonmaterial sphere
 - tips and value of services by self-employed actors, composers, etc.
 - imputed rents from owner-occupied dwellings (net)
 - undepreciated value of scrapped fixed assets
 - minus - (Cs1+Cs2+Cs3+Cs6)
 - income originating in foreign embassies and missions
 - plus - depreciation and losses of fixed assets, and unforeseen losses of stocks.

3.23 Clearly all these adjustments cannot be attempted given the limited data available. SSB officials stated that the agency had not focused on gathering detailed data on the nonmaterial production sectors but had instead devoted its limited resources to basic compilations for estimating national income in accordance with methodologies established in the 1950s. The SSB recognizes that more work is needed. Indeed, the fundamental issue of whether it should move to the full MPS system of accounting or gradually move to the SNA framework has yet to be addressed and no early decision on this is likely. SSB officials are presently studying the two systems and seeking assistance from the UN Statistical Office.

3.24 In the recent past, the SSB has made crude, unofficial estimates of GDP at the request of international organizations. SSB officials stressed that data gaps and their incomplete understanding of the SNA framework prevented them from making full and consistent GNP/GDP estimates. They further stressed that their estimates were tentative and unofficial. The methods and underlying assumptions used to arrive at these estimates are discussed below.

SSB's GNP/GDP Estimates

3.25 From the estimates of national income produced for 1978 and 1979, two basic adjustments (for depreciation and nonmaterial services not covered by the existing framework) were made to arrive at GDP, as shown below:

	1978	1979
	- (Y billion) -	
National income produced	301.1	337.0
+ Depreciation	19.5	21.6
+ Nonmaterial services	20.3	22.8
Gross Domestic Product	<u>340.9</u>	<u>381.4</u>

3.26 The estimates for depreciation were based on data reported by enterprises and other undertakings, including the communes. Information on the stock of fixed assets was also available, and depreciation rates are fixed by the state. In the SSB's view, the overall estimates of depreciation are fairly well based and can be used with confidence. The totals shown include an element for depreciation of nonproductive assets, including rural housing. Overall, depreciation represented about 6.4% of national income produced. This low rate was attributed by the SSB to the extended use of equipment and the practice of using assets that had been written off.

3.27 The SSB stated that their estimates of nonmaterial services (comprising wages and salaries; profits, taxes, interest attributed to nonmaterial services; and net revenue of financial institutions) represented about 6.7% of national income produced (NMP). The wage component was based on employment in the nonmaterial production sectors. The overall numbers of employees were estimated at 28.2 million and 29.8 million in 1978 and 1979, respectively.

3.28 The low value of nonmaterial services was attributed by the SSB to the fact that the service sector had been long neglected, the services provided were of poor quality, services were often not available in rural areas, wage levels were low, and the prices charged for many services (e.g. passenger transportation) were subsidized. Profits and other factor incomes in this sector were low. On the other hand, these estimates were based on incomplete data and were only broad orders of magnitude.

3.29 Some additional breakdowns of the number of employees in the nonmaterial service sectors were available. Of 28.2 million employees in 1978, 24.7 million were employed in government posts, people's organizations, research institutes, and education and health facilities. The corresponding figure for 1979 was 25.9 million. Other services, including passenger transportation, barbers and hairdressers, employed 2.9 million people in 1978 and 3.24 million in 1979. Financial institutions had 620,000 and 700,000 workers, respectively, in these two years. Increases in employment were attributed to the change in policy calling for better services for the masses.

3.30 The mission's own estimates of China's GNP, based mainly on the SSB's data, are described in the Appendix (para. A.23-4).

4. ISSUES AND FUTURE DIRECTION

4.01 Since 1949, the Chinese authorities have attempted to establish a modern statistical system that can serve the needs of their vast country. While there has been progress, political and ideological struggles within China during this period have undoubtedly affected the statistical system. Chinese officials admit that the excesses of the Great Leap Forward led to the falsification and exaggeration of statistics. The Cultural Revolution also had a devastating impact. Moreover, the Chinese statistical system, which has developed virtually independently, cannot cope with the statistical needs of planners, administrators and policy makers, especially in the context of the economic and administrative reforms recently instituted. The weaknesses in the statistical system (detailed below) are clearly recognized by the Chinese authorities.

Staffing and Training

4.02 An important weakness in the statistical system is the lack of trained and experienced statistical personnel. During the Cultural Revolution, the dissolution of the SSB and the network of provincial and county level statistical units resulted in the dispersal of statistical staff. The staff lost during these years of turmoil have not yet been fully replaced. The educational system was disrupted for more than ten years, which halted the flow of trained statistical manpower; in fact, the universities and other institutions of higher learning will graduate their first students since the Cultural Revolution in the next year or two. The graduates' lack of work experience will, however, limit their effectiveness for several years. Efforts are being made to train selected staff abroad, but the numbers trained will be small.

4.03 The present program of on-the-job training is limited and not adequately organized. The lack of trainers, teaching materials and equipment hampers implementation of an effective program. Clearly, high priority needs to be given to developing the necessary institutional facilities to undertake a massive training program for staff at all levels of the statistical bureaucracy. SSB officials indicated that proposals for establishing an Institute of Planning and Statistics were under active consideration, and the institute could become a reality in the foreseeable future. The SSB was also seeking assistance from the UN Statistical Office in obtaining the services of consultants and specialists to lecture to SSB staff on various facets of statistical practice and methodology. Recently a UN consultant on national accounting spent several weeks in the SSB; similar arrangements were being made for consultants in sampling and industrial statistics.

Statistical Methodology and Procedures

4.04 As a result of China's lengthy isolation, Chinese statistical staff's knowledge of sampling, national accounts methodology (using the MPS or SNA format), international classifications and recommendations is extremely limited. Statistical standards and practices are still based on the Soviet system of the 1950s with few modifications. Some procedures have been developed domestically, without the benefit of the experience of other countries. The few user manuals available were developed on an ad hoc basis, and many have not been revised for two decades.

4.05 The "comprehensive table" approach to statistical collection, with its heavy emphasis on complete enumeration in data gathering, is wasteful of resources and places an undue burden on the statistical system. New data series are difficult to initiate. The approach to aggregation and summarization of data at different levels reduces flexibility and limits the production of statistics. The standardized tabulations produced tend to be rigid and simple presentations of the available information; some important functional and economic relationships are not depicted. Disaggregated series are not available, except from lower level units of the statistical system.

4.06 Sample survey techniques, which are extensively used in both developing and developed countries, are hardly used by the Chinese statistical authorities, for two main reasons. First, knowledge of these techniques is limited. Second, the common use in China of "model surveys" to verify and supplement data collected through "comprehensive tables" was reflected in statistical practice.

Computing Facilities and Equipment

4.07 The computing facilities available to the SSB and the PSBs are limited, which compounds the problems of producing tabulations that are relevant for users. It also prevents maximum utilization of the vast amounts of data gathered at the lower levels of the statistical system. Most statistical units at the county level do not have an adequate supply of calculating equipment; most depend on using the abacus. This is true even at some PSBs. These factors partly account for data being tabulated and compiled in a rigid fashion.

Organization

4.08 Statistical activity is organized along two, broadly parallel lines under the SSB and the specialized ministries (para. 2.01), between which there is an apparent lack of coordination and consequent duplication of effort. The tendency towards "compartmentalization" is not conducive to a coordinated approach, or uniformity in statistical standards, concepts and definitions. This organizational approach places a significant burden on the limited statistical manpower at the lower levels of the system, in particular units at the reporting levels, which often spend an inordinate amount of time reporting the same data to several agencies. Supervision and quality control of these units' operations appear to be neither organized, systematic, rigorous nor comprehensive. Again, these factors affect the accuracy and reliability of the data reported.

4.09 Other organizational factors also raise serious questions about the quality of data collected. Some local cadres sometimes sacrifice statistical objectivity to earn the approbation and praise of high officials by only reporting achievements. Communes and enterprises prepare reports that satisfy what the current programs demand; if, for instance, energy conservation is called for, then progress in this area will be reported. This tendency stems in part from directives issued in the early 1960s, which stated that "Statistical work should take as its major task the reporting of achievements and triumphs." These problems are well recognized by Chinese officials. The People's Daily in a recent article /1 commented:

"Trickery and deception in statistics are..... vestiges of many years of propensity towards boasting and exaggeration in the economic sphere."

4.10 Finally, statistical compilations are built upon financial accounting and operational records. Thus, there is only a fine distinction between statistical and bookkeeping operations. Indeed, the same individuals are responsible for both functions at the grassroots level. Statistical compilations are therefore neither independent, nor subject to systematic verification.

Publication and Utilization of Data

4.11 Apart from the publication of the annual communiques on the fulfillment of the plan (a procedure revived in 1979), the Government publishes no formal statistical yearbook or statistical abstract. The communiques contain a limited set of indicators, indices and ratios. Use is also made of the media (broadcasts as well as newspapers) to release statistical data. The SSB, unlike most statistical offices, does not issue either monthly or annual abstracts along with specialized reports./2 There are several reasons for this. SSB officials indicated that while they are still attempting to restore and reconstruct the statistical system, they cannot publish data extensively, given their quality and coverage. This generally cautious approach seems appropriate in view of the damage to the statistical system during the Cultural Revolution.

/1 Quoted in the Wall Street Journal, February 16, 1981 - "Chinese Communes, Factories are Caught Fudging Figures and Pushing up Prices."

/2 In April 1981, the SSB began publishing a bi-monthly journal, Statistics, in which more data will be made available. Another journal, Statistics Research, is to be published on an occasional basis.

4.12 Perhaps other reasons also contribute to the severely restricted publication of data. An examination of the "comprehensive tables," showing data that are routinely collected, reveals that a vast amount of statistical information is being collected, certainly far more than is being released (this is also true of other centrally planned economies). The mission observed that there was a greater willingness to make data available at both the county and provincial levels. The classification of all statistical material as state secrets partly explains why only limited statistical information has been released since the Great Leap Forward.

4.13 Only limited use - and in rather simple ways - is made of statistical data in the planning process, particularly in the macroeconomic sense. Work on constructing input-output tables began only recently. Some experiments were being undertaken at the provincial level to estimate I/O tables in physical terms. Researchers at the Academy of Sciences, in collaboration with the SSB, were exploring the possibility of developing conventional I/O tables at the national level.

4.14 Although the situation has improved considerably over the past few years, researchers still have difficulty in obtaining necessary data. The secrecy with which data are treated affects not only research, but also analysis; data are not available on a wide enough basis to be fully used or to be subjected to detailed scrutiny, which could detect errors and inaccuracies. Moreover, agencies that do not have access to available data initiate their own collection procedures, thus adding to duplication and possible inconsistencies.

Future Direction

4.15 China's program of economic reforms entails decentralization and creating a more open and market-oriented economy, with the general aim of serving the needs of a vast and complex society. These changes will require the statistical system to be reformed, restructured and reorganized. Some key aspects of the actions needed are outlined below.

4.16 The first and most important task is in the area of training. The establishment of the proposed Institute of Statistics and Planning should be supported; in designing its training program, attention should be paid not only to strictly theoretical aspects (e.g. sampling and statistical analysis), but also to many practical issues (e.g. appropriate collection procedures, tabulation methods, and the general management of a statistical system). Early action to train computer specialists is also called for. General statisticians will need to be familiar with the capabilities of modern computing equipment, so that they can use computer hardware effectively. Training of staff of the reporting units should focus on practical aspects rather than on the highly abstract aspects of statistical theory.

4.17 The approach to statistical methodology and practice is too inflexible and cumbersome for gathering the wide range of data needed. Introducing sampling techniques would considerably reduce the processing burden, but not the accuracy of data gathered and compiled. Sampling should become an important tool; thus, instead of gathering the full range of agricultural data from all brigades and communes, detailed information could be collected from only a few. Units not in the sample could still proceed with basic computations. The resources freed could be utilized to extend the coverage of collections and make them more meaningful, by tabulating data along economic and functional lines rather than administrative lines. The SSB should give urgent consideration to producing new and revised guidelines and manuals for use by statistical clerks and bookkeepers in the reporting units.

4.18 In many instances, classification schemes are inappropriate for economic analysis and need to be reviewed. The SSB's recent participation in the work of the international statistical community (e.g. the UN Statistical Commission, ESCAP's Committee on Statistics, and various expert groups) indicates its desire to familiarize its staff with international statistical standards; bilateral exchanges between the SSB and the national statistical offices of other countries have also taken place. While these moves are commendable, they will not resolve the system's major problems. The SSB needs to make a conscious effort to review its existing classifications and procedures, drawing upon international and national practices.

4.19 The statistical basis for estimating nonmaterial production in China seems weak, even compared to the performance of other developing countries (SSB officials agreed with this assessment). The SSB's estimates could be refined considerably by using existing statistical data on employment, wages and other indicators. In the longer term, efforts should be made to collect additional information through special sample surveys and to utilize existing records more intensively.

4.20 Computing facilities will become available at both the SSB and the PSBs through work on the census. However, without an expanded training program, the limited trained computer staff will curtail the ability of these agencies to use the equipment effectively. (The experience of other developing countries with computers indicates a considerable lead time before hardware can be effectively used.) In the long run, software will need to be developed to meet the special needs of the Chinese statistical system, but in the first instance, the SSB should obtain and use computer software packages from abroad (e.g. COCENTS, CONCUR, XTALLY, UNEDIT, SSPS, etc.). The reporting units and the statistical offices at the county and provincial levels are all in urgent need of calculating machines to undertake simple arithmetical and statistical functions.

4.21 The present decentralized system needs to be reviewed. With agencies working in a compartmentalized fashion, duplication, excessive reporting requirements, and inconsistent data series are inevitable. The SSB therefore needs to play a more dynamic role in setting standards and coordination. It further needs to be generally reoriented to make it more responsive to user needs. Finally, there is a need to incorporate into the system mechanisms for quality control of data. Using an independent group of investigators to verify data could significantly improve accuracy by reducing falsification and exaggerated reports.

4.22 Statistical confidentiality and safeguarding national interests are legitimate concerns but they should be balanced against the needs of users. The highly aggregated data that are presently published or disseminated are of limited value in decision making, particularly by operating agencies. This practice needs to be reviewed, since the role of statistical data in this area is vitally important in the context of the economic reforms initiated recently. The availability of detailed macro-economic data that show the general economic situation would be a prerequisite for effective decentralization of decision making to the provincial, commune and enterprise levels. The SSB should therefore consider liberalizing the publication of data. This would not only give users greater access to statistics, but the SSB would also benefit from the greater scrutiny of data, which would allow glaring inaccuracies to be identified. The scope for misreporting and falsification could thereby be considerably reduced.

4.23 China's self-help approach to development issues, which has isolated it from the experience of the rest of the world, has had a negative influence on the country's statistical system. Now, however, China can benefit from the accumulated experience of international and national statistical systems. In this connection, international agencies active in the statistical field are ready to assist China in modernizing its statistical system. The SSB is expected to take advantage of this opportunity as it initiates work to upgrade China's statistical system.

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CONVERSION OF MACROECONOMIC AND
INCOME DISTRIBUTION STATISTICS

A.1 This Appendix explains how official Chinese data were adjusted to facilitate the international comparisons in the Main Report. It also provides additional information on the sources of data for other countries. (Supporting tables appear at the end of the Appendix.) It should be emphasized that the calculations to be described are based, despite much assistance from the Chinese authorities, on limited knowledge of the coverage, definitions and methods of estimation of some of the official statistics involved. The resulting estimates should thus be treated with caution.

Real Net Output Growth

A.2 For various years between 1949 and 1979, estimates were available of (a) agricultural and industrial gross output at constant prices (Annex B, Table 2.3), (b) total net material product (NMP) at current and - in index form - constant prices, and (c) sectoral shares in NMP at current prices (Annex B, Table 2.1). From these were derived sectoral net output at current prices (Table A.1) and implicit sectoral gross output price indices (Table A.2).

A.3 Brigade and Team Industry. To obtain estimates of sectoral output comparable with other countries, the output of brigade and team industrial enterprises must first be transferred from "agriculture" (where it is classified in official Chinese data) to "industry." (See Tables A.3 and A.4 for both gross and net output.)

A.4 Deflation of Sectoral Net Output. To obtain estimates of real net output growth in individual sectors, current-price net output needs to be deflated. Table A.5 presents a set of sectoral output price indices. Those for agriculture and industry are the implicit gross output deflators from Table A.2, supplemented by other data for 1977-79. For the other, smaller, sectors the price indices correspond approximately to those currently used by the SSB in constructing their constant-price NMP index.

A.5 The lack of an agricultural price index for 1952 (Table A.5) is due to a major change in the coverage of agriculture in 1957 (household processing of farm products and production of handicrafts for own-consumption were excluded from production estimates after 1957). In principle the gap could be filled by the agricultural procurement price index (Annex B, Table 3.1). But in practice using that index to deflate current-price net output data yields a real growth rate far lower than that implied by other information on agricultural output. The real growth rate of agricultural net output in 1952-7 was accordingly based on another authoritative Chinese source (Table A.6).

A.6 For other sectors and periods, two alternative methods of deflation were used. The first (known as "single deflation") was simply to deflate current-price net output in each sector by the relevant output price index - the method currently used by the SSB. The second, which is more commonly used in other countries and is in principle more accurate (especially in periods when relative prices change substantially), is "double deflation." This

involves deflating gross output by output prices and intermediate inputs by input prices - the difference between the constant-price gross output series and the constant-price input series being constant-price net output. The disadvantages of double-deflation in the present context are that no satisfactory estimates of gross output in construction, transportation and commerce are available, and that even in agriculture and industry it is necessary to rely on rather rough estimates concerning the composition of inputs (Table A.7).

A.7 In Table A.8, which contains the estimates of sectoral real net output, the results obtained for the two major sectors by both single and double deflation are presented, while those for the other sectors are unavoidably obtained only by single deflation. In addition, the estimates for the two major sectors are presented with brigade industry output included first in agriculture, then in industry. Estimates of total real net output, obtained simply by addition across sectors, are also presented and compared with the SSB's index.

A.8 Among the significant features of the estimates in Table A.8 are: (a) transferring brigade industry from agriculture to industry slightly diminishes the growth rate of agriculture and slightly increases that of industry; (b) because the agriculture-industry price ratio has risen, double deflation (as compared with single deflation) causes agricultural growth to appear somewhat slower and industrial growth somewhat faster, and (c) because this effect is larger for industry than for agriculture, double deflation also slightly raises the real growth rate of total net output.

A.9 By either method, however, estimated total real net output grows more slowly in 1952-79 than the SSB's real net output index. The reason for this is that the SSB's estimates prior to 1970 are based on 1957 and 1952 prices, which, since the agriculture-industry price ratio was then lower, raises the estimated growth rate by increasing the weight of industry (the fastest-growing sector) in total output. In other words, the SSB's constant-price index is not based on the prices of any single year, but is a chain index based on different prices in different subperiods.

Sectoral Output Shares

A.10 Several adjustments are needed to convert the official data on sectoral shares in NMP to sectoral shares in Gross Domestic Product. To begin with, it is necessary to move brigade industry from agriculture to industry (para. A.3). It is also appropriate to allow for the education, health and other social services that producing units (enterprises and communes) in China provide to their workers. On the basis of discussion with the SSB, 1% of the net output of each of the material production sectors was accordingly transferred to the nonmaterial service sector (see below). Since NMP (unlike GDP) is net of depreciation, it is also necessary to add depreciation to both sectoral and total output. Table A.9 presents estimates of depreciation for 1979, based largely on information supplied by the SSB and other Chinese sources.

A.11 Finally, it is necessary to add the output of the nonmaterial service sectors to material production, in two stages. First, estimates of

the net output of personal and public services (including passenger transport, public administration and defence), and of depreciation in those sectors, were supplied by the SSB (paras. 3.26-7). Second, on the basis of the comparisons with other developing countries below, from the UN Yearbook of National Accounts

India (1976)	3.0%
Lesotho (1974)	9.0%
Pakistan (1977)	3.4%
Sri Lanka (1977)	1.8%
Tanzania (1977)	4.4%
Korea, Rep. of (1977)	2.5%
Mexico (1977)	4.2%

Statistics 1978, the rent of housing (gross of maintenance expenditures and depreciation, and including the imputed rent of owner-occupied housing) was assumed to be 3% of GDP - implying a monthly rental of about Y5 per household, which is not radically inconsistent with what is known about actual rents in China./1

A.12 The adjustments made to the data for 1979 are summarized in Table A.10. For 1957, although adjustment of sectoral output was not possible, an attempt was made to convert total NMP to GDP on approximately the same principles, but using data from unofficial sources. The results are presented in Table A.11. The estimated ratio of GDP to NMP is 1.16%, the same as in 1979. This overall constancy conceals a slight decline in the ratio of nonmaterial services proper (lines 2-5) to NMP, from 8.7% in 1957 to 7.7% (including depreciation) in 1979.

A.13 All these estimates are at "market prices", whereas in Western countries it is more usual to estimate sectoral shares in GDP at factor cost/producer prices (the difference being indirect taxes less subsidies). However, to put the Chinese data onto a factor cost basis would be not only difficult in practice but, more importantly, dubious in principle. Most enterprise profits in China accrue directly to the state, which makes the dividing line between profits and indirect taxes (and indeed between - reduced - profits and subsidies) an essentially arbitrary one. A better alternative is therefore to compare Chinese sectoral output shares at market prices with sectoral output shares in other countries, also at market prices (Table A.13).

A.14 One notable feature of this comparison is the low share (21.5%) of services in China's GDP, relative to that in other developing countries. However, the Chinese service share is close to those calculated by the Bank for the nonmarket economies of Eastern Europe, as shown below.

/1 The SSB's treatment of rent, which differs from that prescribed in the UN Handbook of National Accounting, is as follows. For rural areas, assuming 160 million dwellings with an imputed rental of Y30 p.a., a rounded estimate of Y5 billion is derived. It is assumed that 60% of this figure represents maintenance costs, with the remaining Y2 billion assumed to be depreciation. Apart from this allowance for depreciation, the imputed rent of owner-occupied housing is omitted (no separate calculation is made for owner-occupied urban housing). The surplus earned by agencies that rent and manage housing in urban areas is included in the estimates of profits and taxes in nonmaterial sectors (the amount is extremely small).

Bulgaria	18%
Hungary	26%
Poland	20%
USSR	21%
Czechoslovakia	19%
German DR	21%

Among the reasons for its small size are thus likely to be factors common to all nonmarket economies, including a high degree of vertical integration in industry, low prices and wages in service sectors, and the absence of certain sorts of services. In addition, in China, the provision of passenger transport and personal services has until recently been neglected and even discouraged.

Sectoral Employment and Productivity

A.15 Estimates were available of the total labor force and of employment in agriculture and industry (excluding construction) in various years from 1952 to 1979, and also of the division of other employment in 1978 and 1979 between the material and nonmaterial service sectors (Annex B, Table 10.1). For comparability with data from other countries, it is necessary to transfer (a) employment in brigade industry from agriculture to industry and (b) employment in construction from material services to industry. These adjustments are summarized and explained in Table A.12.

A.16 Sectoral labor productivity ratios were then calculated for China (using the adjusted data) and for other developing countries from sectoral shares of net output and employment (Table A.13). For countries other than China, it was unfortunately necessary to use 1978 employment data; but sectoral employment shares change only slowly.

A.17 By comparison with other countries, the value of net output per worker in industry, as compared with other sectors, appears unusually high in China.^{/1} Although comprehensive data on (especially industrial producer good) prices were not made available to the mission, there is indirect and fragmentary evidence that at least part of the reason for this large sectoral productivity gap is unusually high relative prices for industrial products. Although the unusually large labor productivity gap between industry and agriculture could be attributed in part to unusually high agricultural population density, it is hard to find a corresponding physical reason for the gap between industry and services. A possible reason might be that China's industrial structure contains an unusually high proportion of capital-intensive, high-productivity subsectors such as steel and oil refining; but the data in Table 4.10 of the Main Report do not bear this out. (What is unusually large in China is the engineering industry - but this is a comparatively labor-intensive subsector). That industrial relative prices are unusually high in China has also been

^{/1} Chinese sectoral output, but not sectoral employment, was adjusted for the provision of nonmaterial services by material production sectors. Had employment also been so adjusted, the labor productivity gap between industry and other sectors in China would appear even larger, though only slightly.

generally accepted by most external scholars./1

A.18 For illustrative purposes, it may be assumed that the whole of the difference between China and India in relative industrial labor productivity is due to different internal relative prices (India being a large and industrially well-advanced low-income country, whose sectoral labor productivity ratios are closer to those of middle-income countries than to those of other low-income countries). On this basis, it is possible to estimate what Chinese sectoral output shares would be at Indian prices (Table A.14). It should be noted that Indian prices are used in this and subsequent calculations not because they are "undistorted" but because they are fairly representative of those prevailing in most developing countries, and thus constitute an appropriate basis for comparing China with other developing countries.

Per Capita GNP

A.19 Growth, 1957-79. Gross National Product (GNP) is defined as the sum of GDP and the net factor income from abroad of domestic residents. For China, the latter was negligibly small (about 0.05% of NMP) in 1979 and cannot be estimated for earlier years. In estimating long-term growth, therefore, GNP and GDP are treated as identical. Moreover, as explained earlier (para. A.12), the estimated ratio of GDP to NMP at current prices happens to be the same in both 1957 and 1979. Thus, assuming that changes in relative prices did not affect the constant-price ratio of GDP to NMP, the growth rate of real NMP in this period may be taken to be equal to that of GDP (and GNP).

A.20 The rate of growth of NMP itself depends on the prices at which it is evaluated, and in particular on the industry-agriculture price ratio, which affects the relative weights attached to the very different growth rates of these two sectors. The SSB's real NMP index, which (as explained in para. A.9) is based on a mixture of 1970 and pre-1970 prices, grew at an annual average rate of 5.440% during this period. The conceptually most appropriate of the 1970 price-based indices in Table A.8 (double-deflated, with brigade industry in industry) grew somewhat more slowly, at 5.308% per year.

A.21 It is also possible to evaluate the 1957-79 growth rate at 1979 Chinese prices, following the sharp increase in agricultural support prices and the decline in some industrial prices in that year (Table A.15). The resulting growth rate is, as would be expected, significantly lower than when evaluated at 1970 prices - 5.006%. Finally, making the assumption discussed in para. A.18, the growth rate can be evaluated at 1979 Indian prices (Table A.16). Since the estimated Indian industry-agriculture price ratio is lower than the Chinese, this makes the 1957-79 growth rate lower still - 4.600%.

A.22 An alternative approach is to estimate the growth of NMP from the expenditure rather than the production side, which makes a difference because the residual error is not negligible - Table A.17 - and because its sign

/1 See D. Perkins, *China's Modern Economy in Historical Perspective*, Stanford, 1975, pp. 129-30; and J-C Liu, "A Note on China's Pricing Policies" (mimeo 1980).

altered between 1957 and 1979. As a result, at current prices, NMP grew in 1957-79 at an annual rate of 5.84% when estimated from the expenditure side, as compared with 6.14% when estimated from the production side. Table A.26 presents estimates of NMP from the expenditure side at constant 1970 prices, by two alternative methods, which imply that growth in 1957-79 was between 4.941% and 5.010% per year. The various alternative estimates of real growth in NMP and NMP per capita are summarized in Table A.18. The range between the lowest and the highest is 0.8 of a percentage point.

A.23 Level, 1979. China's current per capita GNP was estimated as follows. Starting from the 1979 GDP estimate in domestic currency in Table A.10, estimates for GDP in 1977 and 1978 were derived by assuming the same ratio of GDP to NMP. To these were added estimates of net factor income from abroad based on IMF balance of payments data (converted to domestic currency at the official exchange rates in the years concerned). The resulting GNP estimates (see table below) were converted to constant 1977 prices using an implicit NMP deflator derived from Annex B, Table 2.1.

	1977	1978	1979
	-----	(Y billion)	-----
GDP (current prices)	308.70	349.56	391.24
Net factor income from abroad	-0.57	+0.16	+0.14
GNP (current prices)	308.13	349.72	391.38
Implicit NMP deflator (1977=100)	100.00	100.76	105.40
GNP (constant 1977 prices)	308.13	347.08	371.33
Exchange Rate (\$1 = Y)	1.828	1.661	1.541

A.24 From this, 1979 GNP per capita was calculated using the World Bank Atlas methodology.^{/1} In general terms, GNP in national currency in 1979 is first expressed in weighted average prices for the base period 1977-79, then converted into dollars at the GNP-weighted average exchange rate for the period and adjusted for US inflation. The resulting GNP is then divided by the mid-year population for 1979. The specific calculations are as follows.

$$\text{Step 1: } \sum_{77}^{79} \text{GNP in current yuan} = \text{Y } 1,049.23 \text{ billion}$$

$$\text{Step 2: } \sum_{77}^{79} \text{GNP in constant yuan} = \text{Y } 1,026.54 \text{ billion}$$

$$\text{Step 3: Domestic price deflator} = \frac{\text{Step 1}}{\text{Step 2}} = 1.0221$$

^{/1} This method reduces the effect of temporary under- and overvaluation of a particular currency and generally assures greater comparability of GNP per capita among countries.

Step 4: Weighted period (1977-79) average exchange rate

$$= \frac{\text{Step 1}}{\frac{(\text{GNP } 77)}{(\text{EX. } 77)} + \frac{(\text{GNP } 78)}{(\text{EX. } 78)} + \frac{(\text{GNP } 79)}{(\text{EX. } 79)}} = 1.6573$$

$$= \frac{1,049.23}{\frac{(308.13)}{(1.828)} + \frac{(349.72)}{(1.661)} + \frac{(391.38)}{(1.541)}} = 1.6573$$

Step 5: Mid-year 1979 population = 964.51 million

Step 6: 1979 GNP in constant (1977-79) local currency

$$= 1979 \text{ GNP in constant local currency} \times \text{Step 3}$$

$$= \text{Y } 371.33 \text{ billion} \times 1.0221 = \text{Y } 379.54 \text{ billion}$$

Step 7: 1979 GNP in constant (1977-79) US dollars

$$= \frac{\text{Step 6}}{\text{Step 4}} = \frac{379.54}{1.6573} = \$229.0 \text{ billion}$$

Step 8: 1979 dollar deflator = 1.07929 (adjustment for US inflation)

Step 9: 1979 GNP in current dollars = Step 7 x Step 8

$$= 229.0 \times 1.07929$$

$$= \$247.16$$

Step 10: 1979 GNP per capita in current dollars = $\frac{\text{Step 9}}{\text{Step 5}}$

$$= \frac{247.16}{964.51} = \$256.3,$$

which by convention in the Atlas is rounded to the nearest \$10, or \$260.

A.25 Economic Appraisal. It is important to enquire whether this official-exchange-rate based estimate of per capita GNP gives an approximately correct impression of China's real income in relation to that of other developing countries.

A.26 Table A.19 addresses this issue by attempting to compare real output in China and India, using a mixture of physical and constant price data. It suggests that real output per capita in China in 1979 was about 27% greater than in India - similar to the figure of 34% implied by the official-exchange-rate-based GNP estimates (which put India's per capita GNP at \$191). Excluding all services, whose coverage and valuation pose particularly difficult problems of comparability, the estimated per capita real output disparity (by the method used in Table A.19) would be larger - 45%.

A.27 Another approach to the same issue is to project the official-exchange-rate-based estimates of per capita GNP backwards, using real per capita GNP growth rates, and to see whether the implied level of GNP per capita in earlier periods appears plausible in relation to that of other countries. (This also provides a check on the plausibility of the estimated per capita GNP growth rates.) In Table A.21, this is done for China and India, projecting backwards to both the late and (somewhat less reliably) the early 1950s, using the lowest of the Chinese per capita GNP growth rates - that based on Indian prices - from Table A.18. This exercise suggests that China's per capita GNP was about 4% below that of India in 1952, and about 4% above it in 1957.

A.28 The 1952 figure is broadly consistent with other work that has attempted to compare real incomes in the two countries. Professor S. Swamy's estimates of net domestic product, expressed on a per capita basis, put China about 11% below India in 1952.^{/1} The 1957 figure, however, differs significantly from that of Professor Swamy, whose estimates imply that China's per capita net domestic product in 1957 was still 8% below that of India. As a corollary, Professor Swamy's estimated growth rate of Chinese net domestic product in 1952-57 (4.94% per year) is much lower even than the present estimate of real NMP growth at 1979 Indian prices (7.16%). Professor Swamy's 1957 estimate, if correct, implies either that the present estimates of Chinese growth in 1957-79 are too low (which is unlikely in view of his opposite conclusion for 1952-57) or that the official-exchange-rate-based estimates for 1979 overstate China's per capita GNP relative to India's.

A.29 On balance, then, both the alternative approaches discussed above confirm the impression given by the official-exchange-rate-based GNP estimates, namely that China's per capita real income is above that of India by a margin of 20-50%. On this basis, and using earlier work that permits approximate real income comparisons between India and other countries, Table A.20 compares China's per capita real income with that of some other countries. These comparisons are for various reasons subject to a considerable margin of error. But the broad impression they convey is probably correct, namely that China's per capita real income is about half that of the Philippines, about one third that of Colombia and Malaysia, about one fifth that of the Republic of Korea, and less than one tenth that of the industrialized countries.

Investment Share

A.30 Adjustment for Accounting Conventions. The accumulation ratio as defined in Chinese official statistics is the ratio of net (of depreciation)

^{/1} S. Swamy, Economic Growth in China and India 1952-70 (Chicago UP, 1973), Table 37. Professor A. Eckstein's estimates of GNP (China's Economic Development, Michigan UP, 1975, Table 7) imply that in per capita terms China in 1952 was about 16% below India in 1950, and hence perhaps 20% below India in 1952. (In expressing both the Eckstein and the Swamy estimates on a per capita basis, China's population was drawn from Annex B, Table 1.1, while India's was derived by interpolation and extrapolation from the 1951 census figure of 361 million and the 1961 census figure of 439 million.)

investment to "available national income" (defined as consumption plus investment). To convert this to the share of gross investment in GDP, three purely accounting adjustments are needed: (a) depreciation must be added to investment; (b) the deficit (surplus) on foreign trade in goods and material services should be subtracted from (added to) available national income to arrive at NMP estimated from the expenditure side; and (c) depreciation, nonmaterial services and rent must be added to NMP to arrive at GDP. In addition, for consistency with the practice of other countries, it is necessary to subtract estimated military investment from the Chinese investment figures. These adjustments are made and explained in Table A.22 for 1957 and 1979.

A.31 A further accounting issue is how to treat the residual error. One approach is to ignore it, as in the preceding paragraph, by using GDP estimated from the expenditure side as the denominator of the investment-to-GDP ratio. But in many developing countries, independent expenditure side estimates of GDP are not made, and private consumption is estimated residually, which is equivalent to including the residual error in private consumption. For consistency, the statistics in the World Development Report, 1980 accordingly add the residual error to private consumption even where independent expenditure side estimates of GDP are made. For purposes of international comparison, it is appropriate to do the same for China - by using GDP estimated from the production side as the denominator of the investment-to-GDP ratio. (Table A.22 presents estimates on both bases: the difference is less than one percentage point in both 1957 and 1979.)

A.32 Adjustment for Relative Prices. If, as suggested earlier (para. A.17), relative industrial prices are higher in China than in other developing countries, the investment share will seem higher, since the share of industrial goods in investment is much larger than in consumption. For purposes of international comparison, a rough adjustment may be made for this, again using the assumption about the difference between Chinese and Indian prices discussed in para. A.18.

A.33 Assuming (for simplicity) that investment consists entirely of industrial goods; and that consumption is made up of agricultural goods, industrial goods and services in the ratios 0.6, 0.25 and 0.15, respectively, the price ratio of consumption to investment goods is thus

$$(0.6 \times \frac{\text{agriculture price}}{\text{industry price}}) + 0.25 + (0.15 \times \frac{\text{service price}}{\text{industry price}})$$

And (using the data from Table A.13) the consumption/investment price ratio in China in 1979 is lower than the corresponding ratio in India by the proportion

$$(0.6 \times \frac{4.7696}{6.1100}) + 0.25 + (0.15 \times \frac{1.0324}{1.4800}) = 0.823.$$

It follows from this, labelling the investment-to-GDP ratio at Chinese prices I, that the investment-to-GDP ratio at Indian prices is

$$I/[I + ((1 - I)/0.823)]$$

or, in numerical terms (using the internationally most comparable investment ratio from Table A.22),

$$0.3111/[0.3111 + ((1 - 0.3111)/0.823)] = 0.27096$$

or 27.10%, a reduction of about 4 percentage points.

Investment Efficiency

A.34 One commonly used, though for many reasons hazardous, approach to assessing the efficiency of investment is to calculate the incremental capital-output ratio (ICOR), which is defined as the ratio of (usually gross) investment to the absolute increase in output, both measured at the same set of prices. In principle, to allow for unavoidable lags, the output concerned should be of a later period than the investment; but if a long enough period is involved, and provided that the same convention is consistently applied, it is an acceptable approximation to measure both output growth and investment over the same period. If this is accepted, then a convenient shortcut method of calculating the ICOR is to divide the average investment-to-output ratio during the period by the average real output growth rate during the period.^{/1} (This shortcut assumes, though, that the investment/consumption price ratio does not change during the period.) In circumstances when data on the investment ratio are not available for each year of the period concerned, some further approximation is needed to estimate the average investment ratio during the period.

A.35 Table A.23 presents estimates of ICORs for China and other countries from the late 1950s to the late 1970s. Three alternative estimates of the Chinese ICOR are presented. The first makes no attempt to correct for the difference in relative prices between China and other countries. The second and third adjust both the growth rate and the investment share downwards (in the ways described earlier) to allow for unusually high industrial relative prices in China. The difference between the second and the third estimates concerns the investment ratio for 1957: in the second case, the 1979 China/India price ratio is applied in adjusting the investment ratio; in the third case, allowance is made for the change in relative prices within China over the period 1957-79 (since corresponding relative price changes of this magnitude did not occur in other developing countries).

A.36 The results, given the many assumptions made, are subject to a considerable margin of error. They suggest that the Chinese ICOR (4.8-5.4) is significantly above the average for other low-income countries (4.6), and well above the average for middle-income countries (3.9). The interpretation of these results in terms of efficiency, however, is questionable because the average for industrialized countries (5.1) is higher than for either category of developing countries. Since microeconomic evidence suggests that capital is used less efficiently in developing countries, this confirms that variations among countries in aggregate ICORs may owe as much to variations in the sectoral composition of investment (including the proportion allotted to nonproductive sectors such as housing) as to variations in efficiency.

^{/1} Since $I/dy = I/y/dy/y$.

A.37 Allowance should perhaps also be made for the part of Chinese (industrial) output that is unusable and hence permanently added to inventories or discarded. For example, assuming 5% of total output as useless, and deducting this from both output growth and investment (which includes inventories), would raise the Chinese ICOR from, say, 5.0 to 5.2.

A.38 The Chinese ICOR has risen considerably since the 1950s. Although calculations using adjusted data are not possible, the accumulation ratio (net investment to available national income) has risen from an average of around 25% in the 1950s to around 33% in the 1970s, while the real growth rate of NMP, which was 8.2% in the 1950s, was only 6.0% in the 1970s (Table A.8). Calculated on this basis, the ICOR appears to have risen from 3.0 in the 1950s to 5.5 in the 1970s. Part of this is due to a decline in the ratio of newly installed fixed capital to investment expenditure (for state capital construction, from 84% in the 1950s to 76% in 1977-79 - Annex B, Table 2.5). But most is due to a rise in the incremental installed-capital-to-output ratio, from 2.6 in the 1950s to 4.2 in the 1970s.

Sectoral Allocation of Fixed Investment

A.39 As regards the sectoral allocation of fixed investment, the official data (Annex B, Table 2.4) relate to state capital construction, which is in general only 50-60% of the total - much of the remainder being the fixed (including direct labor) investment of communes. It is thus worth attempting a rough estimate of the sectoral allocation of the remaining components and hence of the total. The procedure followed is set out in Tables A.24 and A.25.

A.40 In comparing the returns to investment in agriculture and industry (Main Report, para. 3.42), it was assumed that the estimated allocation of fixed investment in 1965 and 1977-79 was representative of the whole period 1957-79. In measuring output growth (from Table A.8), brigade industry was included in industry, but construction was excluded. The estimation of output growth at Indian prices was otherwise identical to that in Table A.16.

Consumption Growth

A.41 Real per capita consumption growth was estimated by deflating the macroeconomic consumption totals by a consumption price index (see Tables A.26 and A.27), and then correcting for population growth (Annex B, Table 1.1). Because of problems with the agricultural price index in 1952 (para. A.5), the estimates for 1952-7 (and 1952-79) must be regarded as less accurate than those for 1957-79.

A.42 The estimates in Table 3.13 (Main Report) regarding the consumption of nonfood commodities are based on the calculations and assumptions set out in Table A.28. Those regarding food are derived from Annex H, Table A.28, and Annex C, Table 3.3. Net exports of grain in 1952 and 1957 were less than 0.2% of production, and are ignored.^{/1} Net imports of sugar of 86 thousand tons in 1957 were added to domestic production.^{/2} Net imports of meat and vegetable oil in 1952 and 1957 were ignored for lack of data.

^{/1} US Congress Joint Economic Committee, "Chinese Economy Post-Mao", 1978, page 655.

^{/2} Ibid, page 641.

A.43 The estimates in Table 3.12 (Main Report) of the 1979 level of per capita consumption in dollars were derived by dividing by the estimated mid-year population (964.5 million) and converting at an exchange rate of \$1 = Y 1.541.

A.44 Per capita consumption growth in other countries was estimated from Tables 4, 5 and 17 of World Development Report, 1980, using an appropriately weighted average of public and private consumption.

Rural-Urban Inequality

A.45 Urban Per Capita Income. An official sample survey of urban "wage-earning families" in the first quarter of 1980 (for details, see notes to Table A.30) indicated that the average per capita income was Y35.8 per month. The sample appears representative inasmuch as the average wage - equivalent to Y767 p.a. - is close to the national average 1980 wage of Y762 for all workers and staff given in the SSB's Communiqué on Fulfilment of the 1980 National Economic Plan. It is possible, however, that the results of the survey are biased by the exclusion of urban families in which there was no wage earner (see para. 2.26).

A.46 To convert to a 1979 basis, the per capita income figure from the survey was deflated by 14.1%, this being the average money wage increase between 1979 and 1980 (SSB Communiqué). It was put into annual terms by multiplying by 12, giving an estimated 1979 urban per capita income of Y376.5 (or, at an exchange rate of \$1 = Y1.541, \$244).

A.47 Rural Per Capita Income. An official sample survey of "commune member households" in 1979 (People's Daily, January 3, 1981, and broadcast by New China News Agency, January 2, 1981, reported in BBC Survey of World Broadcasts, January 7, 1981, FE/6616/C/1-3) indicated an average per capita income of Y160.2 p.a. However, the SSB believes that this figure is biased upwards by underrepresentation of low-income households (though the calculations below suggest that the bias is not very large). An alternative approach was therefore adopted, based on the official 1979 estimate of Y83.4 per capita for distributed collective income (Annex B, Table 2.9 - which is in principle derived from returns from all the communes in the country). This figure requires several adjustments.

- (a) Its income in kind component is valued at 1978 prices (as was the case in the rural sample survey). The survey data, supplemented by information from Sichuan province, suggest that this component amounted to about 75% of the total, or Y62.55 (at 1978 prices); it was accordingly upvalued by 27%, or Y16.89. The figure of 27% is a weighted average of the 1978-9 increase in the actual average procurement prices of grain (26%), edible oil (41%), and cotton (18%), with weights of 85:8:7 respectively.
- (b) It is also necessary to add household earnings from manure sales to the commune. On the basis that these amounted in 1979 to Y10.9 per capita in Sichuan, and that the national pig/household ratio is 70% of that in Sichuan, a national figure of Y7.63 was derived.

- (c) It is likewise necessary to add cash wages paid directly to individual workers in commune and brigade enterprises. It was assumed that all the 13.1 million workers in commune enterprises (but none of those in brigade enterprises) are paid cash wages. In Jiangsu, the average such wage in 1979 was Y388 p.a.; this was scaled down by the ratio (0.84) of national average distributed collective income to distributed collective income in Jiangsu. Multiplied by 13.1 million workers and divided by 800 million commune members, the resulting wage implies a national per capita figure of Y5.34 p.a.
- (d) Finally, it is necessary to add non-collective sources of income. The rural survey mentioned above indicated that the total per capita income of Y160.2 was made up of Y102 from the collective economy (including manure sales and cash wages from enterprises), Y44 from private production, and Y14.2 from other sources. It was assumed that revaluation of income in kind would raise collective income by the proportion estimated above for the whole economy (i.e. 17.53%, or $16.89 / 83.4 + 7.63 + 5.34$), to Y119.88. It was further assumed that 35% of income from private production was in kind; this was upvalued by 21% - an equi-weighted average of the 1978/9 price increases for grain (26%), hogs (37%) and vegetables (0%) - thus raising private income from Y44 to Y47.23. The resulting ratio of non-collective ($47.23 + 14.2$) to collective (119.88) income in the survey was then applied to estimated national collective income ($83.4 + 16.89 + 7.63 + 5.34$) to provide a national estimate of Y58.04 per capita for non-collective income.

A.48 Total rural per capita income in 1979 was thus estimated at Y171.30 ($83.4 + 16.89 + 7.63 + 5.34 + 58.04$), or \$111, and the urban/rural per capita income ratio at 2.198. On a per household basis, the urban/rural income ratio would be 1.740, since the survey data indicates that rural households (5.66 persons) are on average considerably larger than urban households (4.48 persons).

A.49 It was decided to make no allowance for rural undistributed collective income, even though it is substantial, primarily because this would reduce the comparability of the Chinese rural income data with both the Chinese urban income data and personal income data from other countries, which in general include neither fringe benefits nor undistributed collective or corporate income. In practice, moreover, available data do not permit satisfactory estimation of the magnitude of undistributed collective income, especially since in principle commune members own a share of the undistributed income not only of their teams, but also of their brigades and communes (the latter two consisting primarily of retained enterprise profits).

A.50 Total Personal Income. Total personal income per capita was estimated as a weighted average of the rural and urban figures, with weights of 85% and 15% respectively. (No attempt was made to net out urban-rural remittances.) These weights reflect a compromise between the official urban population share of 13% and the noncommune population share of about 17%. The resulting figure - Y202.08, or \$131 - differs significantly from estimated per capita consumption - \$170. The divergence is attributable partly to

collective consumption. But even per capita private consumption - \$144 /1 - is above per capita personal income, when the existence of personal savings should cause the opposite. This could be due to overstatement of consumption. But since (Table A.17) the estimated sum of consumption and other expenditures is in fact less than estimated national production, the discrepancy seems more likely to be due to understatement of personal income in the household surveys.

A.51 Personal Income Growth. Urban per capita real income growth in 1957-79 was estimated (on the basis of incomplete information about wages, prices and participation rates - see Table A.29) at 2.9% p.a. This may be compared with the rate of 3.0% for 1964-80 implied by the data in the urban household survey mentioned in para. A.45.

A.52 Rural personal real income growth in 1957-79 was estimated at 1.6% p.a. (on the basis of the urban money income growth rate, information about the urban/rural money income ratio in 1957, and a rural consumer price index - see Table A.29). This is higher than the growth rate of 1.3% p.a. for real agricultural income per worker in 1957-79 implied by the estimates in Annex C, para. 3.58. The difference can plausibly be attributed primarily to growth of non-agricultural rural employment (in commune and brigade enterprises, and in non-collective jobs).

A.53 Total personal real income growth in 1957-79 was estimated (on the basis of a weighted average of urban and rural incomes - see Table A.29) at 2.0% p.a. This is slightly above the estimated per capita consumption growth rate of 1.9% (see para. A.41). The difference reflects the net effects (individually unquantifiable) of growth of collective consumption, growth of personal savings, and errors and omissions in the underlying data.

Urban Inequality

A.54 The urban income distribution in Table 3.16 (Main Report) is based on the results of the urban household survey mentioned in para. A.45, which are summarized in Table A.30. The amount of (total) income in each class was estimated by multiplying the average income in each class by the total number of people in that class. The total number of people in each class was estimated from the percentage of families in that class, the average number of persons per family in that class, and the total number of families in the sample.

Rural Inequality

A.55 The report on the rural sample survey referred to in para A.47 included a little information on income distribution (that 10% of households

/1 The SSB estimates that 90% of material consumption is private, and that the proportion of nonmaterial service sector employees in passenger transport and personal services in 1979 was 10.87%. Applying this last percentage to the nonmaterial service sector wage bill, and adding profits attributed to nonmaterial services, the share of private consumption in nonmaterial services would appear to be 19.9%. Treating all rent as private consumption, and drawing data on material and nonmaterial consumption from Tables A.17 and A.26 (note a), the share of private consumption in total consumption would appear to be about 84.8%.

had a per capita income below Y80, and 3.5% of households a per capita income below Y60). However, as mentioned earlier, this sample is believed to have underrepresented low-income households (as well as to have valued income in kind at 1978 prices). The rural income distribution in Table 3.18 of the Main Report was thus estimated from national data on the distribution of per capita distributed collective income between production teams (Annex B, Table 2.7), in the following manner (see Tables A.31-3 for details).

A.56 The average income in each distributed collective income class was assumed to be the midpoint of the class interval, with the exception of the open-ended top (Y147) and bottom (Y37) classes. The team-weighted average of these assumed average incomes corresponds closely to the actual national average of Y83.4.

A.57 To adjust for undervaluation of collective income in kind (see para. A.47), fragmentary information from the rural sample survey and Sichuan province was used to estimate the average percentage of distributed income in kind in each class, which was then upvalued by 27%.

A.58 The ratio of other income (manure sales, cash wages from collective enterprises, private production, non-communal wage earnings, remittances, etc.) to revalued distributed collective income was assumed to be the same in every class, thus not altering the shape of the distribution. (The ratio - 0.708 - was based on the figures in para. A.48.) The reasons for this assumption are as follows:

- (a) It seems likely that income from manure sales would be a smaller proportion of collective income in richer teams, but that cash wages from collective enterprises would be a larger proportion, thus roughly cancelling one another out.
- (b) As regards non-collective sources of income, the limited evidence available suggests that within teams they have an equalizing effect - since families with proportionately fewer collective farm workers tend to have proportionately more old and young people and women engaged in private activities, and they are more likely to have a family member in wage employment.^{/1} As regards the effects of non-collective sources of income on inequality between teams, there is almost no empirical information: opportunities for earning income from other sources are probably greater in communes near urban areas, which also tend to have higher collective income; but not all communes with high collective income are located near urban areas; and in communes with high collective income there is less incentive (and probably less time, given the association between agricultural prosperity and multiple cropping) to engage in other activities. On balance, then, there appears to be no strong reason for believing that non-collective income per capita is proportionately either higher or lower in collectively rich than in collectively poor teams.

^{/1} K. Griffin and A. Saith, "The Pattern of Income Inequality in Rural China", (ILO-ARTEP working paper, July 1980).

A.59 The resulting distribution of income between teams was then adjusted to allow for differences between income classes in the number of households per team. Specifically, examination of provincial data (Annex B, Table 6.11) suggests that the number of households per team is significantly greater (39.9) in the highest income class than in the other income classes (an average of 32.8, not systematically related to income level). A distribution of "standardized" teams was accordingly derived by multiplying the number of teams in the highest class by 39.9 and those in the other classes by 32.8.

A.60 Within each team, the distribution of income was assumed to be as follows:

Per capita income as ratio of team average	Percentage of households	Persons per household
1.5	15	4.97
1.3	20	5.23
1.0	30	5.64
0.7	20	6.21
0.5	15	6.39

This distribution has the same coefficient of variation and degree of concentration within one standard deviation of the mean as the intrateam distribution of per capita total (collective and other) income reported by Griffin and Saith (see reference for para. A.58). The estimated numbers of persons per household in different rural income classes were based on those in the urban income distribution (Table A.30), adjusted for the average difference in household size between rural and urban areas.

A.61 The above intrateam distribution was used to "explode" each income class of the adjusted interteam distribution (see Table A.32). The resulting data were rearranged - see Table A.33 - and aggregated into the classes in Table 3.18 of the Main Report.

Overall Income Distribution

A.62 The overall (urban plus rural) income distribution was derived in the following way. The incomes in the urban distribution in Table 3.16 of the Main Report were converted to an annual basis, and reduced uniformly by 14.1% (see para. A.46). They were then added to the rural income distribution in Table 3.18 of the Main Report, again assuming the urban population to be 15% of the total population and the rural population 85%. The resulting distribution was then somewhat aggregated. (For more details, see Table A.34.)

Income Distribution in Other Countries

A.63 The data for other countries used in the international comparisons of urban-rural, urban, rural and overall inequality in Chapter 3 of the Main Report came from several sources.

- (a) Bangladesh: S. Jain, Size Distribution of Income, World Bank, 1975, pages 11-12, source 2, HH.
- (b) India: National Council of Applied Economic Research, Household Income and Its Disposition, New Delhi, 1980, pages 118-23.
- (c) Pakistan: Jain, pages 83-6, source 5, HH.
- (d) Sri Lanka: P. Visaria, Poverty and Living Standards in Asia, Living Standards Measurement Study Working Paper No. 2, World Bank, 1980, Table 7 and Annex 6, Table 5 (overall distribution); Jain, pages 102-3, source 3, HH (rural and urban distributions).
- (e) Indonesia: V.V.B. Rao, Working Paper No. 1980-6, Economic and Social Data Division, World Bank, 1980, Tables 4, A.11, and A.12.
- (f) Malaysia: P. Visaria, Table 7 and Annex 6, Table 4 (overall distribution); Jain, pages 74-5, source 3, PCH (rural and urban distributions).
- (g) Philippines: V.V.B. Rao, Working Paper No. 1980-4, Economic and Social Data division, World Bank, 1980, page 14 and Tables A.5, A.6 and A.8.
- (h) Thailand: Socioeconomic Survey 1975/76, regional volumes, Tables 1 and 4 (total income; urban defined as municipal areas, rural as sanitary districts and villages).
- (i) Brazil: G. Pfefferman and R. Webb, The Distribution of Income in Brazil, Bank Staff Working Paper No. 356, Table 9, line 1.
- (j) Yugoslavia: World Development Report 1980, Indicators Table 24.

A.64 International (and other) comparisons of income distributions are subject to serious problems concerning definitions, coverage and presentation, as well as errors and omissions in the underlying data. These problems are aggravated in the present case by the need to estimate the Chinese rural income distribution by a roundabout method (see para. A.55-61).

A.65 The Chinese data used in the international comparisons are distributions of people ranked by per capita household income (this being generally regarded as the most relevant form of presentation). Wherever possible, the data for other countries have been presented on the same basis. In other cases, as noted in the tables, the data are distributions of households ranked by total household income: the degree of inequality of the latter type of income distribution is generally similar to that of the distribution of people ranked by per capita household income./1

/1 See S. Kansal and J. Park, Working Paper No. 1981-4, Economic and Social Data Division, World Bank, 1981, Table 5. The average difference in Gini coefficients between the two types of income distribution for the five countries in that table is 0.003, with no consistency of sign.

A.66 Income distribution data also suffer from problems of sample bias, underreporting of income among both rich and poor groups (the latter sometimes caused by undervaluation of income in kind), and inconsistent definitions of income. The data for other countries used in the comparisons with China are the best available, and in some cases have been adjusted by World Bank researchers to eliminate certain errors or biases. Nonetheless, the comparisons should be regarded as at best subject to a rather wide margin of error.

SECTORAL NET MATERIAL PRODUCT AT CURRENT MARKET PRICES
(Y billion)

	1952	1957	1965	1970	1975	1977	1978	1979
Industry	11.66	25.42	50.44	77.04	112.73	119.66	138.51	155.02
Agriculture	33.82	42.68	64.45	78.97	97.70	98.38	108.40	128.06
Construction	2.33	4.54	5.60	7.70	10.02	10.64	12.04	13.48
Transport	2.33	3.63	5.60	7.70	10.02	10.64	12.04	13.48
Commerce	8.75	14.53	12.61	21.19	20.04	26.59	30.11	26.96
<u>Total</u>	<u>58.90</u>	<u>90.80</u>	<u>138.70</u>	<u>192.60</u>	<u>250.50</u>	<u>265.90</u>	<u>301.10</u>	<u>337.00</u>

Source: Derived from Annex B, Table 2.1 (correcting for rounding errors by dividing sector shares by total of sectoral shares where the latter was not equal to 100).

IMPLICIT GROSS OUTPUT PRICE DEFLATORS
(1970 = 100.0)

	1952	1957	1970
Agriculture	<u>/a</u>	67.706	100.0
Industry			
Light and heavy	129.683	116.450	100.0
Light	118.451	109.384	100.0
Heavy	139.819	121.742	100.0

/a Not available because of change in definition of agriculture in 1957 - see notes to Annex B, Table 2.3.

Source: Derived from Annex B, Table 2.3.

BRIGADE AND TEAM INDUSTRY
(Y billion)

	1952	1957	1970	1977	1978	1979
<u>Gross Output</u>						
At constant prices <u>/a</u>	1.713/ <u>b</u>	1.857/ <u>c</u>	5.010/ <u>c</u>	14.74/ <u>d</u>	17.01/ <u>d</u>	19.80/ <u>d</u>
At current prices <u>/e</u>	1.713	1.857	4.302	14.461	16.688	19.671
<u>Net Output</u>						
At current prices <u>/f</u>	0.514	0.557	1.291	4.338	5.006	5.901

/a 1977-79 from SSB (probably includes construction and transport, but their shares are small); earlier years derived by multiplying gross agricultural output by share of sideline occupations multiplied by 80.433% (average ratio of brigade industry to total sideline occupation gross output in 1977-79).

/b 1952 prices.

/c 1957 prices.

/d 1970 prices.

/e Using light plus heavy industry composite price index (Table A.5).

/f Multiplying current price gross output by 0.3 (ratio applied by SSB in estimating net output of commune industry).

Sources: See notes.

AGRICULTURAL AND INDUSTRIAL OUTPUT ADJUSTED FOR BRIGADE AND TEAM INDUSTRY
(Y billion)

	1952	1957	1970	1977	1978	1979
<u>Gross Output at Constant Prices</u>						
Agriculture (excluding brigade industry)	46.69/a	51.84/b	66.59/b	119.44/c	128.89/c	138.60/c
Industry (including brigade industry)/d	36.01/a	72.26/b	247.11/b	387.26/c	440.11/c	478.90/c
<u>Net Output at Current Prices</u>						
Agriculture (excluding brigade industry)	33.31	42.12	77.68	94.04	103.39	122.16
Industry (including brigade industry)/d	12.17	25.98	78.33	124.00	143.52	160.92

/a 1952 prices.

/b 1957 prices.

/c 1970 prices.

/d But excluding construction.

Sources: Tables A.1, A.3 and Annex B, Table 2.3.

COMPOSITE SECTORAL OUTPUT PRICE INDICES
(1970 = 100.0)

	1952	1957	1970	1977	1978	1979
Agriculture	n.a.	67.706	100.0	107.227	109.261	115.494
Industry						
Light and heavy	129.683	116.450	100.0]			
Light	118.451	109.384	100.0]	98.109	98.109	99.349
Heavy	139.819	121.742	100.0]			
Construction	129.683	116.450	100.0	98.109	98.109	99.349
Transport	100.000	1000.00	100.0	100.000	100.000	100.000
Commerce	85.019	92.243	100.0	102.662	100.000	101.901

Sources: Agriculture: 1957-70, implicit gross output deflator (Table A.2); 1977, procurement price index (Annex B, Table 3.1); 1978-79, based on information from SSB that ratio of net output to gross output at current prices was 0.68 in 1978 and 0.70 in 1979, in combination with data for 1978 and 1979 on net output at current prices and gross output at 1970 prices (Table A.1 and Annex B, Table 2.3).

Industry: 1952-70, implicit gross output deflators (Table A.2); 1977, assumed same as 1978; 1978-79, information supplied by SSB on a sample of large and medium-sized state industrial enterprises - their current price output was Y 176.4 billion in 1978 and Y 198.4 billion in 1979, while in 1970 prices it was Y 179.8 billion and Y 199.7 billion, respectively (no distinction between light and heavy industry is available).

Construction: Light and heavy industrial composite price index (in estimating real net output growth in this sector, SSB uses an index of construction materials prices).

Transport: Prices assumed constant (also by SSB).

Commerce: Retail price index (used also by SSB).

AGRICULTURAL PRODUCTION, 1952-57, AT 1952 PRICES /a

Year	Net output value -- (Y billion) -	Material outlays (% of total)	Gross output value - (Y billion)/b --
1952	32.276	21.32	41.022
1953	32.829	21.65	41.900
1954	33.784	22.34	43.502
1955	36.550	22.23	46.998
1956	39.195	20.96	49.589
1957	41.023	20.31	51.478

/a Including crop growing, animal husbandry, fishery, forestry, and sideline occupations (i.e. post-1957 official coverage).

/b Derived from columns 1 and 2.

Source: Li Chengrui, Draft History of the Agriculture Tax in the People's Republic of China (Beijing, 1959), p. 193.

DOUBLE DEFLATION WORKING TABLE
(Y billion, unless otherwise specified)

	Brigade industry in "agriculture"					Brigade industry in "industry"					
	1952	1957	1970	1977	1978	1979	1957	1970	1977	1978	1979
Agriculture											
Gross output at constant 1970 prices	n.a.	79.314	105.751	133.9	145.9	158.4	76.566	98.352	119.44	128.89	138.60
Gross output at current prices	48.4	53.7	105.751	143.577	159.412	182.943	51.84	98.352	128.072	140.827	160.075
Inputs at current prices	n.a.	11.02	26.781	45.197	51.012	54.883	9.72	20.672	34.032	37.437	37.915
Industrial input ratio (%) /a	n.a.	4.5	14.9	35.5	36.0	36.4					
Industrial input price index /a	n.a.	190.0	100.0	95.0	95.0	94.2					
Input price index /b	n.a.	73.209	100.0	102.886	104.127	107.743					
Inputs at constant 1970 prices	n.a.	15.053	26.781	43.929	48.990	50.939	13.277	20.672	33.077	35.953	35.190
Industry											
Gross output at constant 1970 prices	26.449	60.455	207.900	372.8	423.1	459.1	62.052	212.203	387.26	440.11	478.90
Gross output at current prices	34.3	70.4	207.900	365.750	415.099	456.111	72.26	212.203	379.937	431.788	475.782
Inputs at current prices	22.64	44.98	130.86	246.090	276.589	301.091	46.28	133.873	255.937	288.268	314.862
Agricultural input ratio (%) /c	n.a.	25.0	15.0	12.5	12.5	12.5					
Input price index /d	n.a.	104.264	100.0	99.249	99.503	101.367					
Inputs at constant 1970 prices	n.a.	43.140	130.86	247.952	277.971	297.031	44.387	133.873	257.874	289.708	310.616

/a Based on Annex C, Tables 3.6-8, and information on prices supplied by Ministry of Agriculture.

/b Weighted average of industrial input price index and agricultural gross output price index, weighted by industrial input ratio.

/c Estimates based on data regarding composition of industrial output and likely structure of costs.

/d Weighted average of agricultural gross output price index and all-industry gross output price index, weighted by agricultural input ratio.

Source: Tables A.1, A.4-5, and Annex B, Table 2.3.

SECTORAL NET OUTPUT AT CONSTANT 1970 PRICES
(Y billion)

	1952	1957	1970	1977	1978	1979	Annual average growth (%)			
							1952-57	1957-77	1957-79	1952-79
<u>Single-Deflated</u>										
<u>Agriculture</u>										
Including brigade industry	49.596/a	63.037	78.97	91.749	99.212	110.880	4.913	1.894	2.600	3.025
Excluding brigade industry	n.a.	62.210	77.68	87.702	94.627	105.771	n.a.	1.732	2.442	2.895/c
<u>Industry</u>										
Excluding brigade industry	8.991	21.829	77.04	121.966	141.180	156.036	19.411	8.983	9.352	11.149
Including brigade industry	n.a.	22.310	78.33	126.390	146.286	161.974	n.a.	9.059	9.429	11.213/c
Construction	1.797	3.899	7.70	10.845	12.272	13.568	16.756	5.248	5.832	7.775
Transport	2.33	3.63	7.70	10.640	12.04	13.48	9.272	5.524	6.145	6.717
Commerce	10.292	15.752	21.19	25.901	30.11	26.457	8.885	2.518	2.385	3.559
<u>Total (with brigade industry in agriculture)</u>	<u>73.006</u>	<u>108.147</u>	<u>192.60</u>	<u>261.101</u>	<u>294.814</u>	<u>320.421</u>	<u>8.176</u>	<u>4.506</u>	<u>5.061</u>	<u>5.631</u>
<u>Total (with brigade industry in industry)</u>	n.a.	<u>107.801</u>	<u>192.60</u>	<u>261.478</u>	<u>295.335</u>	<u>321.25</u>	n.a.	<u>4.530</u>	<u>5.089</u>	<u>5.654/c</u>
<u>Double-Deflated</u>										
<u>Agriculture</u>										
Including brigade industry	50.559/a	64.261	78.97	89.971	96.910	107.461	4.913	1.697	2.365	2.832
Excluding brigade industry	n.a.	63.289	77.68	86.363	92.937	103.410	n.a.	1.566	2.257	2.744/c
<u>Industry</u>										
Excluding brigade industry	n.a.	17.315	77.04	124.848	145.129	162.069	n.a.	10.382	10.700	12.264/d
Including brigade industry	n.a.	17.665	78.33	129.386	150.402	168.284	n.a.	10.469	10.789	12.337/d
<u>Total (all sectors, with brigade industry in agriculture) /b</u>	n.a.	<u>104.857</u>	<u>192.60</u>	<u>262.205</u>	<u>296.461</u>	<u>323.035</u>	n.a.	<u>4.689</u>	<u>5.247</u>	<u>5.784/d</u>
<u>Total (all sectors, with brigade industry in industry) /b</u>	n.a.	<u>104.235</u>	<u>192.60</u>	<u>263.135</u>	<u>297.761</u>	<u>325.199</u>	n.a.	<u>4.739</u>	<u>5.308</u>	<u>5.833/d</u>
<u>SSB Total Real NMP Index (1949 = 100)</u>	<u>169.8</u>	<u>259.8</u>	<u>500.4</u>	<u>692.9</u>	<u>778.7</u>	<u>833.2</u>	<u>8.878</u>	<u>5.027</u>	<u>5.440</u>	<u>6.068</u>

/a See para. A.5.

/b Sectors other than industry and agriculture not double deflated.

/c Assuming same growth rate in 1952-57 as when brigade industry included in agriculture.

/d Assuming same growth rate in 1952-57 as when industry output deflated only by gross output price.

Source: Tables A.1 and A.4-7.

SECTORAL ALLOCATION OF DEPRECIATION, 1979
(Y billion)

Total	21.6
<u>less</u> nonmaterial sectors	3.2
<u>less</u> rural housing	1.9
<u>equals</u> material sectors	16.5
of which	
Agriculture	1.8
Industry	11.4 /a
Other, of which	3.3
Construction	0.3 /b
Transport	2.4 /c
Commerce	0.6 /b

/a Industrial gross fixed capital stock in independent accounting units (Y 380.38 billion) times 0.03 (average depreciation rate) - Annex D, Table 2.1. Assume nonindependent accounting units (about 4% of net output) cancel out totally depreciated assets (more than 33 years old).

/b Residual of Y 0.9 billion divided between construction and commerce in proportion to their net output (Table A.1).

/c Railway depreciation in 1979 was Y 2.1 billion (Annex F, Table 3.7). Attribute 95% to freight. Add Y 0.4 billion for other freight transport sectors.

Source: SSB (see para. 3.25), and Bank staff estimates.

FROM NMP TO GDP (AT MARKET PRICES), 1979
(Y billion, except where otherwise noted)

	NMP	Brigade industry	Social services	Depreci- ation	Non- material services	Rent	GDP	Shares in GDP %
Agriculture	128.06	- 5.90	-1.28	+ 1.8			122.68	31.36
Industry	155.02	+ 5.90	-1.55	+11.4			170.77	43.65
Construction	13.48		-0.13	+ 0.3			13.65	3.49
Transport	13.48		-0.13	+ 2.4			15.75	4.03
Commerce	26.96		-0.27	+ 0.6			27.29	6.98
Nonmaterial services			+3.37	+ 3.2/a	+22.8	+11.74	41.11	10.51
<u>Total</u>	<u>337.00</u>	0	0	<u>+19.7/a</u>	<u>+22.8</u>	<u>+11.74</u>	<u>391.24</u>	<u>100.02</u>

/a Net of depreciation of rural housing, to avoid double counting.

Source: Bank staff estimates, see paras. A.10-12.

FROM NMP TO GDP (AT MARKET PRICES), 1957
(Y billion)

1. NMP	90.8
2. Passenger transport <u>/a</u> <u>/b</u>	0.63
3. Finance <u>/b</u>	1.77
4. Government administration and defense <u>/b</u>	5.03
5. Personal services <u>/b</u>	0.51
6. Depreciation in material production sectors <u>/c</u>	3.63
7. Rent <u>/d</u>	3.17
8. GDP <u>/e</u>	105.54

/a Assumed to be 10% of total transport.

/b Assumed to be gross of depreciation.

/c Assumed to be 4% of NMP (in 1979, it was 4.9%, but in 1957 the ratio of capital stock to NMP must have been lower than in 1979).

/d Assumed (as in 1979) to be 3% of GDP.

/e Sum of Lines 1-7.

Sources: Line 1, Table A.1. Lines 3-5, D. Perkins, China's Modern Economy in Historical Perspective, (Stanford, 1975), p. 161 (but see note a). Lines 6-8, see notes.

ADJUSTMENT OF SECTORAL EMPLOYMENT DATA, 1979
(millions)

	Official estimates	Brigade industry/a	Construction/b	Adjusted estimates	As % of Total
Agriculture	299.34	- 12.0		287.34	70.81
Industry	53.40	+ 12.0	+ 5.29	70.69	17.42
Other	53.06		- 5.29	47.77	11.77
<u>Total</u>	<u>405.80</u>	0	0	<u>405.80</u>	<u>100.00</u>

/a Employment in brigade industry narrowly defined was 9.728 million (Annex D, para. 2.04). For comparability with brigade industry output data (Table A.3), which has somewhat broader coverage, estimated brigade employment in construction and transport enterprises was added. The latter was derived, using the data in Annex B, Tables 6.9 and 6.10, by multiplying commune and brigade employment in construction and transport (1.169 plus 2.984 million) by the ratio of total brigade enterprise employment to commune and brigade enterprise employment (15.949 to 29.093 million).

/b Employment in construction, freight transport and commerce in 1979 totalled 23.26 million, while net output in these three sectors was respectively 4%, 4% and 8% of NMP. Various official sources indicated that the industrial and commercial tax rate in all three sectors is similar (2.5-3.0%), that the ratio of profit to NMP (around 40%) is similar in commerce and transport, and that wage rates in commerce are relatively low. It was accordingly assumed that the profit share is similar also in construction, and that wage rates in construction and transport are 1.2 times those in commerce. Hence, net output per worker in construction and transport was inferred to be 1.2 times that in commerce, and employment in construction to be 5.29 million.

Source: Annex B, Table 10.1; see also notes.

SECTORAL LABOR PRODUCTIVITY RATIOS, 1979

	Agriculture	Industry	Services
	<u>Share of GDP at market prices (%)</u>		
China	31.36	47.14	21.52
India	37.8	26.8	35.4
Indonesia	29.8	32.5	37.7
Low-income countries	38.2	23.9	37.9
Middle-income countries	14.8	37.7	47.6
	<u>Share of total employment (%)</u>		
China	70.81	17.42	11.77
India, 1978	74	11	15
Indonesia, 1978	60	11	29
Low-income countries, 1978	72	11	17
Middle-income countries, 1978	45	23	32
	<u>Sectoral labor productivity ratios</u>		
	Industry/agriculture	Industry/services	
China	6.110	1.4800	
India	4.7696	1.0324	
Indonesia	5.9487	2.2727	
Low-income countries	4.0952	0.9746	
Middle-income countries	4.9838	1.1019	

Source: For China, Tables A.10 and A.12, and for other countries World Bank, WDR, 1980 (employment) and special tabulation from World Bank data files (output).

ESTIMATED CHINESE SECTORAL SHARES OF GDP AT INDIAN PRICES

	Chinese employment shares (%)	Indian sectoral labor productivity ratios	Sectoral output	
			Absolute <u>/a</u>	Shares (%)
Agriculture <u>/b</u>	70.81	(1/4.7696)	14.846	34.00
Industry <u>/c</u>	17.42	1	17.42	39.89
Services <u>/d</u>	11.77	(1/1.0324)	11.401	26.11
<u>Total</u>	<u>100.00</u>		<u>43.667</u>	<u>100.00</u>

/a Derived by multiplying column 1 by column 2. The units are arbitrary.

/b Excluding brigade industry.

/c Including brigade industry and construction.

/d Excluding construction, including nonmaterial services.

Source: Table A.13.

GROWTH OF NMP AT 1979 PRICES

	Net output in 1979 at current prices (Y billion)	Sectoral growth rates 1957-79 (%)	Net output in 1957 at 1979 prices (Y billion)
Agriculture <u>/a</u>	122.16	2.257	74.762 <u>/b</u>
Industry <u>/c</u>	174.40	10.177	20.680 <u>/b</u>
Services <u>/d</u>	40.44	3.341	19.625 <u>/b</u>
<u>Total</u>	<u>337.00</u>	<u>5.006 /e</u>	<u>115.067 /f</u>

/a Excluding brigade industry.

/b Derived by backward extrapolation.

/c Including brigade industry and construction.

/d Excluding construction and nonmaterial services.

/e Derived from 1957 and 1979 totals.

/f Sum of sectoral output.

Sources: Column 1, Tables A.1 and A.4; column 2, Table A.8.

GROWTH OF NMP AT INDIAN PRICES

	Net output in 1979 at current prices (Y billion)	Indian/ Chinese price ratios	Net output in 1979 at Indian prices	Sectoral growth rates 1957-79	Net output in 1957 at Indian prices
Agriculture <u>/a</u>	122.16	$\frac{6.1100}{4.7696}$	156.491 <u>/b</u>	2.257	95.773 <u>/c</u>
Industry <u>/d</u>	174.40	1	174.400 <u>/b</u>	10.177	20.680 <u>/c</u>
Services <u>/e</u>	40.44	$\frac{1.4800}{1.0324}$	57.973 <u>/b</u>	3.341	28.134 <u>/c</u>
<u>Total</u>	<u>337.00</u>		<u>388.864/f</u>	<u>4.600/g</u>	<u>144.587 /f</u>

/a Excluding brigade industry.

/b Column 1 times column 2.

/c Derived by backward extrapolation.

/d Including brigade industry and construction.

/e Excluding construction and nonmaterial services.

/f Sum of sectoral output.

/g Derived from 1957 and 1979 totals at Indian prices.

Source: Column 1, Tables A.1 and A.4; column 2, Table A.13; Column 4, Table A.8.

APPENDIX
Table A.17

NET MATERIAL EXPENDITURE AT CURRENT MARKET PRICES
(Y billion)

	1952	1957	1965	1970	1975	1977	1978	1979
Fixed investment	5.69	13.49	25.20	41.90	64.74	64.90	78.24	84.55
Increase in inventories and work in progress	7.30	8.95	11.17	19.90	18.26	18.30	30.42	26.70
Total investment	12.99	22.44	36.37	61.80	83.00	83.20	108.66	111.25
Material consumption	47.71	71.06	98.33	125.80	162.10	174.10	189.04	219.85
Investment plus consumption <u>/a</u>	60.70	93.50	134.70	187.60	245.10	257.30	297.70	331.10
Foreign material trade balance (- = deficit) <u>/b</u>	-1.04	+0.45	n.a.	-0.16	-0.41	+1.45	-1.78	-3.46
NMP estimated from expenditure side <u>/c</u>	59.66	93.95	n.a.	187.44	244.69	258.75	295.92	327.64
Residual error <u>/d</u>	-0.76	-3.15	n.a.	5.16	5.81	7.15	5.18	9.36
Net material product <u>/e</u>	58.90	90.80	138.70	192.60	250.50	265.90	301.10	337.00

/a Officially described as "available national income."

/b Goods plus, in principle, material services. In practice, however, data on nonfactor service flows are available only for recent years, and even then it is not possible to distinguish between the material and nonmaterial components. In principle, moreover, the trade balance should be evaluated at domestic prices, which in China differ significantly from external prices. In practice, however, it is necessary to use trade figures in dollars converted at the official exchange rate.

/c Sum of previous two lines.

/d Difference between preceding and following lines.

/e Estimated from the production side (Table A.1).

Source: Derived from Annex B, Tables 2.2, 5.1 and 5.8.

REAL GROWTH OF NMP 1957-79
(average annual, %)

	NMP	NMP per capita <u>/a</u>
SSB constant-price index	5.440	3.509
Estimate at 1970 prices	5.308	3.379
Estimate at 1979 prices	5.006	3.083
Estimate at Indian prices	4.600	2.684
Estimate from expenditure side <u>/b</u>	4.941 - 5.010	3.019 - 3.087

/a Column 1 reduced by population growth rate of 1.8655%.

/b At 1970 prices.

Source: Paras. A.20-A.22.

CHINA AND INDIA: ROUGH COMPARISON OF REAL PRODUCTION, 1979

	China	India
1. Grain production (million tons)	332.120	145.427
2. Ratio of total crop production to grain production	1.245	1.589
3. Total crop production (mn. tns. of grain-equivalent)	413.489	231.084
4. Meat production (million tons)	10.624	8.650
5. Total agricultural production (mn. tns. of grain-equivalent)	519.729	317.584
6. Ratio of GDP to agricultural net output at Indian prices	2.941	2.646
7. Total production (mn. tns. of grain-equivalent)	1528.523	840.326
8. Population (millions)	970.92	678.255
9. Production per capita (tns. of grain-equivalent)	1.574	1.239

Notes

1. For China, from SSB; for India, from FAO, Production Yearbook, 1979, taking grain to be all cereals (120,603), all pulses (12,279) and 0.2 of roots and tubers (17,723).
2. Based on arable land use. For China, the ratio of grain to total cropped area is estimated to be 80.3% (Annex B, Tables 6.1, 6.3). For India, the ratio was estimated from the FAO Yearbook, using the same definition of grain as in note (1), and assuming that irrigated land is cropped twice and nonirrigated land once.
3. Line 1 times line 2.
4. For China, from SSB (pork, beef and mutton); for India, from FAO, Production Yearbook, 1979 (all meat).
5. Line 3 plus ten times line 4 - assumed meat/crop price ratio.
6. At market prices. For China, from Table A.14. For India, from Table A.13.
7. Line 5 times line 6.
8. For China, from Annex B, Table 1.1; for India, from FAO, Production Yearbook, 1979. Both are year-end figures.
9. Line 7 divided by line 8.

COMPARISON OF REAL INCOME IN CHINA AND OTHER COUNTRIES

	GNP per capita based on official exchange rates, 1979 (\$) / <u>a</u>	Exchange rate deviation index, 1973 / <u>b</u>	Real GNP per capita (China = 100) / <u>c</u>
China	256	n.a.	100 / <u>d</u>
India	190	3.06	74
Kenya	380	2.06	100
Philippines	600	2.91	222
Malaysia	1320	1.86	313
Colombia	1010	2.51	323
Rep. of Korea	1500	2.47	472
Japan	8800	1.06	1188
France	9940	0.99	1254
United States	10820	1.00	1379

/a For China, para. A.24. For other countries, from World Bank Atlas, 1980.

/b World Bank Publication Summary, The International Comparison Project.

/c Column 1 multiplied by column 2, and expressed as a percentage of the Chinese figure.

/d Taken to be 1.35 times the estimate for India (see para A.29).

BACKWARD PROJECTION OF CHINESE AND INDIAN PER CAPITA GNP

	Level 1979 <u>/a</u> (\$)	Growth rates (% p.a.)		Estimated level	
		1950s	Late 1950s - Late 1970s	1952	1957
China	256	4.18/ <u>b</u>	2.68/ <u>c</u>	117	143
India	191	2.3 <u>/d</u>	1.4 <u>/e</u>	122/ <u>f</u>	137/ <u>f</u>

/a At official exchange rates, using World Bank Atlas method (para. A.24).

/b 1952-57: (a) Real NMP growth at Indian prices, derived by same method as in Table A.16, equals 7.155%; (b) arbitrarily adjusted downwards by 0.5% to reflect presumed slower growth of nonmaterial services; (c) reduced to allow for population growth at 2.379% p.a.

/c 1957-79: Table A.18 (at Indian prices).

/d 1950-60: D. Morawetz, Twenty-Five Years of Economic Development (World Bank, 1977), page 78.

/e 1960-78: World Bank, WDR, 1980.

/f Interpolated, assuming uniform growth within the periods 1950-60 and 1960-78, and 1960-79 growth rate same as in 1960-78.

Source: See notes.

INVESTMENT IN RELATION TO GDP
(Y billion, except where otherwise noted)

	1957	1979
1. Net investment	22.44	111.25
2. Plus: depreciation	4.75	21.6
3. Less: defense investment	2.756	11.133
4. Gross investment	24.434	121.717
5. NMP from the expenditure side	93.95	327.64
6. NMP from the production side	90.80	337.00
7. Difference between NMP and GDP	14.74	54.24
8. GDP from the expenditure side	108.69	381.88
9. GDP from the production side	105.54	391.24
Gross investment as % of GDP		
(a) from the expenditure side	22.48	31.87
(b) from the production side	23.15	31.11

- Sources:
1. From Table A.16.
 2. For 1979 from Table A.9 (including rural housing depreciation); for 1957, estimated depreciation in material production sectors (Table A.11) times 1979 ratio of total depreciation to material production sector depreciation (21.6/16.5: Table A.9).
 3. Assumed to be half of total reported defense expenditure (Annex B, Table 4.5).
 4. Lines 1 plus 2 minus 3.
 5. and 6. from Table A.17.
 7. and 9. from Tables A.10 and A.11.
 8. Lines 5 plus 7.

INCREMENTAL CAPITAL-OUTPUT RATIOS

	Ratio of investment to GDP (%)		Growth rate of GDP (%)	ICOR <u>/a</u>
	Opening	Closing		
China, 1957-79				
(i)	23.15/ <u>b</u>	31.11/ <u>b</u>	5.308/ <u>c</u>	5.395/ <u>d</u>
(ii)	19.87/ <u>e</u>	27.10/ <u>f</u>	4.600/ <u>g</u>	5.389/ <u>d</u>
(iii)	15.07/ <u>h</u>	27.10/ <u>f</u>	4.600/ <u>g</u>	4.839/ <u>d</u>
India, 1960-78	17	24	3.644	5.626
Indonesia, 1960-78	8	20	5.390	2.597
Low-income countries, 1960-78	14	21	3.767	4.646
Middle-income countries, 1960-78	21	25	5.867	3.920
Industrialized countries, 1960-78	21	22	4.251	5.058

/a Calculated as unweighted average of opening and closing investment ratios, divided by growth rate, except where noted.

/b From Table A.22.

/c At 1970 prices, from Table A.18.

/d In an attempt to correct for the error inherent in using end-point investment data, the Chinese ICORs, calculated as in note a, were multiplied by 1.0556. This is the ratio of the average accumulation rate (net investment to available national income) in 1957, 1965, 1970, 1975 and (grouped) 1977-79 to the average of 1957 and 1979 - Table A.17. (Data from unofficial Chinese sources on the accumulation rate in other years of the period suggest that this is a slight overcorrection.)

/e Applying the same formula as in para. A.33, but with I = 0.2315.

/f From para. A.33.

/g At Indian prices, from Table A.18.

/h As in note e, except substituting for 0.823 an estimate of the proportional difference between the Chinese consumption/investment price ratio in 1957 and that in India in 1979, derived by modifying the formula in para. A.33 as follows:

$$(0.6 \times \frac{4.7696}{6.1100} \times \underline{0.5}) + 0.25 + (0.15 \times \frac{1.0324}{1.4800}) = 0.589.$$

The underlined factor, 0.5, is the change in the Chinese industry/agriculture price ratio between 1957 and 1979, based on the data in Table A.5.

Source: For China, see notes; for other countries, World Bank, WDR, 1980.

ALLOCATION OF FIXED INVESTMENT
(Y billion)

	1965	Average 1977-79
1. Total fixed investment, of which	25.20	75.897
2. State capital construction	15.993	34.498
3. Commune investment	5.630	16.186
4. Remainder	3.577	25.213
<u>Sectoral Allocation of State Capital Construction</u>		
5. Agriculture	1.167	2.105
6. Industry	9.963	22.665
7. Other	4.862	9.728
<u>Sectoral Allocation of Commune Investment</u>		
8. Agriculture	3.378	9.712
9. Industry	1.408	4.047
10. Other	0.845	2.428
<u>Sectoral Allocation of Remainder</u>		
11. Agriculture	0.537	3.782
12. Industry	2.325	16.388
13. Other	0.715	5.043
<u>Sectoral Allocation of Total Fixed Investment</u>		
14. Agriculture	5.082	15.599
15. Industry	13.696	43.100
16 (Light)	(2.397)	(7.543)
17 (Heavy)	(11.299)	(35.558)
18. Other	6.422	17.199

Notes:

1. From Table A.17.
2. Completed state capital construction, from Annex B, Table 2.5 (unfinished construction is classified as work-in-progress, not fixed investment).
3. Based on the information in Table A.25 (assuming 1978-79 average applicable also to 1977-79) and the figures for total accumulation in Table A.17.
4. Line 1 minus lines 2 and 3.
- 5.-7. Based on Annex B, Table 2.4, but assuming (a) that completed state capital construction was allocated in the same proportions as state capital construction expenditure, and (b) that half of state capital construction in "agriculture" was for hydroelectric power (i.e. industry).
- 8.-10. Based on fragmentary evidence from the SSB, and from the Sichuan statistical bureau, it was assumed that commune fixed investment is allocated to agriculture, industry and housing (i.e. other) in the proportions 0.60, 0.25 and 0.15, respectively.
- 11.-13. Arbitrarily assumed to be allocated to agriculture, industry, and other in the proportions 0.15, 0.65 and 0.20, respectively.
- 14., 15., 18. Obtained by summing corresponding rows above.
- 16., 17. Total for industry divided between heavy and light in the proportions 82.5% and 17.5%, these being the shares of heavy and light industry in the gross industrial fixed capital stock in 1979 - Annex D, Table 2.2.

COMMUNE ACCUMULATION
(Y billion)

	1965	1978	1979
As % of total accumulation	18	17	19
Composition (%)			
Fixed	86	89	89
Circulating	14	11	11

Source: SSB.

EXPENDITURE AT 1970 PRICES
(Y billion)

	1952	1957	1970	1977	1978	1979
Investment	9.291	18.432	61.80	84.804	110.754	111.979
Material consumption	62.540	88.612	125.80	166.833	180.394	202.137
Total consumption <u>/a</u>	n.a.	101.191	n.a.	191.731	207.480	231.513
Foreign material trade balance <u>/c</u>	-1.289	+0.517	-0.16	+1.435	-1.760	-3.339
NMP from expenditure side						
By summing components <u>/b</u>	70.542	107.561	187.44	253.072	289.388	310.777
By direct deflation <u>/c</u>	73.948	107.851	187.44	256.059	292.640	316.166

/a Material consumption plus nonmaterial consumption of (at current prices) Y9.99 billion in 1957, Y26.79 billion in 1977, Y29.09 billion in 1978 and Y32.64 billion in 1979, estimated as follows. For 1957, from Tables A.11 and A.22, the sum of passenger transport, finance, government administration, personal services and rent, less depreciation in the nonmaterial service sectors. For 1979, from Table A.10, the sum of nonmaterial services and rent, less depreciation of rural housing. For 1978, estimated on same principles as for 1979, using data on nonmaterial services and depreciation in 1978 from paras. 3.26-7. For 1977, ratio of nonmaterial to material consumption at current prices assumed same as in 1978.

/b Investment plus material consumption plus foreign material trade balance.

/c Deflated by implicit NMP deflator.

Sources: Tables A.17 and A.27

EXPENDITURE PRICE INDICES
(1970 = 100)

	1952	1957	1970	1977	1978	1979
1. Investment	139.819	121.742	100.0	98.109	98.109	99.349
2. Material consumption	76.287	80.192	100.0	104.356	104.793	108.763
of which						
3. Rural	73.187	75.958	100.0	104.951	106.477	111.174
4. Urban	85.109	92.243	100.0	102.662	100.000	101.901
5. Total consumption <u>/a</u>	75.951	80.096	100.0	104.777	105.133	109.061
6. Implicit NMP deflator	80.678	87.111	100.0	101.051	101.121	103.629

/a Material plus nonmaterial consumption.

Sources:

1. Heavy industry composite price index from Table A.5
2. Weighted average of lines 3 and 4, with weights of 0.74 and 0.26 respectively. These weights are the estimated shares of the rural and urban populations in total consumption, based on an urban-rural income ratio of 2 and rural and urban population shares of 85% and 15% respectively (see para. A.50).
3. Weighted average of composite agricultural price index (Table A.5) and index of prices of industrial products sold in rural areas (Annex B, Table 3.1), with arbitrary weights of 0.75 and 0.25, respectively. For 1952, agricultural price index based on estimates of 1957 gross output (with post-1957 coverage) at 1957 prices (Annex B, Table 2.3) and 1952 prices (Table A.6).
4. Retail price index (Annex B, Table 3.1).
5. As line 2, but with urban cost of living index (which includes rent and personal services) substituted for retail price index.
6. Derived from current-price NMP (Table A.1) and NMP at 1970 prices (Table A.8, double deflated and with brigade industry in industry).

CONSUMPTION OF SPECIFIC COMMODITIES

	Production			Imports 1979	Exports 1979	Consumption growth per capita (annual av. %)		Consumption level per capita 1979
	1952	1957	1979			1952-79	1957-79	
Cotton cloth (¹ 000 million meters)	3.83	5.05	12.15		1.11	1.9997	1.721	11.446 meters
Radios (¹ 000)	17	352	13810			25.701	15.987	0.01432
Bicycles (¹ 000)	80	806	10095		642	17.038	9.792	0.0098
Sewing machines (¹ 000)	66	278	5868		497	15.433	12.312	0.005569
Watches (¹ 000)	0	0.4	17070	1876			60.137	0.019643

Sources: Columns 1-3: Annex B, Table 7.1.

4-5: Annex B, Tables 5.3 and 5.5.

6-8: 1952 and 1957 consumption assumed equal to production. 1979 consumption assumed equal to production plus imports minus exports. Population growth rates are 1.960 (1952-79) and 1.866 (1957-79), and the 1979 mid-year population is taken to be 964.5 million.

GROWTH OF PERSONAL INCOMES, 1957-79

	1957	1979
<u>Urban</u>		
1. Average wage in state organization (Y)	637	705
2. Average non-state wage (Y)	424.7	542.3
3. Ratio of state to total employment (%)	54.9	76.9
4. Average wage (Y)	541.3	667.4
5. Participation rate (%)	32.6	55.1
6. Per capita money wage (Y)	176.5	367.7
7. Cost of living index (1950 = 100)	126.6	142.0
8. Per capita real income index	1.394	2.589
<u>Rural</u>		
9. Per capita money income (Y)	82.23	171.3
10. Per capita real income index	1.083	1.541
<u>Total</u>		
11. Urban per capita money income (Y)	180.72	376.5
12. Total per capita money income (Y)	97.00	202.08
13. Total per capita real income index	1.211	1.853

Source:

- Annex B, Table 10.2
- For 1979, based on the ratio of wages in state organizations to wages in urban collectives (Annex B, Table 10.2), namely 1.3. For 1957 (prior to full urban collectivization), the ratio of wages in state organizations to other urban earnings is assumed to have been somewhat larger, namely 1.5.
- Annex B, Table 10.1. For 1979, ratio of state employees to total workers and staff plus urban self-employed. For 1957, ratio of state employees to total non-agricultural labor force.
- Weighted average of lines 1 and 2, using weights based on line 3.
- For 1957, T. Rawski, Economic Growth and Employment in China (Oxford University Press, 1979), Table 2.4. For 1979, household survey referred to in para. A.45.
- Line 4 times line 5 divided by 100.
- Annex B, Table 3.1 (cost of living of staff and workers).
- Line 6 divided by line 7.
- For 1979, para A.48. For 1957 derived by assuming growth at same rate as urban per capita money income (line 6); the urban/rural money income ratio in 1957 was apparently similar to that in 1979 (N. Lardy, Economic Growth and Distribution in China, Cambridge UP, 1978, p. 179).
- Line 9 divided by rural consumer price index in Table A.27.
- For 1979, from para. A.46. For 1957, extrapolated backwards on basis of growth rate implied by line 6.
- Weighted average of lines 9 and 11, with weights of 0.85 and 0.15 respectively (see para. A.50).
- Line 12 divided by total consumption index in Table A.27.

URBAN INCOME DISTRIBUTION

Available income per capita/ <u>a</u> (Y/month)	Percentage of families	Average earnings per worker(Y)	Number of persons per family	Number of workers per family	Average total income per person
Over 50	9.3	71.16	3.53	3.01	60.7 <u>/b</u>
35-50 <u>/c</u>	30.2	64.43	4.18	2.85	43.9 <u>/b</u>
25-35	37.0	63.54	4.60 <u>/d</u>	2.37 <u>/d</u>	32.7 <u>/b</u>
15-25	21.4	61.89	5.03 <u>/e</u>	1.98	24.4 <u>/b</u>
Under 15	2.1	62.43	5.30	1.31	14.5 <u>/f</u>
Total	100.0	63.92	4.48	2.47	35.8

Source: SSB sample survey of 86,955 wage-earning families in 44 cities in the first quarter of 1980, reported in People's Daily, December 31, 1980, and broadcast by New China News Agency, December 30, 1980 (BBC Survey of World Broadcasts, January 7, 1981, FE/6616/C/3-4).

/a Available income defined as total income minus expenditure on supporting relatives, donations and gifts (average available income was Y32.68).

/b Estimated as average earnings per worker multiplied by number of workers per household and divided by number of persons per household.

/c Given in source as 30-50.

/d Not given in source. Estimated residually, using knowledge of total number of families and average number of persons and workers per household.

/e Given as "five" in source, which however also gives the dependency ratio in this class as 2.54 (multiplication by number of workers yields 5.03).

/f Source gives average available income in this class as Y13.26, which was multiplied by the average ratio of total to available income (35.8/32.68).

ADJUSTMENT OF INTER-TEAM DISTRIBUTION OF
DISTRIBUTED COLLECTIVE INCOME

Per capita distributed collective income (Y per year)	Percentage of teams	Average per capita collective income	Assumed % of income in kind	Revalued collective income	Average per capita total income	Percentage of standardized teams
101 and above	25.2	147	50	166.85	284.97	29.07
81 - 100	15.6	91	65	106.97	182.71	14.79
51 - 80	31.7	66	80	80.26	137.08	30.06
41 - 50	11.4	46	95	57.80	98.72	10.81
40 and below	16.1	37	100	46.99	80.26	15.27
Total/average	100.0	83.4	75	100.29	171.30	100.00

Sources: Columns 1-2, Annex B, Table 2.7

Columns 3-4, see paras. A.56-7.

Column 5 = (column 3 x column 4 x 0.27) + column 3; see para. A.57.

Column 6 = column 5 x 1.708 (see para. A.58).

Column 7, see para. A.59.

ADJUSTMENT FOR INTRA-TEAM INEQUALITY

			Income as ratio of team average:	1.5	1.3	1.0	0.7	0.5
			Proportion of households in team:	0.15	0.20	0.30	0.20	0.15
			Persons per household:	4.97	5.23	5.64	6.21	6.39
Average per capita total income	Percentage of standardized teams							
285.0		income	427.5	370.5	285.0	199.5	142.5	
	29.1	% of households	4.37	5.82	8.73	5.82	4.37	
182.7		income	274.1	237.5	182.7	127.9	91.4	
	14.8	% of households	2.22	2.96	4.44	2.96	2.22	
137.1		income	205.7	178.2	137.1	96.0	68.6	
	30.1	% of households	4.52	6.02	9.03	6.02	4.52	
98.7		income	148.1	128.3	98.7	69.1	49.4	
	10.8	% of households	1.62	2.16	3.24	2.16	1.62	
80.3		income	120.5	104.4	80.3	56.2	40.2	
	15.3	% of households	2.30	3.06	4.59	3.06	2.30	

Source: Columns 1 and 2, Table A.31.

Other column headings, see para. A.60.

Remaining entries derived by multiplying data in columns 1 and 2 by relevant numbers in other column headings.

RURAL INCOME DISTRIBUTION

Average per capita total income (Y/year)	Percentage of households	Persons per household	Percentage of people	Percentage share of income
427.5	4.37	4.97	3.82	9.66
370.5	5.82	5.23	5.34	11.73
285.0	8.73	5.64	8.65	14.59
274.1	2.22	4.97	1.94	3.15
237.5	2.96	5.23	2.72	3.82
205.7	4.52	4.97	3.95	4.81
199.5	5.82	6.21	6.35	7.50
182.7	4.44	5.64	4.40	4.76
178.2	6.02	5.23	5.53	5.83
148.1	1.62	4.97	1.41	1.24
142.5	4.37	6.39	4.91	4.14
137.1	9.03	5.64	8.95	7.26
128.3	2.16	5.23	1.99	1.51
127.9	2.96	6.21	3.23	2.44
120.5	2.30	4.97	2.01	1.43
104.4	3.06	5.23	2.81	1.74
98.7	3.24	5.64	3.21	1.88
96.0	6.02	6.21	6.57	3.73
91.4	2.22	6.39	2.49	1.35
80.3	4.59	5.64	4.55	2.16
69.1	2.16	6.21	2.36	0.96
68.6	4.52	6.39	5.07	2.06
56.2	3.06	6.21	3.34	1.11
49.4	1.62	6.39	1.82	0.53
40.2	2.30	6.39	2.58	0.61

Source: Columns 1-3, Table A.32.

Column 4 derived from columns 2 and 3.

Column 5 derived from columns 1 and 4.

DERIVATION OF OVERALL INCOME DISTRIBUTION

Average per capita income (Y/year)		Urban population percentages	Rural population percentages	Total population percentages	Percentage share of income
Urban	Rural				
638.4		7.33		1.10	3.52
461.7		28.18		4.23	9.79
	394.2		9.16	7.79	15.39
343.9		37.98		5.70	9.82
	283.0		10.59	9.00	12.76
256.6		24.03		3.60	4.63
	209.3		13.02	11.07	11.61
	176.2		11.34	9.64	8.51
152.5		2.48		0.37	0.28
	139.0		13.86	11.78	8.20
	119.9		10.04	8.53	5.12
	96.9		9.78	8.31	4.03
	80.4		9.40	7.99	3.22
	56.9		12.81	10.89	3.10
		100.00	100.00	100.00	100.00

Source: Column 1, Table A. 30 (converted to an annual basis and divided by 1.141 - see para. A.46).

Column 2, Table A. 33.

Column 3, Table A. 30 and para. A.54.

Column 4, Table A. 33.

Column 5, sum of column 3, with weight of 0.15, and column 4, with weight of 0.85.

Column 6, derived from columns 1, 2 and 5.

Annex B

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/1 For additional statistical information, see Annex D. See also under "energy".

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/3 For additional statistical information, see Annex F.

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Key

- .. negligible or not applicable
- n.a. not available
- zero

/1 For additional statistical information, see Annex I.

/2 For additional statistical information, see Annex H.

Table 1.1: POPULATION AND VITAL STATISTICS, 1949-80

Year	Year-end population (millions)	Rate of natural increase per thousand	Crude birth rate per thousand	Crude death rate per thousand
1949	541.67	n.a.	n.a.	n.a.
1952	574.82	20.0	37.0	17.0
1957	646.53	23.2	34.0	10.8
1965	725.38	28.5	38.1	9.6
1970	825.92	26.0	33.6	7.6
1971	847.79	23.4	30.7	7.3
1972	867.27	22.3	29.9	7.6
1973	887.61	21.0	28.1	7.1
1974	904.09	17.6	25.0	7.4
1975	919.90	15.8	23.1	7.3
1976	932.67	12.7	20.0	7.3
1977	945.24	12.1	19.0	6.9
1978	958.09	12.0	18.3	6.3
1979	970.92	11.7	17.9	6.2
1980	982.55	n.a.	n.a.	n.a.

Source: State Statistical Bureau.

Table 1.2: POPULATION BY PROVINCE, 1978 AND 1979
(Millions)

	Year-End	
	1978	1979
<u>National Total</u>	<u>958.09</u>	<u>970.92</u>
<u>Southwest Region</u>		
Sichuan	97.07	97.74
Guizhou	26.86	27.31
Yunnan	30.92	31.35
Xizang	1.79	1.83
<u>Northwest Region</u>		
Shaanxi	27.79	28.07
Gansu	18.73	18.94
Qinghai	3.65	3.72
Ningxia	3.66	3.64
Xinjiang	12.33	12.56
<u>Central South Region</u>		
Henan	70.66	71.89
Hubei	45.75	46.33
Hunan	51.66	52.23
Guangxi	34.02	34.70
Guangdong	55.93	56.81
<u>East Region</u>		
Shanghai	10.98	11.32
Jiangsu	58.34	58.92
Zhejiang	37.51	37.92
Anhui	47.13	48.03
Fujian	24.50	24.88
Jiangxi	31.83	32.29
Shandong	71.60	72.32
<u>North Region</u>		
Beijing	8.50	8.71
Tianjin	7.21	7.41
Hebei	50.57	51.05
Shanxi	24.24	24.47
Nei Monggol /a	8.90	18.52
<u>Northeast Region</u>		
Liaoning	37.43	34.43
Jilin	24.74	21.84
Heilongjiang	33.76	31.69

/a The boundaries of Nei Monggol were redrawn in 1979 with new boundaries including what had been portions of five adjoining provinces; hence the dramatic population increase. The same boundary adjustment accounts, of course, for population declines in the nearby provinces.

Source: State Statistical Bureau.

Table 1.3: BIRTH AND DEATH RATES FOR URBAN AND RURAL AREAS, 1970-79

	Urban		Rural		Total	
	CBR <u>/a</u>	CDR <u>/b</u>	CBR <u>/a</u>	CDR <u>/b</u>	CBR <u>/a</u>	CDR <u>/b</u>
1970	n.a.	n.a.	n.a.	n.a.	33.6	7.6
1971	21.9	5.5	31.9	7.6	30.7	7.3
1972	20.1	5.5	31.2	7.9	29.9	7.6
1973	18.1	5.2	29.3	7.3	28.1	7.1
1974	15.1	5.5	26.2	7.6	25.0	7.4
1975	15.2	5.6	24.2	7.6	23.1	7.3
1976	13.7	6.9	20.9	7.4	20.0	7.3
1977	13.9	5.7	19.7	7.1	19.0	6.9
1978	14.1	5.3	18.9	6.4	18.3	6.3
1979	13.9	5.1	18.5	6.4	17.9	6.2

/a Crude birth rate (per thousand).

/b Crude death rate (per thousand).

Note: Urban areas are the 203 population centers denoted as "urban" by the State Council, plus county towns, of which there are about 2,300.

Source: State Statistical Bureau.

Table 1.4: PERCENT OF POPULATION IN CITIES, BY PROVINCE, 1979 /a

<u>NATIONAL TOTAL</u>	13.2
<u>Southwest Region</u>	
Sichuan	9.4
Guizhou	14.1
Yunnan	6.5
Xizang	6.5
<u>Northwest Region</u>	
Shaanxi	12.0
Gansu	9.4
Qinghai	14.6
Ningxia	16.9
Xinjiang	19.8
<u>Central South Region</u>	
Henan	8.3
Hubei	9.7
Hunan	7.0
Guangxi	5.7
Guangdong	12.0
<u>East Region</u>	
Shanghai	52.2
Jiangsu	10.5
Zhejiang	6.5
Anhui	8.5
Fujian	11.2
Jiangxi	11.0
Shandong	9.5
<u>North Region</u>	
Beijing	58.5
Tianjin	65.6
Hebei	10.2
Shanxi	15.6
Nei Monggol	15.2
<u>Northeast Region</u>	
Liaoning	34.7
Jilin	21.7
Heilongjiang	24.5

/a There are 203 cities recognized as such by the State Council; this column shows the percent of the population in each province resident in such cities, or in one of about 2,300 county towns.

Source: State Statistical Bureau.

Table 2.1: NET MATERIAL PRODUCT, 1949-80

	1949	1952	1957	1962	1965	1970	1975	1977	1978	1979	1980
Net material product at current prices (billion yuan)	35.8	58.9	90.8	92.4	138.7	192.6	250.5	265.9	301.1	337.0/a	363.0
<u>Shares in NMP at Current Prices (%)</u>											
Industry	n.a.	20	28	n.a.	36	40	45	45	46	46	n.a.
Agriculture	n.a.	58	47	n.a.	46	41	39	37	36	38	n.a.
Construction	n.a.	4	5	n.a.	4	4	4	4	4	4	n.a.
Transport	n.a.	4	4	n.a.	4	4	4	4	4	4	n.a.
Commerce	n.a.	15	16	n.a.	9	11	8	10	10	8	n.a.
<u>Total</u>	n.a.	<u>101</u>	<u>100</u>	n.a.	<u>99</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	n.a.
Net material product at constant prices (index, 1949=100)	100.0	169.8	259.8	222.3	335.4	500.4	656.5	692.9	778.7	833.2	/b

/a In the SSB's Communique on Fulfillment of the 1980 National Economic Plan, April 1981, this figure was revised to 335.0.

/b In the April 1981 Communique, the increase at constant prices over 1979 was given as 6.9%.

Source: State Statistical Bureau (except "total" figure, derived by summing sectoral percentages - failure to add to 100 is due to rounding errors).

Table 2.2: NET MATERIAL EXPENDITURE SHARES, 1952-79
(billion yuan)

	1952	1957	1965	1970	1975	1977	1978	1979
Available national income at current prices (billion yuan)/ <u>a</u>	60.7	93.5	134.7	187.6	245.1	257.3	297.7	331.1
Of which:								
Accumulation (%)	21.4	24.0	27.0	<u>/b</u>	<u>/b</u>	<u>/b</u>	36.5	33.6
Consumption (%)	78.6	76.0	73.0	<u>/b</u>	<u>/b</u>	<u>/b</u>	63.5	66.4
Composition of accumulation								
Fixed investment (%)	43.8	60.1	69.3	67.8	78	78	72	76
Inventories and work in progress (%) <u>/c</u>	56.2	39.9	30.7	32.2	22	22	28	24

/a Available national income is defined as investment plus material consumption.

/b Accumulation and consumption for these years specified in billions of yuan at current prices as follows:

	<u>1970</u>	<u>1975</u>	<u>1977</u>
Accumulation	61.8	83.0	83.2
Consumption	125.8	162.1	174.1

/c Includes expenditure on unfinished construction projects.

Sources: State Statistical Bureau.

Table 2.3: SECTORAL GROSS OUTPUT AT CONSTANT PRICES: AGRICULTURE AND INDUSTRY, 1949-80
(Billion yuan except where otherwise specified)

	1949	1952	1957	1962	1965	1970	1971	1975	1977	1978	1979	1980
Agriculture /a												
1952 prices	32.6	48.4	60.4/b									
1957 prices			53.7/b	43.0	59.0	71.6	73.8					
1970 prices							109.0	128.5	133.9	145.9	158.4	162.7
Index (1949=100)	100.0	148.5	185.3	148.4	203.6	247.0	n.a.	300.1	312.8	341.0	370.3	/c
Light and Heavy Industry												
1952 prices	14.0	34.3	78.4									
1957 prices			70.4	85.0	139.4	242.1	278.2					
1970 prices							238.9	321.9	372.8	423.1	459.1	499.2
Index (1949=100)	100.0	245.0	560.0	675.9	1,108.8	1,925.8	n.a.	2,980.3	3,450.7	3,916.5	4,249.4	/c
Light Industry /d												
1952 prices	10.3	22.1	40.5									
1957 prices			37.4	n.a.	70.3	105.1	111.9					
1970 prices							102.3	139.3	163.0	180.6	198.0	234.4
Index (1949=100)	100.0	214.6	393.2	n.a.	739.2	1,104.9	n.a.	1,602.0	1,875.0	2,077.5	2,276.9	/c
Heavy Industry /d												
1952 prices	3.7	12.2	37.9									
1957 prices			33.0	n.a.	69.1	137.0	166.3					
1970 prices							136.6	182.6	209.8	242.5	261.1	264.8
Index (1949=100)	100.0	329.7	1,024.3	n.a.	2,144.9	4,252.9	n.a.	6,896.6	7,922.2	9,158.1	9,863.3	/c

/a For a breakdown of agricultural output, see Table 6.2.

/b In 1957, there was a substantial change in the coverage of "agriculture" (see Annex A, para. 3.08). The difference between these two figures reflects this, in addition to the change in prices between 1952 and 1957.

/c In the SSB's April 1981 Communique on Fulfillment of the 1980 National Economic Plan, the percentage increases over 1979 in constant prices were given as follows: agriculture, 2.7%; light and heavy industry, 8.7%; light industry, 18.4%; heavy industry, 1.4%.

/d For a more detailed breakdown of industrial output, see Table 7.2.

Source: State Statistical Bureau.

Table 2.4: COMPOSITION OF STATE CAPITAL CONSTRUCTION EXPENDITURE
(Current Prices), 1952-79
(million yuan)

	1952	1957	1965	1970	1975	1977	1978	1979
Industry /a	1,900	7,900	9,400	19,100	23,700	22,500	29,400	28,200
Light	(400)	(800)	(700)	(1,200)	(3,400)	(2,500)	(2,700)	(3,000)
Heavy	(1,500)	(7,100)	(8,700)	(17,900)	(20,300)	(20,000)	(26,700)	(25,200)
Transport, communi- cation, ports	800	2,200	3,400	6,100	7,400	5,300	7,200	6,600
Agriculture, etc.	600	1,300	2,500	2,600	4,200	4,500	5,600	6,300
Commerce, food dis- tribution, trade	100	400	400	600	1,300	1,300	1,500	1,900
Culture, health, education, etc.	300	700	500	300	1,000	1,000	1,400	2,100
Urban construction	200	400	300	300	800	900	1,400	2,700
Others	500	900	600	500	800	900	1,500	2,200
<u>Total</u>	<u>4,400</u>	<u>13,800</u>	<u>17,100</u>	<u>29,500</u>	<u>39,200</u>	<u>36,400</u>	<u>48,000</u>	<u>50,000</u>

/a For a more detailed breakdown of industrial investment, see Table 7.3.

Source: State Statistical Bureau.

Table 2.5: CAPITAL CONSTRUCTION BY SOURCES AND USES
AT CURRENT PRICES, 1952-80
(million yuan)

	1952	1957	1965	1970	1975	1977	1978	1979	1980
Value of completed state capital construction	3,114	12,922	15,993	19,257	25,053	26,031	35,637	41,827	42,700/a
State capital construction expenditure	4,356	13,829	17,089	29,499	39,186	36,441	47,955	49,988	53,900
Within state budget/b	(3,711)	(12,645)	(15,437)	(25,517)	(31,812)	(29,439)	(39,593)	(39,497)	(28,100)/a
Outside state budget/c	(645)	(1,184)	(1,652)	(3,982)	(7,374)	(7,002)	(8,362)	(10,491)	(25,800)/d
Proportion for productive purposes	66.9	76.0	84.7	93.5	85.7	83.3	82.6	73.0	66.3
Proportion for non-productive purposes	33.1	24.0	15.3	6.5	14.3	16.7	17.4	27.0	33.7

/a 1980 figures are from the SSB's April 1981 Communique on Fulfillment of the 1980 National Economic Plan. The percentage changes from 1979 given in the Communique for these two series are not consistent with the 1979 data in this table, suggesting that the 1979 data may have been revised. (The value of completed state capital construction is said to have risen by 2.2%, and state capital construction expenditure covered by the budget to have declined by 24.9%.)

/b Estimate of actual expenditure. Differs from figures for capital construction in the budget itself, which refer to appropriations.

/c Expenditure financed from extrabudgetary funds of enterprises, departments and local governments.

/d Estimated residually: figure not in Communique (see note /a).

Source: State Statistical Bureau.

Table 2.6: COMPONENTS OF VALUE ADDED IN INDUSTRY
(CURRENT PRICES), 1978
(unit: %)

	1978
Wages and salaries, welfare fund and bonuses	25
Taxes and profits	70
Interest paid to banks	2
Other	3
<u>Total</u>	<u>100</u>

Source: State Statistical Bureau.

Table 2.7: DISTRIBUTION OF COLLECTIVE INCOME, 1979 /a

Range of annual per capita distributed collective income	% of production teams
40 yuan or below	16.1
41-50 yuan	11.4
51-80 yuan	31.7
81-100 yuan	15.6
101 yuan or above	25.2
	<u>100.0</u>

/a See also Table 6.11 (which includes data on distributed collective income by province), and notes to Table 2.9.

Source: State Statistical Bureau.

Table 2.8: DISTRIBUTION OF COLLECTIVE FOODGRAINS, 1979

Range (amount of unprocessed grain per capita)/ <u>a</u>	% of production teams
Below 300 jin / <u>b</u>	11.7
301-360 jin	10.0
361-400 jin	9.0
401-450 jin	12.0
451-500 jin	12.2
More than 501 jin	45.1
	<u>100.0</u>

/a Distributed by production teams to their members
as collective income in kind.

/b 1 jin equals 0.5 kg.

Source: State Statistical Bureau.

Table 2.9: AVERAGE DISTRIBUTED COLLECTIVE INCOME, 1957-80

	Annual distributed collective income per capita (yuan)/a
1957	40.5
1975	63.2
1977	65.0
1978	74.0
1979	83.4 /b
1980	85.9 /b

/a Distributed collective income is income distributed, in cash or in kind, to production team members out of net income of the team. It excludes income earned by team members from noncollective sources - private plots and other activities - as well as income from sales of manure by households to the collective and those wages in collective enterprises that are paid directly in cash to individual workers.

/b Income in kind valued at 1978 prices.

Source: State Statistical Bureau.

Table 3.1: PRICE INDICES, 1952-80
(1950 = 100)

	1952	1957	1965	1970	1975	1977	1978	1979	1980
Cost of living of staff and workers	115.5	126.6	139.0	137.8	139.5	143.7	139.6	142.0	<u>/a</u>
Retail price index	111.8	121.3	134.6	131.5	131.9	135.0	131.5	134.0	<u>/b</u>
Agricultural procurement price index	121.6	146.2	187.9	195.1	208.7	209.2	217.4	265.5	<u>/c</u>
Rural market price index	111.0	120.9	192.2	n.a.	n.a.	363.3	246.0	234.9	n.a.
Industrial products sold in rural areas	109.7	112.7	118.4	111.9	109.6	109.8	109.8	109.9	n.a.

/a Increased by 7.5% over 1979.

/b Increased by 6% over 1979.

/c Increased by 7.1% over 1979.

Source: State Statistical Bureau.

**Table 3.2: PROCUREMENT PRICES, EX-FACTORY PRICES AND RETAIL PRICES
(NATIONAL LEVEL), 1957-79**

	1957	1965	1970	1977	1978	1979
Mixed Average Procurement Prices of Major Agricultural Products (Y)						
Foodgrain (500 kg)	n.a.	n.a.	n.a.	128.30	131.73	165.34
Edible vegetable oil (500 kg)	n.a.	n.a.	n.a.	836.40	873.24	1,229.10
Hogs (head)	n.a.	n.a.	n.a.	70.30	74.50	102.10
Cattle (head)	n.a.	n.a.	n.a.	98.80	100.90	120.80
Sheep (head)	n.a.	n.a.	n.a.	13.50	14.70	17.70
Poultry (head)	n.a.	n.a.	n.a.	1.60	2.00	2.20
Eggs (50 kg)	n.a.	n.a.	n.a.	67.90	68.90	84.00
Tea (50 kg)	n.a.	n.a.	n.a.	117.00	119.70	153.00
Sugarcane ('000 kg)	n.a.	n.a.	n.a.	35.00	36.20	44.90
Sugar beets ('000 kg)	n.a.	n.a.	n.a.	62.00	60.50	81.80
Cotton (50 kg)	n.a.	n.a.	n.a.	104.00	113.90	134.00
Jute and hemp (50 kg)	n.a.	n.a.	n.a.	26.00	28.40	28.70
Tussah cocoons (50 kg)	n.a.	n.a.	n.a.	49.00	50.00	64.40
Silkworm cocoons (50 kg)	n.a.	n.a.	n.a.	133.00	138.40	163.00
Vegetables (50 kg)	n.a.	n.a.	n.a.	3.80	4.10	4.50
Ex-Factory Prices - Agrochemicals and Machinery (Y)						
Tractor (East is Red 54/75, unit)	21,000.00	17,000.00	14,500.00	n.a.	n.a.	14,500.00
Tractor (East is Red 28, unit)	18,000.00	10,000.00	9,000.00	n.a.	n.a.	9,000.00
Tractor (Iron Cow 40/55, unit)	18,000.00	14,000.00	12,000.00	n.a.	n.a.	12,000.00
Hand tractor (Kung-Long 7/11, unit)	4,130.00	2,500.00	2,355.00	n.a.	n.a.	2,300.00
Combined threshing machine (GT-4.9 model, unit)	n.a.	22,000.00	15,000.00	n.a.	n.a.	13,000.00
(NH ₄) ₂ SO ₄ (N 20.8%, ton)	184.00	184.00	185.00	n.a.	n.a.	185.00
Urea (N 46%, ton)	1,000.00	540.00	400.00	n.a.	n.a.	350.00
NH ₄ NO ₃ (N 34%, ton)	400.00	315.00	260.00	n.a.	n.a.	220.00
Calcium superphosphate (P 14-18%, ton)	n.a.	120.00	110.00	n.a.	n.a.	100.00
Retail Prices of Industrial Goods in Rural Areas (Y)						
Chemical fertilizer (ton)	n.a.	n.a.	n.a.	n.a.	231.00	236.00
Pesticides (ton)	n.a.	n.a.	n.a.	n.a.	1,358.00	1,525.00
Coal (ton)	n.a.	n.a.	n.a.	n.a.	30.00	31.30
Transistor radio	n.a.	n.a.	n.a.	n.a.	34.60	39.20
Bicycle	n.a.	n.a.	n.a.	n.a.	159.00	159.00
Watch	n.a.	n.a.	n.a.	n.a.	125.00	123.00
Clock	n.a.	n.a.	n.a.	n.a.	19.00	20.10
Thermos bottle	n.a.	n.a.	n.a.	n.a.	4.00	4.10
Chrome gold pen	n.a.	n.a.	n.a.	n.a.	1.44	1.56
Pencil	n.a.	n.a.	n.a.	n.a.	0.05	0.05
Sewing machine	n.a.	n.a.	n.a.	n.a.	146.00	149.00

Sources: (1) State Agricultural Commission.
(2) State Statistical Bureau.

Table 3.3: GANSU - PROCUREMENT PRICES OF MAJOR AGRICULTURAL
COMMODITIES, 1977-79
(Yuan)

	Unit	1977	1978	1979
Foodgrain	50 kg	11.76	11.76	14.32
Of which: wheat	"	13.50	13.50	16.40
Vegetable oil	"	82.77	82.77	104.68
Vegetable foodstuffs	"	25.89	25.89	34.05
Of which: vegetable seed oil	"	85.00	85.00	106.00
Ginned cotton	"	103.00	115.00	138.25
Hemp	"	87.00	87.00	104.50
Cocoon	"	115.00	115.00	140.00
Sugarbeet	Ton	60.00	60.00	78.00
Pig	50 kg	47.50	47.50	62.00
Cattle	"	60.00	60.00	85.00
Goat	"	70.00	70.00	85.00
Chicken eggs	"	68.00	68.00	88.40
Cow hide	"	126.00	126.00	199.00
Sheep wool	"	160.00	160.00	160.00
Sheep skin	Sheet	4.54	4.54	4.54
Goat skin	"	2.95	2.95	2.95

Source: Provincial Statistical Bureau, Gansu.

Table 3.4: JIANGSU - PROCUREMENT PRICES OF MAJOR AGRICULTURAL
COMMODITIES, 1977-79
(Yuan)

	Unit	1977	1978	1979
Wheat (medium grade)	50 kg	13.13	13.13	15.83
Unmilled rice (medium grade)	"	11.33	11.33	13.53
Corn (medium grade)	"	9.60	9.60	11.70
Soybean (medium grade)	"	15.50	20.00	23.00
Peanut (medium)	"	38.00	38.00	48.00
Vegetable oil seed (oil 38%)	"	28.00	28.00	36.00
Cotton (#327)	"	104.90	115.00	132.50
Jute (grade 2)	"	86.00	86.00	86.00
Tobacco (medium, yellow, grade 4)	"	70.00	70.00	70.00
Green tea (Class 4, grade 8)	"	115.00	115.00	121.00
Peppermint oil (78-89°)	"	1,400.00	1,400.00	1,400.00
Pig (grade 3)	"	49.19	49.19	59.93
Beef (boneless, grade 2)	"	69.00	69.00	93.16
Goat (grade 2)	"	27.00	27.00	37.68
Chicken eggs (fresh)	"	69.00	69.00	82.77
Chicken (grade 3, 1.25 kg or more)	"	69.67	69.67	78.00
Duck (grade 3, 1.5 kg or more)	"	53.43	53.43	58.50
Sheep skin (grade 1)	Sheet	5.00	5.00	5.00
Silkworm cocoon (mixed and fresh)	50 kg	144.37	144.37	176.26
Apple (Kaokang, grade 1)	"	21.00	21.00	21.00
Pear (grade 1)	"	13.00	13.00	13.00
Melon seed (black, medium)	"	60.00	100.00	100.00
Melon seed (white)	"	57.50	94.00	94.00
Day lily	"	75.00	105.00	105.00
Bamboo (grade A)	Cane	1.26	1.26	1.58
Honey (grade 1)	50 kg	100.00	110.00	110.00
Reed (grade 1, 2.66 m long)	"	4.23	5.36	5.36
Large yellow croaker (fresh, 350 gm or more)	"	24.67	24.67	34.78
Hairtail (fresh, 200 gm or more)	"	22.41	22.41	31.74
Silver carp (fresh, 1 kg or more)	"	30.04	30.04	40.26
Carp (1 kg or more)	"	39.44	39.44	54.77
Dried shrimp (grade 1)	"	420.00	420.00	420.00

Source: Provincial Statistical Bureau, Jiangsu.

Table 3.5: HUBEI - PROCUREMENT PRICES OF MAJOR AGRICULTURAL
COMMODITIES, 1977-79
(Yuan)

	Unit	1977	1978	1979
Wheat (grade 3)	50 kg	13.09	13.09	15.80
Rice (grade 3)	"	9.50	9.50	11.55
Corn (grade 2)	"	9.50	9.50	11.60
Soybean (grade 3)	"	15.50	20.00	23.00
Peanut grade 3)	"	38.00	38.00	48.00
Vegetable oil seed (medium)	"	28.00	28.00	34.00
Cotton (327 mm, grade 3)	"	104.80	115.00	132.50
Flax (grade 2, class 3)	"	95.00	95.00	119.50
Tobacco (yellow, grade 4)	"	72.00	72.00	72.00
Green tea (class 4, grade 8)	"	104.00	104.00	120.00
Pig (grade 3)	"	48.20	48.20	62.09
Beef	"	64.30	64.30	85.48
Goat (grade 2, more than 25 kg)	"	26.80	26.80	36.40
Chicken eggs (fresh)	"	67.40	67.40	80.59
Chicken (grade 2)	"	65.00	65.00	81.69
Duck (grade 2)	"	43.00	43.00	45.75
Sheep skin (grade A)	Sheet	4.00	4.00	4.00
Cocoon	50 kg	115.00	115.00	138.00
Apple (grade 1)	"	23.00	23.00	23.00
Pear (grade 1)	"	18.00	18.00	18.00
Melon seed (black, medium, grade 2)	"	60.00	100.00	100.00
Melon seed (white, small, grade 2)	"	55.00	90.00	90.00
Day lily (grade 2)	"	76.67	76.67	100.00
Bamboo (8 m long)	Cane	0.94	0.94	1.04
Honey (grade 1, 40°)	50 kg	90.00	110.00	110.00
Reed rug (1x1.5 m)	Piece	0.53	0.53	0.53
Fresh fish (grade 1)	50 kg	39.80	39.80	53.60
Lotus seed	"	73.98	104.00	104.00

Source: Provincial Statistical Bureau, Hubei.

Table 3.6: LIAONING - PROCUREMENT PRICES OF MAJOR AGRICULTURAL
COMMODITIES, /a 1977-79
(Yuan)

	Unit	1977	1978	1979
Wheat (grade 3)	50 kg	13.72	13.72	16.40
Unmilled rice (grade 2)	"	13.30	13.30	15.80
Corn (grade 2)	"	8.29	8.29	10.16
Soybean (grade 3)	"	16.50	20.00	23.00
Peanut (grade 3)	"	38.00	38.00	48.00
Vegetable oil seed (grade 3)	"	28.00	28.00	35.00
Cotton (grade 3 - 27 mm long)	"	115.00	122.00	146.00
Hemp (grade 2)	"	92.80	92.80	108.00
Tobacco (golden yellow, grade 4)	"	60.00	60.00	60.00
Pig (grade 3)	"	51.90	51.90	60.75
Cattle (mixed)	"	72.00	72.00	99.08
Goat (grade 2)	"	70.19	70.19	98.62
Chicken eggs (mixed)	"	70.40	70.40	91.10
Sheep skin (Liaoninglu grade B)	Sheet	4.47	4.47	4.47
Tussah (grade 1)	50 kg	57.00	57.00	68.00
Apple (Kaokang, grade 2)	"	15.00	15.00	15.00
Pear (grade 2)	"	14.00	14.00	15.00
Melon seed (black, grade 2)	"	60.00	100.00	100.00
Honey (Class 1, grade 2)	"	100.00	100.00	110.00
Reed (mixed)	"	2.50	2.50	3.25
Large yellow croaker (grade 1)	"	30.00	30.00	40.00
Dried shrimp (medium, grade 1)	"	336.00	336.00	480.00

/a Average procurement prices for Fongcheng, Haicong, Taitu and Fusheng counties.

Source: Provincial Statistical Bureau, Liaoning.

Table 3.7: BEIJING - RETAIL PRICES OF MAJOR COMMODITIES, /a 1980
(Yuan)

	Unit	November 1980
Flour (standard)	1/2 kg	0.185
Rice (short grain, grade 1)	"	0.350
Soybean (grade 1)	"	0.200
Vegetable oil	"	0.810
Peanut oil	"	0.850
Soybean oil	"	0.840
Salt (refined)	"	0.170
Bean curd	"	0.080
Frozen pork (boneless)	"	1.260
Beef (boneless)	"	1.000
Mutton (boneless)	"	1.000
Frozen chicken (1 kg or more)	"	1.360
Chicken eggs (fresh)	"	1.200
Yellow croaker (0.25 kg or more)	"	0.690
Sugar (refined)	"	0.820
Cocoa butter	100 gm	1.020
Green tea (grade 3)	1/2 kg	13.40
Apple (grade 1)	"	0.47
M.S.G.	"	7.20
Cigarettes (without filter)	Pkg	0.39
Cigarettes (with filter)	"	0.72
White coarse cloth (36")	1/3 m	0.28
Men's T-shirt (90 cm)		1.52
White towel (730 gm/10 pieces)		0.70
Men's nylon socks (254 gm)	Pair	3.00
Men's leather shoes	"	31.00
Soap (Lighthouse brand)	piece	0.44
Thermos bottle		6.80
Bulb (15-40 w)		0.38
Rice bowl (coarse china)		0.18
Matches	10 boxes	0.20
Coal (for household use)	50 kg	1.20
Gasoline (85 octane)	10 kg	9.00
Television (B&W, 12")		360.00
Sewing machine (5 speeds)		169.00
Bicycle (Fly Pigeon brand)		158.00
Watch (domestic)		120.00
Refrigerator (100 liters)		812.00
Razor blades	10 blades	0.60
Aspirin	100 tablets	0.70
Pain relief tablets	50 tablets	0.40

Source: Municipal Statistical Bureau, Beijing.

Table 3.8: SHENYANG - RETAIL PRICES OF MAJOR CONSUMER GOODS, 1977-79
(Yuan)

	Unit	1977	1978	1979
Flour (standard)	1/2 kg	0.185	0.185	0.185
Rice (standard, grade 2)	"	0.178	0.178	0.178
Corn flour (coarse)	"	0.095	0.095	0.095
Sorghum (grade 2)	"	0.110	0.110	0.110
Soybean oil (grade 1)	"	0.840	0.840	0.840
Peanut oil (grade 1)	"	0.870	0.870	0.870
Salt	"	0.130	0.130	0.130
Salt (refined)	"	0.180	0.180	0.180
Noodle made from sweet potato (grade 1)	"	0.580	0.580	0.580
Bean noodle (grade 1)	"	1.100	1.100	1.100
Fungus (grade 1)	"	9.320	9.520	10.320
Fresh vegetable (mixed)	50 kg	4.140	5.150	5.440
Pork (boneless)	1/2 kg	1.100	1.100	1.137
Beef (boneless)	"	0.730	0.730	0.766
Mutton (boneless)	"	0.700	0.700	0.737
Chicken eggs (fresh)	"	0.920	0.920	0.966
Yellow croaker (frozen, grade 1)	"	0.500	0.510	0.567
Sword fish (frozen, grade 1)	"	0.470	0.480	0.510
Carp (frozen, grade 1)	"	0.710	0.710	0.752
Dried small shrimp (grade 1)	"	0.970	0.970	1.030
Soy sauce	"	0.110	0.110	0.110
M.S.G. (95%)	"	10.300	10.300	8.980
Sugar (refined)	"	0.830	0.830	0.830
Sugar (brown)	"	0.650	0.650	0.650
Cigarettes (A grade)	Pkg	0.500	0.500	0.500
Cigarettes (B grade)	"	0.340	0.340	0.340
Wine (grain) (60% proof)	1/2 kg	1.250	1.250	1.250
Wine (sorghum)	bottle	2.720	2.760	2.800
Day lily (grade 5)	1/2 kg	3.400	3.400	3.400
Apple (Kaokang, grade 1)	"	0.350	0.350	0.355
Pear (grade 1)	"	0.290	0.300	0.302
Dates (red) (grade 1)	"	0.550	0.670	0.730
Chestnut (grade 1)	"	0.610	0.660	0.780
Candy (cocoa butter)	"	2.100	2.100	2.110
Cake (standard, grade 2)	"	0.800	0.800	0.865
Cotton cloth (white) (21/21)	1/3 m	0.345	0.345	0.345
Colored plain cloth (42/2x21)	"	0.645	0.645	0.645
Khaki (dyed) (42/2x21)	"	0.770	0.770	0.770
Polyester cotton cloth (very fine)(45/45)	"	1.370	1.370	1.370
Pure wool (2101)	m	25.800	25.800	25.800
Pure wool (2201)	m	29.000	29.000	29.000
Tussah silk	m	2.550	2.550	2.550
T-shirt (men's) (90 cm)		1.730	1.730	1.730
Thermal underwear (90 cm)		6.500	6.500	6.500
Cotton sweater (#32, 90 cm)		3.630	3.630	3.630
Towel (21, Blenching)		0.640	0.640	0.640
Rubber shoes (#40)	pair	6.050	6.050	6.050
Enamel basin (34 cm, grade 1)		2.450	2.450	2.450
Aluminum cooking pot (26 cm, grade 1)		5.000	5.000	5.000
Soap (People's brand)	piece	0.230	0.230	0.230
Thermos bottle (steel) (5 lbs)		6.250	6.250	6.250
Flashlight (300 m)		1.730	1.730	1.730
Bulb (40 w - 200 v)		0.400	0.400	0.400
Sewing machine (5 speeds)		145.000	145.000	145.000
Radio (transistor, mini size)		24.000	24.000	24.000
Bicycle (Model 12)		157.000	157.000	157.000
Watch (domestic)		120.000	120.000	120.000
Television (12")		400.000	400.000	400.000
Bowl (for rice, 13.3 cm)		0.130	0.130	0.130
Dresser		140.000	140.000	140.000
Glazed paper (No. 1)	Sheet	0.050	0.055	0.060
Coal (Grade 9)	50 kg	1.280	1.280	1.280

Source: Provincial Statistical Bureau, Liaoning.

Table 3.9: WUHAN - RETAIL PRICES OF MAJOR CONSUMER GOODS, 1977-79
(Yuan)

	Unit	1977	1978	1979
Flour (standard)	1/2 kg	0.20	0.20	0.20
Rice (standard, grade 2)	"	0.142	0.142	0.142
Soybean (medium)	"	0.161	0.161	0.161
Vegetable oil (pure)	"	0.82	0.82	0.82
Cotton seed oil (pure)	"	0.80	0.80	0.80
Salt (refined)	"	0.15	0.15	0.15
Bean curd	piece	0.03	0.03	0.03
Bean sprout (green bean sprout)	1/2 kg	0.08	0.08	0.08
Bean noodle (grade 1)	"	0.72	0.72	0.72
Fresh vegetable	"			
Pork (boneless)	"	0.96	0.96	1.24
Beef	"	0.75	0.75	1.00
Mutton (boneless)	"	0.92	0.92	1.12
Chicken (grade 1)	"	1.04	1.04	1.16
Chicken eggs (fresh)	"	0.86	0.86	1.10
Fresh fish (2 kg or more)	"	0.44	0.44	0.68
Saccharin (plastic bag)	"	26.00	26.00	12.00
M.S.G. (800, plastic bag)	"	8.64	8.64	5.97
Sugar (refined)	"	0.76	0.76	0.76
Sugar (brown)	"	0.59	0.59	0.59
Cigarettes (A grade)	pkg	0.48	0.48	0.48
Cigarettes (B grade)	pkg	0.39	0.39	0.39
Wine (grain, 60° proof)	1/2 kg	2.10	2.10	2.10
Wine (grape, 18° proof, 0.5 kg bottle)	"			
Green tea (grade 3)	"	4.60	4.60	4.00
Apple (Kaokang, grade 1)	"	0.46	0.46	0.46
Pear (grade 1)	"	0.403	0.403	0.390
Candy	"	1.62	1.62	1.72
Cake	"	1.20	1.20	1.44
White coarse cloth	1/3 m.	0.32	0.32	0.32
Colored plain cloth (80 gm)	"	0.34	0.34	0.34
Khaki (113 gm, 20x20)	"	0.62	0.62	0.62
Polyester cotton cloth (very fine) (89 gm, 45x45)	"	1.60	1.60	1.60
Navy blue woolen cloth	m.	17.10	17.10	17.10
Men's T-shirt (90 cm)		1.69	1.69	1.69
Cotton sweater (90 cm)		3.21	3.21	3.21
Towel (21")		0.62	0.62	0.62
Rubber shoes (#40)	pair	7.66	7.66	7.66
Enamel basin (36", grade B)		2.53	2.53	2.53
Enamel mug (9")		0.95	0.95	0.95
Aluminum cooking pot (24")		5.38	5.38	5.38
Soap (Hungshan Brand)	piece	0.48	0.48	0.48
Thermos bottle (5 lbs)		6.15	6.15	6.15
Flashlight (100 m)		1.70	1.70	1.70
Bulb (15-40 w)		0.38	0.38	0.38
Sewing machine (J.A.H., 2 speeds)		136.00	136.00	136.00
Radio (transistor)(Zhangjiang brand)		26.00	26.00	26.00
Television (12")		400.00	400.00	400.00
Bicycle (Model 21)		156.50	156.50	156.50
Watch (domestic)		120.00	120.00	120.00
Dresser (100 x 53 x 180 cm)		92.02	92.02	92.02
Bowl (coarse china, grade 1)		0.22	0.22	0.22
Glazed paper (40 gm)	Sheet	0.55	0.60	0.60
Coal (machine made, coal ball)	50 kg	1.75	1.75	1.75
Kerosene	0.5 kg	0.35	0.35	0.35

Source: Provincial Statistical Bureau, Hubei.

Table 3.10: NANJING - RETAIL PRICES OF MAJOR CONSUMER GOODS, 1977-79
(Yuan)

	Unit	1977	1978	1979
Flour (standard)	1/2 kg	0.16	0.16	0.16
Nonglutinous rice (standard, grade 2)	"	0.14	0.14	0.14
Soybean (grade 2)	"	0.13	0.13	0.13
Vegetable oil (grade 2)	"	0.79	0.79	0.79
Soybean oil (grade 2)	"	0.84	0.84	0.84
Salt (coarse)	"	0.145	0.145	0.145
Bean curd (2.5 pieces per 0.5 kg)	"	0.05	0.05	0.05
Bean sprout (soybean sprout)	"	0.10	0.10	0.123
Bean noodle (grade 2)	"	0.73	0.73	0.73
Fresh vegetable (mixed)	50 kg	5.15	5.62	6.11
Pork (fresh, boned)	1/2 kg	0.80	0.80	1.06
Beef (fresh, boneless)	"	0.62	0.62	0.90
Mutton (fresh, boneless)	"	0.70	0.70	1.03
Chicken (grade 2, 1.25-1.5 kg)	"	0.98	1.05	1.15
Chicken eggs (fresh)	"	0.84	0.84	1.15
Fresh yellow croaker (300 gm or more)	"	0.45	0.45	0.58
Fresh hairtail (200 gm or more)	"	0.36	0.36	0.52
Carp (1 kg or more)	"	0.48	0.48	0.73
Crucian carp (175 gm or more)	"	0.47	0.47	0.81
Saccharin	"	26.50	26.50	12.00
M.S.G. (0.5 kg, plastic bag)	"	8.93	8.93	6.15
Sugar (refined)	"	0.84	0.84	0.84
Sugar (brown)	"	0.66	0.66	0.66
A Class cigarettes	pk	0.59	0.59	0.59
B Class cigarettes	pk	0.33	0.33	0.33
Wine (from grain)	bottle	1.56	1.56	1.56
Wine (from grapes)	"	0.75	0.75	0.75
Green tea (grade 5)	1/2 kg	2.60	2.60	2.60
Apple (Kaokang, grade 1)	"	0.46	0.471	0.458
Pear (grade 1)	"	0.38	0.386	0.355
Dates (red) (grade 3)	"	0.76	0.81	0.98
Candy	"	1.35	1.35	1.372
Cake	"	1.80	1.80	2.00
White coarse cloth	1/3 m	0.365	0.365	0.365
Colored plain cloth	"	0.425	0.425	0.425
Khaki (81 gm, 21")	"	0.50	0.50	0.50
Polyester cotton cloth (very fine)(42")	"	1.38	1.38	1.38
Polyester velveteen (30/2x20)	"	2.01	2.01	2.01
Navy woolen cloth	meter	7.40	17.40	17.40
Colored crepe de Chine	"	13.96	3.96	3.96
T-shirts (men's) (90 cm)	"	1.70	1.70	1.70
Cotton sweater (85 cm)	"	2.87	2.87	2.87
White towel (600 gm)	each piece	0.62	0.62	0.62
Rubber shoes (#40)	pair	4.88	4.88	4.88
Enamel basin (34", grade B)	each	2.05	2.05	2.05
Enamel mug (9", grade B)	"	0.63	0.63	0.63
Aluminum cooking ware (24")	"	5.32	5.32	5.32
Aluminum cooking ware (24")	"	5.32	5.32	5.32
Soap (Nanjing, 333 gm)	piece	0.46	0.46	0.46
Thermos bottle (painted, 5 lbs)	"	5.88	5.88	5.88
Flash light (100 m)	"	1.41	1.41	0.72
Bulb (15-40 w)	"	0.38	0.38	0.38
Sewing machine (panda, 1 speed)	"	114.00	114.00	114.00
Radio (6 tubes, Model 601)	"	27.00	27.00	27.00
Television (12")	"	400.00	400.00	400.00
Bicycle (Model 12, 28")	"	154.00	154.00	154.00
Watch (domestic)	"	120.00	120.00	120.00
Dresser (one door, 3 drawers)	"	71.00	71.00	71.00
Bowl (coarse china)	"	0.155	0.155	0.190
Glazed paper (#2, 30 gm)	sheet	0.04	0.04	0.045
Coal (Beijing, 0.75 kg)	'00 pieces	3.00	3.00	3.00
Kerosene (household use)	1/2 kg	0.33	0.33	0.33

Source: Provincial Statistical Bureau, Jiangsu.

Table 3.11: LANZHOU - RETAIL PRICES OF MAJOR CONSUMER GOODS, 1977-79
(Yuan)

	Unit	1977	1978	1979
Flour	1/2 kg	0.18	0.18	0.18
Vegetable oil	"	0.87	0.87	0.87
Pork	"	0.86	0.86	1.08
Beef	"	0.60	0.60	0.86
Mutton	"	0.55	0.55	0.78
Chicken eggs	"	0.90	0.90	1.15
Wine (grain)	"	1.27	1.27	1.27
Sugar	"	0.81	0.81	0.81
Cigarettes	Pkg	0.26	0.26	0.26
White cotton cloth	1/3 m	0.29	0.29	0.29
Soap	Piece	0.40	0.40	0.40
Toothpaste		0.50	0.50	0.50
Thermos bottle		6.38	6.38	6.38
Kerosene	1/2 kg	0.36	0.36	0.36
Matches	Box	0.02	0.02	0.02
Bicycle		157.00	157.00	157.00
Aspirin	Tablet	0.01	0.01	0.01
Coal	Ton	43.20	43.20	43.20
Pig iron	Ton	150.00	150.00	225.00
Diesel oil (for agricultural use)	"	245.00	245.00	245.00
Tractor		12,480.00	12,480.00	12,480.00
Automobile		15,080.00	15,080.00	15,080.00
Hand tractor		2,392.00	2,392.00	2,392.00
Ammonium nitrate (NH ₄ NO ₃)	Ton	310.00	310.00	310.00
Urea	"	450.00	450.00	450.00
Calcium superphosphate	"	140.00	140.00	140.00
BHC (Benzene hexachloride)	"	400.00	400.00	400.00
DDVP (dichlorous)	"	5,600.00	5,600.00	5,600.00

Source: Provincial Statistical Bureau, Gansu.

Table 3.12: PURCHASES OF COMMERCIAL DEPARTMENTS AND RETAIL SALES
AT CURRENT PRICES, 1952-80
(billion yuan)

	1952	1957	1965	1970	1975	1977	1978	1979	1980
Total purchases	17.50	42.81	71.05	93.30	139.74	156.63	173.67	199.24	226.30
Of which:									
Manufactures	(8.45)	(24.76)	(43.02)	(61.18)	(97.19)	(113.92)	(126.34)	(140.56)	(156.76)
Farm and side line	(9.01)	(1.765)	(27.42)	(31.40)	(41.46)	(41.33)	(45.99)	(58.68)	(67.70)
Total retail sales <u>/a</u>	27.68	47.42	65.73	84.10	124.61	141.10	152.75	175.25	207.10
<u>/b</u>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	180.00	214.00

/a Excluding sales by peasants to the nonagricultural population.

/b Including sales by peasants to the nonagricultural population.

Source: State Statistical Bureau.

Table 4.1: STATE BUDGET REVENUES, 1950-79
(Billion yuan)

	1950	1957	1965	1977	1978	1979
Total revenue	6.519	31.019	47.332	87.446	112.112	110.327
Enterprise profits	0.869	14.418	26.427	40.235	57.199	49.290
Tax revenue	4.898	15.489	20.430	46.827	51.928	53.782
Taxes on industry and commerce	(2.363)	(11.312)	(16.549)	(40.090)	(45.129)	(47.269)
Taxes on salt	(0.269)	(0.631)	(0.733)	(1.181)	(1.083)	(0.962)
Customs duties	(0.356)	(0.579)	(0.570)	(2.623)	(2.876)	(2.600)
Taxes on agriculture	(1.910)	(2.967)	(2.578)	(2.933)	(2.840)	(2.951)
Foreign borrowing	0.302	0.699	0.006	0.061	0.151	3.639
Other revenues	0.450	0.413	0.469	0.323	2.834	3.616

Source: Ministry of Finance.

Table 4.2: BUDGET REVENUES FROM STATE-OWNED ENTERPRISES, BY SECTOR, 1957-79
(Billion yuan)

	Enterprises incomes						
	Total income	Total	Industry Heavy	Light	Rail-road	Trans-port	Civil aviation
<u>1957</u>							
Total	19.967	8.646	6.361	2.285	1.770	0.512	0.008
Taxes	5.549	2.721	1.342	1.370	0.062	0.039	0.001
Profit	14.418	5.934	5.019	0.915	1.708	0.473	0.007
<u>1965</u>							
Total	38.519	30.378	20.082	10.296	2.818	1.036	-0.012
Taxes	12.092	8.729	4.106	4.623	0.162	0.099	0.002
Profit	26.427	21.649	15.976	5.673	2.656	0.937	-0.014
<u>1970</u>							
Total	57.825	43.306	28.408	14.898	3.932	0.876	-0.055
Taxes	19.928	15.242	7.867	7.375	1.805	0.156	0.001
Profit	37.897	28.064	20.541	7.523	2.127	0.720	-0.056
<u>1975</u>							
Total	66.057	54.417	35.859	18.558	4.661	1.584	-0.079
Taxes	26.037	21.108	10.724	10.384	1.339	0.264	0.006
Profit	40.020	33.309	25.135	8.174	3.322	1.320	-0.085
<u>1977</u>							
Total	69.919	56.551	35.927	20.624	4.349	1.845	-0.049
Taxes	29.684	23.926	11.839	12.087	1.320	0.296	0.006
Profit	40.235	32.625	24.088	8.537	3.029	1.549	-0.055
<u>1978</u>							
Total	90.329	70.767	47.322	23.445	4.928	2.381	-0.050
Taxes	33.130	26.725	13.779	12.946	1.501	0.325	0.010
Profit	57.199	44.042	33.543	10.499	3.427	2.056	-0.060
<u>1979 (Prelim.)</u>							
Total	85.275	73.883	49.150	24.733	5.389	2.286	0.041
Taxes	35.985	28.764	14.654	14.110	1.605	0.344	0.013
Profit	49.290	45.119	34.496	10.623	3.784	1.942	0.028

Source: Ministry of Finance.

Table 4.3: BUDGET REVENUES: SHARES OF CENTRAL AND LOCAL GOVERNMENT, 1957-79

	1957	1965	1971	1977	1978	1979
<hr/>						
Absolute value (billion yuan)						
National total	31.019	47.332	74.473	87.446	112.112	110.327
Central	22.738	15.607	11.936	11.385	16.463	18.756
Local	8.281	31.725	62.537	76.061	95.649	91.571
Ratio (%)						
National total	100.0	100.0	100.0	100.0	100.0	100.0
Central	73.3	33.0	16.0	13.0	14.7	17.0
Local	26.7	67.0	84.0	87.0	85.3	83.0

Source: Ministry of Finance.

Table 4.4: REVENUE SHARING BY PROVINCES, 1980

	Percentage retained by province out of revenues other than industrial and commercial taxes	Percentage of industrial and commercial tax revenue retained by province
Hebei	88.00	(0)
Liaoning	48.70	(0)
Sichuan	100.00	72.0
Shaanxi	100.00	88.1
Gansu	100.00	53.2
Henan	100.00	75.4
Hubei	100.00	44.7
Hunan	100.00	42.0
Zhejiang	100.00	13.0
Anhui	100.00	58.1
Shandong	100.00	10.0
Shanxi	100.00	57.9
		Annual transfer from central government to province (million yuan)
Jiangxi		138
Jilin		300
Heilongjiang		886
Guizhou		478
Yunnan		300
Xizang Autonomous Region		438
Xinjiang Autonomous Region		827
Qinghai Autonomous Region		365
Guangxi Autonomous Region		270
Ningxia Autonomous Region		273
Nei Monggol Autonomous Region		1,062

Table 4.4: (continued)

	Percentage of total revenues retained by province
Jiangsu	39.0
	Annual transfer from province to central government (+) or subsidy from central gov't to province (-) (million yuan)
Guangdong	+ 1,000
Fujian	- 150
	Percentage of total revenues retained by municipality <u>/a</u>
Beijing	36.5
Tianjin	31.2
Shanghai	11.2

/a System under review; these percentages are for 1979.

Source: Ministry of Finance.

Table 4.5: STATE BUDGET EXPENDITURE BY BROAD PURPOSE, 1950-79
(Billion yuan)

	1950	1957	1965	1977	1978	1979
Total expenditure	6.808	30.421	46.633	84.353	111.095	127.394
Economic	1.736	16.304	25.421	49.373	70.784	76.159
Social, cultural and educational	0.755	4.642	6.270	11.943	14.696	17.518
Defense	2.801	5.511	8.676	14.904	16.784	22.266
Administration and manage- ment	1.313	2.270	2.634	4.518	5.290	6.305
Debt payment	0.003	0.826	0.636			
Other	0.200	0.868	3.006	3.615	3.541	5.146

Source: Ministry of Finance.

Table 4.6: STATE BUDGET EXPENDITURE BY ACTIVITY, 1950-79
(billion yuan)

	1950	1957	1965	1977	1978	1979
Total expenditure	6.808	30.421	46.633	84.353	111.095	127.394
Of which:						
Capital construction	1.250	12.371	15.849	30.088	45.192	51.469
Modernization investment				1.710	3.777	4.364
Working capital	n.a.	2.082	2.755	6.568	6.660	5.206
Product development	n.a.	0.229	2.523	2.235	2.547	2.838
Geological survey	n.a.	0.627	0.771	1.726	2.015	2.167
Industry, transport and commerce	n.a.	1.236	1.591	1.443	1.779	2.104
Agricultural support	n.a.	0.799	1.729	5.068	7.695	9.011
Education, culture and health	0.502	2.776	4.559	9.020	11.266	13.212
Defense	2.801	5.511	8.676	14.904	16.784	22.266
Administration	n.a.	2.168	2.534	4.332	4.909	5.687

Source: Ministry of Finance.

Table 4.7: BREAKDOWN OF STATE BUDGET EXPENDITURE ON
CAPITAL CONSTRUCTION, EDUCATION AND HEALTH, 1957-80
(billion yuan)

	1957	1965	1970	1975	1976	1977	1978	1979	1980 (Budget)
Total expenditures	30.421	46.633	64.941	82.088	80.620	84.353	111.095	127.394	114.290
Of which:									
Capital construction	12.371	15.849	29.836	32.696	31.125	30.088	45.192	51.469	37.348
Of which:									
Heavy industry	7.105	7.815	n.a.	17.490	16.790	16.389	24.976	27.372	n.a.
Light, textile industries	0.405	0.644	n.a.	2.067	1.987	1.908	2.723	2.642	n.a.
Agriculture, forestry, water conservancy, meteorology	1.093	2.351	n.a.	3.556	3.991	3.598	5.107	6.241	4.460
Railroad, transport, post, civil aviation	1.940	3.176	n.a.	6.420	5.221	4.299	6.587	6.126	n.a.
Commerce, foodgrains, foreign trade, banking	0.273	0.275	n.a.	0.741	0.690	0.724	0.894	0.941	n.a.
Education	0.503	0.282	n.a.	0.314	0.327	0.301	0.445	0.689	n.a.
Health	0.069	0.087	n.a.	0.178	0.186	0.191	0.259	0.311	n.a.
Culture, education and health	2.776	4.559	4.365	8.129	8.549	9.020	11.266	13.212	14.827
Of which:									
Education	1.952	2.912	2.756	4.826	5.049	5.304	6.560	7.698	8.875
Health	0.482	0.929	1.047	1.992	2.095	2.229	2.726	3.174	3.395

Source: Ministry of Finance.

Table 4.8: BREAKDOWN OF STATE BUDGET EXPENDITURE ON AGRICULTURE, 1965-80
(Billion yuan)

	1965	1970	1975	1976	1977	1978	1979	1980
Total	1.729	1.591	4.253	4.601	5.068	7.695	9.011	7.740
Opening up of new land	0.036	} 1.316	0.048	0.033	0.031	0.382	0.526	0.542
Agriculture, animal husbandry	0.464		0.720	0.835	0.898	1.351	1.591	1.619
Forestry	0.137		0.221	0.255	0.265	0.372	0.472	0.514
Water conservancy	0.887		1.994	2.004	2.245	3.473	4.524	3.159
Aquaculture, fishery	0.023		0.045	0.048	0.051	0.082	0.153	0.226
Meteorology	0.046		0.094	0.106	0.116	0.146	0.175	0.175
Commune support	0.055	0.203	0.916	1.119	1.235	1.620	1.085	0.840
Agricultural mechanization	-	0.072	0.188	0.199	0.227	0.269	0.378	0.355
Other agricultural support	0.081	-	0.027	0.002	-	-	0.107	0.310

Source: Ministry of Finance.

Table 4.9: BUDGET EXPENDITURE: SHARES OF CENTRAL AND LOCAL GOVERNMENT, 1957-79

	1957	1965	1971	1977	1978	1979
Absolute value (billion yuan)						
National total	30.421	46.633	73.217	84.353	111.095	127.394
Central	21.829	28.984	43.567	39.370	52.098	64.589
Local	8.592	17.649	29.650	44.983	58.997	62.805
Ratio (%)						
National total	100.0	100.0	100.0	100.0	100.0	100.0
Central	71.8	62.2	59.5	46.7	46.9	50.7
Local	28.2	37.8	40.5	53.3	53.1	49.3

Source: Ministry of Finance.

Table 5.1: TOTAL MERCHANDISE EXPORTS AND IMPORTS AND BALANCE OF
TRADE, 1950-80
(US\$ million)

Year	Total trade	Exports	Imports	Balance
1950	1,135	552	583	-31
1953	2,368	1,022	1,346	-324
1957	3,103	1,597	1,506	91
1962	2,663	1,490	1,173	317
1966	4,614	2,366	2,248	118
1970	4,586	2,260	2,326	-66
1975	14,750	7,264	7,486	-222
1976	13,433	6,855	6,578	277
1977	14,804	7,590	7,214	376
1978	20,638	9,745	10,893	-1,148
1979	29,332	13,658	15,674	-2,016
1980 /a	37,508	18,121	19,387	-1,266

/a Estimated from data in domestic currency in the State Statistical Bureau's April 1981 Communique on the Fulfillment of the 1980 National Economic Plan, converted at an exchange rate of \$1.00 = Y 1.501.

Source: Ministry of Foreign Trade.

Table 5.2: MERCHANDISE EXPORTS BY BROAD SITC CATEGORIES, 1976-79
(In US\$ million)

	1976		1977		1978		1979	
	Value	Share (%)						
<u>Total Value of Exports</u>	6,855	100.0	7,590	100.0	9,745	100.0	13,658	100.0
<u>Primary products:</u>	3,744	54.6	4,065	53.6	5,216	53.5	7,315	53.6
Food and animal products mainly for use as food	(1,661)	(24.2)	(1,797)	(23.7)	(2,316)	(23.8)	(2,701)	(19.8)
Beverages and tobacco	(62)	(0.9)	(71)	(0.9)	(71)	(0.7)	(86)	(0.6)
Nonedible raw materials (excluding fuels)	(1,038)	(15.2)	(1,088)	(14.3)	(1,417)	(14.5)	(1,804)	(13.2)
Mineral fuels, lubricants and related raw materials	(924)	(13.7)	(1,068)	(14.1)	(1,345)	(13.8)	(2,654)	(19.5)
Animal and vegetable oil, fats and wax	(41)	(0.6)	(41)	(0.6)	(67)	(0.7)	(70)	(0.5)
<u>Industrial products:</u>	3,111	45.4	3,525	46.4	4,510	46.5	6,343	46.4
Heavy and chemical industrial products	808	11.8	851	11.2	1,010	10.4	1,497	10.9
-Chemical and related products	(198)	(2.9)	(184)	(2.4)	(234)	(2.4)	(424)	(3.1)
-Machinery and transport equipment	(238)	(3.5)	(296)	(3.9)	(332)	(3.4)	(464)	(3.4)
-Other heavy industrial products	(372)	(5.4)	(371)	(4.9)	(444)	(4.6)	(609)	(4.4)
Light industrial and textile products	2,303	33.6	2,674	35.2	3,519	36.1	4,846	35.5

Source: Ministry of Foreign Trade.

Table 5.3. MAJOR EXPORTS, BY VOLUME AND VALUE, 1976-79

	Volume				Value (in US\$ million)				
	1976	1977	1978	1979	1977	1978	1979	1979	1980
								Jan-Sep	Jan-Sep
Total					7,590	9,745	13,657	9,515	12,982
Cereals ('000 tons)	1,474.9	1,365.1	1,682.8	1,542.1	361	516	489	364	392
Rice ('000 tons)	876.1	1,032.9	1,435.2	1,053.1	256	442	338	215	324
Soybeans ('000 tons)	199.2	129.5	112.9	305.9	41	32	98	77	24
Beans ('000 tons)	84.4	55.4	45.8	67.2	42	24	31	26	17
Other cereals ('000 tons)	211.9	147.3	88.9	115.9	23	17	22	13	20
Peanut oil ('000 tons)	13.7	4.3	11.2	17.4	5	13	17	15	19
Peanut kernel ('000 tons)	28.4	14.9	18.1	35.2	13	18	36	31	55
Fresh eggs ('000 jin)	69,700	67,620	81,170	99,510	32	38	46	36	37
Live hogs ('000 head)	2,310.8	2,313.0	2,462.8	2,422.1	169	179	197	150	150
Frozen pork ('000 tons)	38.4	26.2	42.8	44.9	45	70	72	52	81
Frozen rabbit meat ('000 tons)	28.5	27.8	39.3	43.5	90	53	53	39	33
Aquatic products ('000 tons)	93.4	87.7	92.0	97.8	158	258	148	269	267
Fruit ('000 tons)	198.5	227.9	251.0	259.1	67	82	95	41	45
Canned fruit ('000 tons)	197.8	183.3	222.2	286.3	150	202	273	195	253
Beer ('000 cases)	-	1,354.3	1,162.4	1,247.4	7	6	6	5	7
Cotton yarn ('000 bales)	146.1	117.5	128.8	133.7	52	57	68	48	60
Cotton cloth (10 ⁶ meters)	-	771.61	1,095.64	1,108.83	400	580	699	490	50
Filature silks (tons)	6,483	5,022	8,739	9,040	130	255	271	211	223
Silk and satin materials (10 ⁶ meters)	115.55	95.22	123.52	145.75	136	200	263	181	17
Woolen materials (10 ⁶ meters)	8.55	6.63	6.39	12.65	26	25	47	34	4
Tea ('000 tons)	61.2	81.8	86.9	106.8	158	186	230	156	166
Resin ('000 tons)	160.5	127.4	142.1	183.9	50	52	78	58	59
Jute bags ('000)	27,800	24,200	37,550	52,850	8	14	23	18	37
Bristles ('000 cases)	139.5	140.8	130.5	174.7	59	55	80	57	49
Bristle brushes ('000 dozens)	2,739.6	3,860.0	4,180.0	5,770.0	10	19	18	12	16
Camel hair (tons)	580	669	623	1,019	4	3	6	5	3
Rabbit hair (tons)	1,970	1,876	2,250	2,675	28	42	60	41	82
Carpets, superior quality handmade ('000 square meters)	343.8	501.5	740.2	850.4	38	61	83	58	69
Goat skin ('000 hides)	5,304	6,840	8,160	11,010	21	26	53	38	42
Fur mattresses ('000 pieces)	4,076.6	3,030	5,090	6,350	50	65	88	69	73
Paper ('000 tons)	131.5	104.1	134.0	161.2	44	57	78	57	69
Sewing machines ('000 units)	336.0	284.0	386.3	496.7	12	18	21	14	15
Bicycles ('000 units)	392.8	375.9	302.8	642.1	13	12	26	16	28
Porcelain (10 ⁶ pieces)	542.19	629.81	568.03	740.33	80	83	117	77	9
Tin ('000 tons)	7.8	5.6	5.5	4.6	57	65	67	46	42
Antimony ('000 tons)	2.5	7.7	11.5	12.5	22	26	37	27	18
Tungsten ('000 tons)	20.5	13.6	18.2	21.3	149	172	203	126	119
Coal ('000 tons)	2,270	2,630	3,120	4,630	70	100	177	121	196
Crude oil ('000 tons)	8,495.9	9,110	11,310	13,430	773	958	1,750	1,173	2,234
Paraffin wax ('000 tons)	84.5	49.6	62.7	66.0	14	24	31	20	38
Tires ('000 sets)	299.5	269.8	289.3	414.8	20	20	23	17	23
Machine tools (pieces)	4,366	4,296	4,805	6,556	18	22	31	18	35

Source: Ministry of Foreign Trade. Data on value were supplied to the IMF by government sources.

Table 5.4: IMPORTS BY BROAD END-USE CATEGORIES, 1950-79
(% of total)

	1950	1953	1957	1976	1977	1978	1979
Producer goods	87.2	93.0	92.7	86.8	76.1	81.4	81.3
Machinery & equipment	n.a.	n.a.	n.a.	30.9	17.7	17.5	25.2
Raw materials, of which:	n.a.	n.a.	n.a.	55.9	58.4	63.9	56.1
for heavy industries	n.a.	n.a.	n.a.	33.7	32.0	38.2	32.9
for light industries	n.a.	n.a.	n.a.	(16.5)	(19.6)	(19.4)	(17.3)
for agriculture	n.a.	n.a.	n.a.	(5.7)	(6.8)	(6.3)	(5.9)
Consumer goods	12.8	7.0	7.3	13.2	23.9	18.6	18.7

Source: State Statistical Bureau, Ten Great Years (Peking, Foreign Languages Press, 1960), P. 176, and Ministry of Foreign Trade.

Table 5.5: MAJOR IMPORTS, BY VOLUME AND VALUE, 1976-79

	Volume				Value (in US\$ million)				
	1976	1977	1978	1979	1979			1980	
					1977	1978	1979	Jan-Sep	Jan-Sep
Total					7,214	10,893	15,675	11,417	13,140
Trucks /a (units)	18,248	14,916	21,872	24,768	139	310	450	297	227
Ships and vessels (units)	13	15	29	47	162	156	231	140	208
Airplanes (units)	38	18	13	14	67	43	25	21	43
Steel products (10 ⁶ tons)	4.931	5.256	8.638	8.473	1,477	2,698	3,522	2,571	1,304
Copper ('000 tons)	67.3	91	134	134	111	168	234	168	208
Aluminum ('000 tons)	300.1	150	211	146	150	215	183	135	107
Pig iron (10 ⁶ tons)	0.4298	1.183	1.391	0.726	97	130	97	67	43
Iron ore (10 ⁶ tons)	1,4007	2.568	8.022	7.162	30	109	101	77	70
Natural rubber ('000 tons)	197.6	257	227	246	112	201	280	198	227
Chemical fertilizer (10 ⁶ tons)	4.5881	6.396	7.333	8.395	340	481	655	501	749
Chemicals	n.a.	n.a.	n.a.	n.a.	402	530	635	464	608
Agricultural chemicals ('000 tons)	45.1	72	82	82	60	75	110	78	50
Wood pulp ('000 tons)	171.5	216	221	239	55	49	75	48	87
Paper ('000 tons)	154.1	254	364	487	55	102	173	129	139
Watches (10 ⁶ units)	0.7636	0.937	2.197	1.876	11	39	31	19	24
Televisions ('000 units)	n.a.	31	89	784	4	12	82	43	37
Tape recorders ('000 units)	n.a.	n.a.	n.a.	201	n.a.	n.a.	6	1	12
Cotton ('000 tons)	188.4	181	510	549	318	680	815	580	1,212
Acrylic fibers ('000 tons)	18.6	19	24	26	22	29	32	24	21
Polyester fibers ('000 tons)	94.2	142	180	126	134	157	160	91	209
Polyamide fibers ('000 tons)	9	11	13	15	28	34	54	31	61
Cereals (10 ⁶ tons)	2.3372	7.014	8.642	11.176	679	949	1,485	1,385	1,482
Soybeans ('000 tons)	29.5	330	190	579	100	52	159	66	113
Animal fats and oilseeds ('000 tons)/b	102.5	284	330	298	153	182	194	156	152
Sugar (10 ⁶ tons)	0.5771	1.598	1.299	1.096	342	264	219	168	254
Timber /c ('000 cu m)	737.7	539	535	554	37	50	41	77	108
Cocoa ('000 tons)	10.7	12	15	17	31	54	61	61	38
Coffee ('000 tons)	6.3	6	5	4	30	17	11	11	14

/a Includes chassis, trucks, jeeps, trailers, cabs, etc.

/b In oil equivalent.

/c Timber refers to lumber only and does not include other kinds of wood.

Source: Ministry of Foreign Trade. Data on value were supplied to the IMF by government sources.

Table 5.6: TOTAL MERCHANDISE EXPORTS AND IMPORTS TO AND FROM CENTRALLY PLANNED AND MARKET ECONOMY COUNTRIES AND AREAS, 1950-79
(US\$ million)

Year	Total trade			Exports			Imports			Balance		
	Total	To centrally planned countries	To countries and areas with market economy	Total	To centrally planned countries	To countries and areas with market economy	Total	To centrally planned countries	To countries and areas with market economy	Over-all	To centrally planned countries	To countries and areas with market economy
1950	1,135	368	767	552	176	376	583	192	391	-31	- 16	-15
1953	2,368	1,662	706	1,022	717	305	1,346	945	401	-324	-228	-96
1957	3,103	2,065	1,038	1,597	1,129	468	1,506	936	570	91	193	-102
1962	2,663	1,180	1,483	1,490	799	691	1,173	381	792	317	418	-101
1966	4,614	1,014	3,600	2,366	574	1,792	2,248	440	1,808	118	134	-16
1970	4,586	739	3,847	2,260	475	1,785	2,326	264	2,062	-66	211	-277
1975	14,750	2,269	12,481	7,264	1,267	5,997	7,486	1,002	6,484	-222	265	-487
1976	13,433	2,140	11,293	6,855	1,039	5,816	6,578	1,101	5,477	277	- 62	339
1977	14,804	2,276	12,528	7,590	1,321	6,269	7,214	955	6,259	376	366	10
1978	20,638	2,836	17,802	9,745	1,495	8,250	10,893	1,341	9,552	-1,148	154	-1,302
1979	29,332	3,566	25,766	13,658	1,664	11,994	15,674	1,902	13,772	-2,016	-238	-1,778

Source: Ministry of Foreign Trade.

Table 5.7: DIRECTION OF TRADE, 1977-80

	Exports (in US\$ million)				Imports (in US\$ million)				Exports (in %)		Imports (in %)		Trade balance	
	1977	1978	1979	1980 (Jan-Sep)	1977	1978	1979	1980 (Jan-Sep)	1977	1979	1977	1979	1977	1979
Industrial countries														
Of which:														
United States	179.6	270.7	595.0	718.0	114.6	721.1	1,856.6	2,401.2	2.4	4.4	1.6	11.8	65.0	-1,261.6
Canada	80.0	94.8	145.1	100.5	460.6	574.0	622.4	607.4	1.1	1.1	6.4	4.0	-380.6	-477.3
Australia	100.9	117.6	156.1	125.7	517.9	715.1	985.2	861.8	1.3	1.1	7.2	6.3	-417.0	-829.1
Japan	1,356.7	1,718.7	2,764.1	2,932.7	2,108.5	3,105.2	3,944.0	3,157.0	17.9	20.2	29.2	25.2	-751.8	-1,179.9
France	141.5	178.4	234.0	250.1	279.2	247.1	406.2	209.9	1.9	1.7	3.9	2.6	-137.7	-172.2
Germany	260.8	329.5	459.2	519.6	529.8	1,030.1	1,739.4	928.8	3.5	3.4	7.3	11.1	-269.0	-1,280.2
Italy	112.2	165.5	302.8	273.0	95.9	190.9	308.7	1,764.0	1.5	2.2	1.3	2.0	16.3	-5.9
Belgium	28.0	36.8	66.4	64.8	37.6	80.2	106.7	48.0	0.5	0.5	0.5	0.7	-9.6	-40.3
Netherlands	66.7	92.2	136.9	142.7	39.5	125.8	200.0	81.2	0.9	1.0	0.5	1.3	27.2	-63.1
Spain	19.0	21.9	56.0	39.1	17.9	50.4	91.7	28.9	0.3	0.4	0.2	0.6	1.1	-35.7
Sweden	48.1	47.2	75.0	61.3	38.2	74.1	112.6	58.0	0.6	0.5	0.5	0.7	9.9	-37.6
Switzerland	86.0	103.4	169.3	197.5	170.7	299.2	207.6	168.4	1.1	1.2	2.4	1.3	-84.7	-38.3
United Kingdom	251.0	370.4	478.9	397.4	279.4	296.3	501.2	431.3	3.3	3.5	3.9	3.2	-28.4	-22.3
Developing countries														
Of which:														
Africa														
Nigeria	32.6	43.7	24.7	38.0	12.4	-	7.9	4.9	0.4	0.2	0.2	0.1	20.2	16.8
Sudan	42.4	38.2	44.7	24.0	51.6	54.9	89.3	54.6	0.6	0.3	0.7	0.6	-9.2	-44.6
Tanzania	13.0	23.7	16.4	6.1	20.5	18.2	1.9	9.2	0.2	0.1	0.3	(.)	-7.5	14.5
Zambia	9.3	1.9	1.6	5.9	28.9	31.8	59.5	56.7	0.1	(.)	0.4	0.4	-19.6	-57.9
Asia														
Indonesia	-	0.2	-	3.1	2.0	0.4	-	12.0	-	-	(.)	-	-0.02	-
Hong Kong	2,012.0	2,668.0	3,548.0	3,044.6	136.2	74.7	214.4	336.4	26.5	26.0	1.9	1.4	1,777.1	3,333.6
Malaysia	94.0	163.1	171.4	129.6	105.3	111.2	189.1	115.3	1.2	1.3	1.5	1.2	838.7	-17.7
Pakistan	63.9	89.3	121.8	86.6	8.5	43.0	30.2	136.2	0.8	0.9	0.1	0.2	55.4	91.6
Philippines	60.6	86.3	134.7	188.9	33.1	57.2	47.2	44.3	0.8	1.0	0.5	0.3	27.5	87.5
Singapore	202.1	247.9	296.5	256.8	76.1	46.3	104.7	149.9	2.7	2.2	1.1	0.7	126.0	191.8
Europe														
Romania	254.3	396.3	490.1	363.2	272.9	368.8	603.7	342.9	3.4	3.6	3.8	3.9	-18.6	-113.6
Yugoslavia	43.7	58.4	48.4	22.6	45.8	29.2	50.3	90.3	0.6	0.4	0.6	0.3	-2.1	-1.9
Middle East														
Iran	52.5	65.0	36.5	102.6	48.0	53.5	31.4	56.5	0.7	0.3	0.7	0.2	4.5	5.1
Iraq	83.7	69.1	134.7	108.8	23.0	56.8	48.6	117.1	1.1	1.0	0.3	0.3	60.7	86.1
Kuwait	94.5	93.0	136.2	123.5	20.9	33.1	38.7	20.4	1.3	1.0	0.3	0.2	73.6	97.5
Libya	43.4	37.1	22.6	3.2	-	-	-	-	0.6	0.2	-	-	43.4	22.6
Egypt	55.4	53.7	69.4	70.3	37.2	62.9	56.5	96.6	0.7	0.5	0.5	0.4	18.2	12.9
Western hemisphere														
Argentina	1.2	2.3	16.2	21.9	116.5	89.6	271.2	155.8	(.)	0.1	1.6	1.7	-115.3	-255.0
Brazil	0.3	8.0	93.5	184.3	19.5	74.4	122.4	45.4	(.)	0.7	0.3	0.8	-19.2	-28.9
Chile	2.9	6.0	10.7	13.2	14.6	38.7	86.4	79.2	(.)	0.1	0.2	0.6	-11.7	-75.7
Mexico	1.2	6.3	9.0	13.4	50.7	103.1	102.5	69.0	(.)	0.1	0.7	0.7	-49.5	-93.5
Eastern Europe, USSR, etc.														
North Korea	227.2	230.7	317.0	328.6	147.2	223.6	330.2	223.4	3.0	2.3	2.0	2.1	80.0	-13.2
USSR	176.5	229.7	242.2	140.0	152.6	206.9	250.4	159.7	2.3	1.8	2.1	1.6	23.9	-8.2
Viet Nam	51.7	16.3	-	-	27.7	40.7	-	-	0.7	-	0.4	-	24.0	-
Poland	62.9	105.1	142.9	90.0	79.6	65.5	166.5	152.0	0.8	1.0	1.1	1.1	-16.7	-23.6
Czechoslovakia	81.1	119.1	112.6	83.0	93.2	109.0	161.6	107.5	1.1	0.8	1.3	1.0	-12.1	-49.0
Hungary	34.7	57.6	61.7	30.6	33.4	48.8	80.5	68.8	0.5	0.5	0.5	0.5	1.3	-18.8
German Dem. Rep.	121.1	162.2	197.9	135.4	131.7	152.5	197.6	227.2	1.7	1.4	1.8	1.3	-10.6	0.3
Total	7,590.0	9,745.0	13,658.0	13,009.3	7,214.0	10,893.0	15,675.0	13,140.0					376.0	-2,017.0

Source: Ministry of Foreign Trade.

Table 5.8: FOREIGN EXCHANGE FLOWS, 1977-80 /a
(\$ million)

	1977	1978	1979	1980
<u>Current Receipts</u>				
Exports (f.o.b.) /b	8,032	9,512	13,123	17,508
Shipping	}		{	432
Other transport	} 190	258	447 {	170
Insurance	}		{	127
Port dues	}		{	385
Tourism	116	241	413	502
Remittances	497	597	656	660
Bank interest and charges /c	} 484	655	1,143 {	940
Other	}		{	459
<u>Total</u>	<u>9,319</u>	<u>11,263</u>	<u>15,782</u>	<u>21,183</u>
<u>Current Expenditures</u>				
Imports (c.i.f.) /b	7,627	11,399	16,169	21,675
Shipping	}		{	130
Other transport	} 77	94	179 {	21
Insurance	}		{	66
Bank interest and charges /c	} 582	311	630 {	663
Other	}		{	903
<u>Total</u>	<u>8,286</u>	<u>11,804</u>	<u>16,978</u>	<u>23,458</u>
<u>Balance of Current Flows</u>	<u>1,033</u>	<u>-541</u>	<u>-1,196</u>	<u>-2,275</u>
<u>Capital Flows</u>				
Receipts from borrowing	195	173	2,600	2,161
Repayment of principal and interest /d	719	38	604	1,942
Foreign aid /e	690	969	326	n.a.
Of which: Loans	620	900	296	n.a.
Grants	70	69	30	n.a.

/a Coverage, concepts and definitions do not correspond with standard Western balance of payments accounting practice.

/b These trade figures are not consistent with those compiled by the Ministry of Foreign Trade (Table 5.1).

/c Probably includes interest only on short-term debt.

/d Probably includes interest only on medium- and long-term debt.

/e Includes only payments made through Chinese banks.

Source: Bank of China.

Table 5.9: EXCHANGE RATE, 1957-81
(Y per US\$)

Year	Period average /a																
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Q1	Q2	Q3	Q4	Ann.
1957	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618
1958	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618
1959	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618
1960	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618
1961	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618
1962	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618
1963	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618
1964	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618
1965	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618
1966	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618
1967	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618
1968	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618
1969	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618
1970	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618
1971	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618	2.4618
1972	2.2673	2.2673	2.2673	2.2673	2.2673	2.2673	2.2174	2.2174	2.2174	2.2174	2.2401	2.2401	2.2673	2.2673	2.2174	2.2325	2.2461
1973	2.2401	2.2174	2.0032	2.0066	1.9612	1.8993	1.8740	1.9326	1.9133	1.9317	1.9979	2.0202	2.1536	1.9557	1.9066	1.9833	1.9998
1974	2.0406	2.0080	1.9523	1.9019	1.9413	1.9548	1.9468	2.0019	2.0019	1.9521	1.8979	1.8397	2.0003	1.9327	1.9835	1.8966	1.9533
1975	1.7956	1.7475	1.7701	1.7913	1.7715	1.7750	1.9357	1.9453	1.9844	1.9371	1.9604	1.9663	1.7711	1.7793	1.9551	1.9546	1.8650
1976	1.9663	1.9467	1.9642	1.9642	1.9740	1.9602	1.9485	1.9272	1.9118	1.9012	1.8974	1.8803	1.9591	1.9661	1.9292	1.8930	1.9368
1977	1.9163	1.9049	1.8973	1.8840	1.8765	1.8765	1.8411	1.8485	1.8485	1.8277	1.7863	1.7300	1.9062	1.8790	1.8460	1.7797	1.8527
1978	1.6952	1.6515	1.6729	1.7133	1.7340	1.7202	1.7099	1.6962	1.6894	1.6002	1.6368	1.5771	1.6732	1.7225	1.6985	1.6047	1.6747
1979	1.5817	1.5690	1.5737	1.5878	1.5989	1.5546	1.5438	1.5438	1.5146	1.5328	1.5160	1.4962	1.5748	1.5804	1.5341	1.5150	1.5511
1980	1.4962	1.5157	1.5806	1.5028	1.4788	1.4611	1.4712	1.4696	1.4740	1.5037	1.5291	1.5303	1.5308	1.4809	1.4716	1.5210	1.5011
1981	1.6068	1.6252	1.6135	n.a.													

/a Months are period end. Quarters and years are averages of monthly and quarterly data, respectively.

Source: Bank of China.

Table 6.1: ARABLE AND CROPPED AREA, 1949-79
(Million ha)

	1949	1952	1957	1965	1970	1973	1979
Arable area	97.8	108	112	103.6	101.1	100	99.5
Cropped area	n.a.	141	157	143	143.5	149	148.5
Cropping index	n.a.	130	140	138	142	149	149

Source: Ministry of Agriculture.

Table 6.2: GROSS OUTPUT OF AGRICULTURAL SUBSECTORS, 1952-79
(Percentage of total agricultural output)

	1952	1957	1965	1970	1977	1978	1979
Crops	83.1	80.6	75.8	74.7	67.5	67.8	66.9
Forestry	0.7	1.7	2.0	2.2	3.2	3.0	2.8
Animal husbandry	11.5	12.9	14.0	12.9	13.7	13.2	14.0
Sideline occupations (including brigade enterprises)	4.4	4.3	6.5	8.7	14.1	14.6	15.1
Fisheries	0.3	0.5	1.7	1.5	1.5	1.4	1.2
<u>Total</u>	<u>100.0</u>						

Source: State Statistical Bureau.

Table 6.3: FOOD GRAIN PRODUCTION, 1952-80

	1952	1957	1965	1970	1976	1977	1978	1979	1980
Rice (Paddy)									
Area (million ha)	28.38	32.24	29.82	32.36	36.22	35.53	34.42	33.87	n.a.
Yield (t/ha)	2.41	2.69	2.94	3.40	3.47	3.62	3.98	4.24	n.a.
Production (mln t)	68.45(41.7%)	86.80(44.5%)	87.70(45.1%)	110.00(45.9%)	125.80(43.9%)	128.55(45.5%)	136.95(45.0%)	143.75(43.2%)	139.255(43.8%)
Wheat									
Area (million ha)	24.78	27.53	24.71	25.46	28.42	28.07	29.18	29.36	n.a.
Yield (t/ha)	0.73	0.86	1.02	1.15	1.77	1.46	1.85	2.14	n.a.
Production (mln t)	18.15(11.0%)	23.65(12.1%)	25.20(13.0%)	29.20(12.2%)	50.35(17.6%)	40.10(14.5%)	53.75(17.7%)	62.75(18.9%)	54.155(17.0%)
Corn									
Area (million ha)	12.57	14.94	15.67	15.83	19.23	19.66	19.96	20.13	n.a.
Yield (t/ha)	1.34	1.44	1.51	2.09	2.50	2.51	2.80	2.98	n.a.
Production (mln t)	16.85(10.3%)	21.45(11.0%)	23.65(12.2%)	33.05(13.8%)	48.15(16.8%)	49.40(17.5%)	55.95(18.3%)	60.05(18.1%)	n.a.(n.a.)
Sorghum									
Area (million ha)	9.39	6.63	6.15	5.22	4.33	3.76	3.46	3.17	n.a.
Yield (t/ha)	1.18	1.15	1.15	1.69	2.01	2.05	2.33	2.41	n.a.
Production (mln t)	11.10(6.8%)	7.65(3.9%)	7.10(3.6%)	8.80(3.7%)	8.70(3.0%)	7.71(2.7%)	8.05(2.6%)	7.65(2.3%)	n.a.(n.a.)
Soybean									
Area (million ha)	11.68	12.75	8.59	7.99	6.69	6.85	7.14	7.25	n.a.
Yield (t/ha)	0.81	0.79	0.72	1.09	0.99	1.06	1.06	1.03	n.a.
Production (mln t)	9.50(5.8%)	10.05(5.2%)	6.15(3.2%)	8.70(3.6%)	6.65(2.3%)	7.25(2.6%)	7.55(2.5%)	7.45(2.2%)	7.880(2.5%)
Millet									
Area (million ha)	9.84	8.38	6.56	6.91	4.50	4.48	4.27	4.17	n.a.
Yield (t/ha)	1.17	1.02	0.94	1.41	1.23	1.37	1.53	1.47	n.a.
Production (mln t)	11.55(7.0%)	8.55(4.4%)	6.20(3.2%)	9.75(4.1%)	5.55(1.9%)	6.15(2.2%)	6.55(2.1%)	6.15(1.8%)	n.a.(n.a.)
Tubers /a									
Area (million ha)	8.69	10.50	11.18	10.72	10.37	11.23	11.80	10.95	n.a.
Yield (t/ha)	1.88	2.09	1.78	2.57	2.57	2.64	2.69	2.60	n.a.
Production (mln t)	16.35(10.0%)	21.90(11.3%)	19.85(10.2%)	26.70(11.1%)	26.65(9.37%)	29.65(10.5%)	31.75(10.4%)	28.45(8.6%)	27.845(8.6%)
Total /b									
Area (million ha)	123.98	133.63	119.63	119.27	120.75	120.40	120.59	119.26	116.47
Yield (t/ha)	1.32	1.46	1.63	2.01	2.37	2.35	2.53	2.78	2.73
Production (mln t)	163.90	195.05	194.55	239.95	286.30	282.75	304.75	332.10	318.22

/a Expressed as grain equivalent on the basis of one fifth the wet weight (one fourth prior to 1965).

/b Includes other miscellaneous coarse grains.

Notes: (a) Area represents sown area.

(b) Figure in parenthesis on production line expresses the amount as a percentage of total grain production.

Source: Ministry of Agriculture.

Table 6.4: PRODUCTION OF OILSEEDS, 1952-80

	1952	1957	1965	1970	1976	1977	1978	1979	1980
<u>Peanut</u>									
Area (million ha)	1.804	2.5416	1.8457	1.7092	1.8403	1.6875	1.7681	2.0744	n.a.
Yield (t/ha)	1.28	1.01	1.04	1.26	1.02	1.17	1.34	1.36	n.a.
Production (mln t)	2.31	2.57	1.92	2.15	1.87	1.97	2.37	2.82	3.600
Oil equiv. (mln t)	1.03	1.14	0.85	0.96	0.84	0.88	1.05	1.25	n.a.
<u>Sesameseeds</u>									
Area (million ha)	1.0565	0.942	0.6633	0.5545	0.5613	0.5564	0.6376	0.8433	n.a.
Yield (t/ha)	0.45	0.33	0.39	0.47	0.41	0.43	0.51	0.49	n.a.
Production (mln t)	0.48	0.31	0.26	0.26	0.23	0.24	0.33	0.41	0.259
Oil equiv. (mln t)	0.23	0.15	0.12	0.12	0.11	0.11	0.16	0.19	n.a.
<u>Rapeseeds</u>									
Area (million ha)	1.8631	2.3079	1.8221	1.4537	2.3462	2.2175	2.5997	2.7600	n.a.
Yield (t/ha)	0.50	0.38	0.60	0.66	0.57	0.53	0.72	0.87	n.a.
Production (mln t)	0.93	0.88	1.09	0.96	1.34	1.18	1.87	2.40	2.384
Oil equiv. (mln t)	0.36	0.34	0.42	0.37	0.52	0.45	0.72	0.92	n.a.
<u>Other Oilseeds</u>									
Area (million ha)	0.9901	1.1407	0.8355	0.8046	1.0399	1.1781	1.2168	1.3728	n.a.
Yield (t/ha)	0.47	0.37	0.42	0.49	0.54	0.53	0.53	0.58	n.a.
Production (mln t)	0.47	0.42	0.35	0.39	0.56	0.62	0.64	0.80	1.448
Oil equiv. (mln t)	0.16	0.14	0.12	0.13	0.18	0.20	0.21	0.26	n.a.
<u>Total</u>									
Area (million ha)	5.7137	6.9322	5.1666	4.522	5.7877	5.6395	6.2222	7.0514	n.a.
Production (mln t)	4.19	4.18	3.62	3.76	4.01	4.01	5.21	6.43	7.691
Oil equiv. (mln t)	1.78	1.77	1.51	1.58	1.65	1.64	2.14	2.62	n.a.

Source: Ministry of Agriculture.

Table 6.5: PRODUCTION OF CASH CROPS, 1952-80

	1952	1957	1965	1970	1976	1977	1978	1979	1980
Cotton									
Area (million ha)	5.576	5.775	5.003	4.997	4.929	4.845	4.866	4.512	4.920
Yield (t/ha) /a	0.234	0.284	0.419	0.456	0.417	0.423	0.445	0.489	0.550
Production (mln t)	1.30	1.64	2.10	2.28	2.06	2.05	2.17	2.21	2.705
Jute									
Area (million ha)	0.1581	0.1425	0.1131	0.1349	0.3284	0.3767	0.4121	0.3677	n.a.
Yield (t/ha)	1.93	2.11	2.47	2.08	2.23	2.29	2.64	3.01	n.a.
Production (mln t)	0.31	0.30	0.28	0.28	0.73	0.86	1.09	1.09	1.098
Mulberry									
Area (million ha)	0.2013	0.3115	n.a.	n.a.	0.2723	0.2917	0.2793	0.2727	n.a.
Yield (t/ha) (cocoon)	0.31	0.22	n.a.	n.a.	0.60	0.58	0.62	0.78	n.a.
Production (mln t)	0.0623	0.0679	0.0665	0.1215	0.1629	0.168	0.1734	0.2134	n.a.
Tussah									
Area (million ha)	n.a.	0.7425	n.a.	n.a.	0.7982	0.7641	0.7673	0.7854	n.a.
Yield (t/ha)	n.a.	0.06	n.a.	n.a.	0.04	0.06	0.07	0.07	n.a.
Production (mln t)	0.0611	0.045	0.0387	0.0433	0.0289	0.0475	0.0545	0.0574	n.a.
Tea									
Area (million ha)	0.224	0.3293	0.336	0.486	0.9629	1.0141	1.0477	1.0506	n.a.
Yield (t/ha)	0.37	0.34	0.30	0.28	0.24	0.25	0.26	0.26	n.a.
Production (mln t)	0.0824	0.1116	0.1006	0.136	0.2335	0.2521	0.268	0.2771	3.04
Sugarcane									
Area (million ha)	0.1825	0.2666	0.3504	0.3875	0.5411	0.5068	0.5485	0.5118	n.a.
Yield (t/ha)	38.99	38.98	38.22	34.73	30.73	35.03	38.50	42.02	n.a.
Production (mln t)	7.12	10.39	13.39	13.46	16.63	17.75	21.12	21.51	22.807
Sugarbeet									
Area (million ha)	0.0351	0.1593	0.1709	0.1989	0.3565	0.3518	0.3309	0.3250	n.a.
Yield (t/ha)	13.64	9.42	11.61	10.38	8.22	6.98	8.17	9.56	n.a.
Production (mln t)	0.4786	1.50	1.98	2.06	2.93	2.46	2.70	3.11	6.305
Fruits									
Area (million ha)	0.6844	0.9432	n.a.	n.a.	1.5787	1.6743	1.6567	1.7558	n.a.
Yield (t/ha)	3.57	3.44	n.a.	n.a.	3.42	3.40	3.97	4.00	n.a.
Production (mln t)	2.443	3.2475	n.a.	3.4109	5.4063	5.6847	6.5697	7.0146	n.a.
Vegetables									
Area (million ha)	n.a.	3.7367	n.a.	2.6564	3.1389	3.3009	3.3309	3.2296	n.a.

/a Yield expressed as ginned weight.

Source: Ministry of Agriculture.

Table 6.6: LIVESTOCK POPULATION, 1952-80
(million head)

	1952	1957	1965	1970	1976	1977	1978	1979	1980
Large animals	76.459	83.822	84.205	94.362	94.978	93.754	93.892	94.591	95.246
Cattle	44.961	50.485	53.573	n.a.	53.825	52.723	52.528	52.411	n.a.
Buffalo	11.640	13.127	13.378	n.a.	17.444	17.229	17.723	18.377	n.a.
Horses	6.130	7.302	7.921	n.a.	11.438	11.447	11.245	11.145	n.a.
Donkeys	11.806	10.864	7.438	n.a.	7.766	7.630	7.480	7.473	n.a.
Mules	1.637	1.679	1.447	n.a.	3.536	3.714	3.867	4.023	n.a.
Camels	0.285	0.365	0.448	n.a.	0.545	0.564	0.574	0.604	n.a.
Pigs	89.765	145.895	166.925	206.101	287.247	291.777	301.285	319.704	305.431
Goats	24.898	45.147	60.765	n.a.	65.465	67.824	73.540	80.574	n.a.
Sheep	36.880	53.435	78.260	n.a.	92.705	93.532	96.397	102.568	n.a.

Note: The total for large animals includes dairy cows prior to 1976.

Source: Ministry of Agriculture.

Table 6.7: PRODUCTION FROM MARINE AND FRESHWATER FISHERIES, 1952-79
('000 tons)

Year	Marine			Freshwater			Total
	Capture	Farming	Subtotal	Capture	Farming	Subtotal	
1952	1,060	-	1,060	606	-	606	1,666
1957	1,815	122	1,937	614	565	1,179	3,116
1965	1,910	104	2,014	456	514	970	2,984
1970	2,097	184	2,281	322	582	904	3,185
1976	3,122	298	3,420	316	740	1,056	4,476
1977	3,195	424	3,619	308	768	1,076	4,695
1978	3,145	450	3,595	296	762	1,058	4,653
1979	2,773	416	3,189	303	813	1,116	4,305

Source: General Bureau of Aquatic Products.

Table 6.8: OUTPUT OF MARINE PRODUCTS, 1952-79
(tons)

Year	Fish	Shrimps & crabs	Shellfish	Seaweed
1952	829,717	104,540	118,336	7,469
1957	1,373,021	348,750	195,593	19,586
1965	1,595,654	279,423	106,798	32,174
1973	2,254,108	382,275	137,102	137,777
1976	2,611,363	397,674	254,753	155,821
1977	2,652,865	445,503	288,817	231,402
1978	2,560,721	505,862	268,365	259,839
1979	2,312,553	408,297	217,570	250,377

Source: General Bureau of Aquatic Products.

Table 6.9: COMMUNE AND BRIGADE ENTERPRISES, 1976-79

	1976	1977	1978	1979
<u>Number of Enterprises</u> ('000)	1,115	1,392	1,524	1,480
Of which:				
Commune	n.a.	n.a.	(320)	(320)
Brigade	n.a.	n.a.	(1,204)	(1,160)
<u>Employment</u> ('000)	17,919	23,284	28,265	29,093
Of which:				
Commune	n.a.	n.a.	(12,576)	(13,144)
Brigade	n.a.	n.a.	(15,689)	(15,949)
<u>Gross Output</u> (Y billion)	27.33	39.12	43.14	49.11/a
Of which:				
Commune	n.a.	n.a.	(23.97)	(26.99)
Brigade	n.a.	n.a.	(19.17)	(22.12)
<u>Total Profit</u> (Y billion)	n.a.	7.84	8.81	10.45
Of which allo-				
cation for:				
Reinvestment	n.a.	n.a.	(3.09)	(4.06)
Support to agriculture	n.a.	n.a.	(2.63)	(2.69)
Collective welfare	n.a.	n.a.	(0.40)	(0.49)
<u>Taxes</u> (Y billion)	n.a.	n.a.	2.20	2.26

/a Excluding urban enterprises, including which would increase the value of output to Y 50.7 billion.

Source: Bureau of Commune and Brigade Enterprises, Ministry of Agriculture.

Table 6.10: COMMUNE AND BRIGADE ENTERPRISES BY SECTOR, 1978 AND 1979

	1978			1979		
	Number of enterprises ----- ('000)	Employment -----	Gross output (Y bln)	Number of enterprises ----- ('000)	Employment -----	Gross output (Y bln)
Agriculture	495	6,084	3.62	444	5,330	3.85
Industry	794	17,344	32.61	767	18,144	37.22
Transport	65	1,038	1.87	82	1,169	2.30
Construction	46	2,356	2.60	49	2,984	3.50
Others	124	1,443	2.44	138	1,466	2.24
<u>Total</u>	<u>1,524</u>	<u>28,265</u>	<u>43.14</u>	<u>1,480</u>	<u>29,093</u>	<u>49.11</u>

Source: Bureau of Commune and Brigade Enterprises, Ministry of Agriculture.

Table 6.11: AGRICULTURAL STATISTICS BY PROVINCE, 1979

	Arable area (mln ha)	Irrigated area (mln ha)	Grain output (mln tons)	Cropping index (%)	Livestock			Communes, brigades and production teams			Commune house- holds ('000)
					Pigs	Sheep & goats (mln head)	Cattle	No. of communes	No. of brigades	No. of product- ion teams ('000)	
<u>Southwest Region</u>											
Sichuan	6.625	2.972	32.01	176.8	50.92	10.92	9.12	8,373	74,647	523	19,490
Guizhou	1.898	0.469	6.23	158.6	8.75	2.07	3.69	3,732	24,150	169	4,790
Yunnan	2.781	0.910	7.93	148.2	13.10	7.02	5.52	1,401	13,455	156	5,150
Xizang	0.230	0.153	0.43	96.7	0.25	18.16	4.74	2,060	-	10	310
<u>Northwest Region</u>											
Shaanxi	3.839	1.238	9.09	133.2	8.22	6.49	1.76	2,522	30,145	143	4,910
Gansu	3.555	0.847	4.62	97.7	4.40	11.13	2.11	1,370	15,872	102	3,010
Qinghai	0.579	0.154	0.82	87.7	0.76	15.96	4.89	399	3,603	15	470
Ningxia	0.898	0.234	1.06	101.1	0.65	3.20	0.18	247	2,189	14	530
Xinjiang	3.200	2.607	3.94	94.3	1.04	20.15	2.37	603	7,109	33	1,690
<u>Central South Region</u>											
Henan	7.139	3.636	21.34	152.9	15.92	11.08	3.39	2,059	43,121	375	13,450
Hubei	3.755	2.353	18.50	207.1	17.49	1.77	3.26	1,256	30,425	238	8,030
Hunan	3.440	2.448	22.18	242.3	21.20	0.88	3.29	3,304	46,378	420	10,630
Guangxi	2.628	1.462	11.73	194.2	11.03	0.87	4.16	972	12,738	217	5,910
Guangdong	3.218	2.151	17.38	217.4	20.09	0.41	3.83	1,927	26,173	359	9,650
<u>East Region</u>											
Shanghai	0.356	0.349	2.59	216.8	3.42	0.45	0.06	204	2,929	29	1,230
Jiangsu	4.650	3.368	25.14	182.6	23.56	6.16	1.06	1,872	34,678	319	12,350
Zhejiang	1.832	1.520	16.12	246.6	15.50	3.46	0.85	3,008	42,021	270	7,990
Anhui	4.456	2.519	16.10	179.6	11.32	3.63	2.17	2,909	28,330	364	9,140
Fujian	1.295	0.879	7.62	204.3	6.99	0.69	0.99	880	13,689	147	4,170
Jiangxi	2.533	1.656	12.96	225.0	10.05	0.10	2.12	1,650	23,380	229	5,290
Shandong	7.260	4.405	24.72	146.8	21.18	9.26	2.22	2,092	83,927	364	15,150
<u>North Region</u>											
Beijing	0.427	0.341	1.73	158.7	2.47	0.57	0.10	263	3,986	12	930
Tianjin	0.468	0.381	1.39	146.9	1.01	0.27	0.05	219	3,879	15	810
Hebei	6.659	3.671	17.79	138.8	13.52	7.29	1.28	3,645	50,144	256	10,540
Shanxi	3.924	1.121	8.00	109.5	5.59	9.21	1.08	1,887	30,707	107	4,910
Nei Monggol	5.347	1.182	5.10	91.3	5.55	26.32	3.54	1,373	11,994	59	2,780
<u>Northeast Region</u>											
Liaoning	3.787	0.804	11.94	104.8	11.89	1.67	1.34	1,149	15,385	89	4,910
Jilin	4.052	0.571	9.03	100.2	5.86	1.49	1.11	902	9,907	61	2,990
Heilongjiang	8.662	0.605	14.63	98.4	7.98	2.46	1.07	1,075	13,652	59	3,700
<u>Total</u>	<u>99.498</u>	<u>45.006</u>	<u>332.12</u>	<u>149.2</u>	<u>319.71</u>	<u>183.14</u>	<u>71.35</u>	<u>53,353</u>	<u>698,613</u>	<u>5,514</u>	<u>174,910</u>

Table 6.11: (continued)

	Distributed collective income per capita (yuan)	Gross value of agricultural output (Y bln)/a	Commune & brigade enterprises			Mechanization			
			No. of enter- prises (^{'000})	Employees (^{'000})	Gross output (Y bln)/a	Tractors (large & medium) -----(^{'000})-----	Hand tractors -----(^{'000})-----	Irrigation machinery (^{'000} hp)	Grain processing machines (^{'000} units)
<u>Southwest Region</u>									
Sichuan	69.2	13.205	130	1,874	1.911	21	82	3,339	295
Guizhou	46.4	2.860	24	276	0.273	8	9	877	53
Yunnan	64.6	3.823	24	469	0.497	17	31	873	100
Xizang	127.5	0.408	-	-	-	2	4	84	-
<u>Northwest Region</u>									
Shaanxi	79.6	4.005	41	601	0.777	19	63	2,249	130
Gansu	56.6	2.179	20	251	0.363	16	52	1,968	68
Qinghai	97.6	0.577	3	40	0.080	5	13	102	6
Ningxia	68.7	0.461	6	54	0.109	5	15	168	18
Xinjiang	102.4	2.142	16	201	0.305	24	12	580	14
<u>Central South Region</u>									
Henan	63.4	10.294	70	1,551	2.649	52	106	7,819	307
Hubei	106.2	9.417	114	1,576	1.957	33	98	2,705	206
Hunan	92.3	9.416	126	2,080	2.842	18	56	3,004	147
Guangxi	74.7	8.115	37	708	0.841	22	89	892	101
Guangdong	88.4	4.823	89	2,067	3.344	20	119	2,358	79
<u>East Region</u>									
Shanghai	212.1	2.345	5	596	2.098	7	31	356	7
Jiangsu	99.2	13.964	72	3,350	7.475	14	225	5,543	147
Zhejiang	119.5	8.209	79	2,083	3.186	10	80	1,480	99
Anhui	70.3	6.773	43	816	1.065	16	101	4,718	147
Fujian	67.9	3.823	40	1,059	1.265	7	56	579	46
Jiangxi	89.3	5.302	41	808	1.210	19	48	1,881	81
Shandong	81.5	12.370	202	3,290	5.347	98	96	8,969	137
<u>North Region</u>									
Beijing	150.8	1.262	5	263	1.010	6	25	915	28
Tianjin	145.1	1.354	4	254	0.818	12	8	1,378	17
Hebei	83.2	9.346	118	1,845	3.785	37	106	10,523	207
Shanxi	85.8	3.921	83	880	1.563	29	30	2,484	107
Nei Monggol	76.8	2.853	17	254	0.411	31	16	1,360	85
<u>Northeast Region</u>									
Liaoning	115.0	5.530	32	988	2.305	39	47	2,279	108
Jilin	116.1	3.688	16	352	0.675	23	27	772	89
Heilongjiang	110.2	5.965	23	496	0.949	57	26	967	83
<u>Total</u>	<u>84.2</u>	<u>158.430</u>	<u>1,481</u>	<u>29,093</u>	<u>49.11</u>	<u>667</u>	<u>1,671</u>	<u>71,221</u>	<u>2,912</u>

/a In 1970 prices.

Sources: (1) State Agricultural Commission.
(2) Bureau of Commune and Brigade Enterprises, Ministry of Agriculture.

Table 7.1: OUTPUT OF MAJOR INDUSTRIAL PRODUCTS, 1952-80

	Unit	1952	1957	1965	1970	1975	1977	1978	1979	1980
A. Heavy Industry Products										
Crude coal	mln tons	66	131	232	354	482	550	618	635	620
Crude oil	mln tons	0.44	1.46	11.31	30.65	77.06	93.64	104.05	106.15	105.95
Natural gas	mln cu m	8	70	1,112	2,870	8,850	12,120	13,730	14,510	14,270
Electricity	bln kWh	7.3	19.3	67.6	115.9	195.8	223.4	256.6	282.0	300.6
Pig iron	mln tons	1.93	5.94	10.77	17.06	24.49	25.05	34.79	36.73	38.02
Steel	mln tons	1.35	5.35	12.23	17.79	23.90	23.74	31.78	34.48	37.12
Rolled steel	mln tons	1.06	4.15	8.81	11.88	16.22	16.33	22.08	24.97	27.16
Coke (machine-made)	mln tons	2.22	5.55	12.03	19.16	27.38	26.83	32.38	33.54	34.05
Cement	mln tons	2.86	6.86	16.34	25.75	46.26	55.65	65.24	73.90	79.86
Plate glass	mln std.cases	2.13	4.62	6.87	10.53	14.53	16.97	20.04	23.30	27.71
Timber	mln cu m	11.20	27.87	39.78	37.82	46.26	49.67	51.62	54.39	53.59
Sulphuric acid	'000 tons	190	632	2,340	2,914	4,847	5,375	6,610	6,998	7,640
Soda ash	'000 tons	192	506	882	1,077	1,243	1,077	1,329	1,486	1,613
Caustic soda	'000 tons	79	198	556	892	1,289	1,386	1,640	1,826	1,923
Chemical fertilizer	'000 tons of nutrients	39	151	1,726	2,435	5,247	7,238	8,693	10,654	12,320
Chemical insecticides	'000 tons	2	65	193	321	422	457	533	537	537
Plastics	'000 tons	2	13	97	176	330	524	679	793	898
Ethylene	'000 tons	0	0	3	15.1	65	303	380	435	490
Calcium carbide	'000 tons	11	49	440	696	983	989	1,238	1,407	1,520
Rubber tires	'000	420	880	2,320	4,250	7,000	7,720	9,360	11,688	11,460
Power generating equipment	MW	6	198	683	2,918	4,965	3,181	4,838	6,212	4,193
Mining equipment	'000 tons	1.8	52.9	40	96.3	196.1	184.5	242.9	264	163
Machine tools	'000	13.7	28.0	39.6	138.9	174.9	198.7	183.2	139.6	1,340
Motor vehicles	'000	0	7.9	40.5	87.2	139.8	125.4	149.1	185.7	222.0
Tractors	'000	0	0	9.6	31.9	78.4	99.3	113.5	125.6	98.0
Hand tractors	'000	0	0	3.6	51.4	209.4	320.5	324.2	317.5	218.0
Internal combustion engines	'000 hp	40	690	2,790	7,330	23,480	27,410	28,180	29,080	25,390
Locomotives	units	20	167	146	573	526	293	521	573	512
Railway passenger wagons	units	6	454	160	576	804	538	784	856	1,002
Railway freight wagons	'000	5.8	7.3	2.9	13.8	15.7	6.4	17.0	16.0	10.6
Steel ships for civilian use	'000 tons	21	108	n.a.	n.a.	n.a.	634	861	809	818
B. Light Industry Products										
Cotton yarn	'000 tons	656	844	1,300	2,052	2,108	2,230	2,382	2,635	2,930
Cotton cloth	bln m	3.83	5.05	6.28	9.15	9.40	10.15	11.03	12.15	13.47
Woolen piece goods	mln m	4.23	18.17	n.a.	n.a.	n.a.	78.40	88.85	90.17	101
Silk	'000 tons	5.6	9.9	n.a.	n.a.	n.a.	26.9	29.7	29.7	35.4
Silk textiles	mln m	65	145	n.a.	n.a.	n.a.	529	611	663	759
Gunny bags	mln	67	83	125	184	191	245	290	344	433
Chemical fibers	'000 tons	0	0.2	50.1	100.9	154.8	189.8	284.6	326	450
Television sets	'000	0	0	4.3	10.5	177.8	284.6	517.3	1,329	2,492
Radios	'000	17	352	815	3,108	9,356	10,494	11,697	13,810	30,040
Cameras	'000	0	0.1	17.2	40.4	184.9	246.6	178.9	238	373
Bicycles	'000	80	806	1,838	3,688	6,232	7,427	8,540	10,095	13,020
Sewing machines	'000	66	278	1,238	2,352	3,567	4,242	4,865	5,868	7,680
Wrist watches	'000	0	0.4	1,008	3,476	7,822	11,043	13,511	17,070	22,160
Machine-made paper & paperboard		372	913	1,730	2,410	3,410	3,769	4,387	4,929	5,350
Synthetic detergents	'000 tons	0	0	30	93	223	257	324	397	393
Light bulbs	mln	26	69	192	386	520	617	770	850	950
Sugar	'000 tons	451	864	1,460	1,350	1,740	1,815	2,267	2,500	2,570
Salt	'000 tons	4,945	8,277	11,470	11,090	14,810	17,104	19,535	14,770	17,280

Sources: State Economic Commission, State Statistical Bureau and official submission to United Nations Statistical Office.

Table 7.2: NUMBER OF ENTERPRISES AND GROSS VALUE OF OUTPUT BY BRANCH OF INDUSTRY, 1977-79 /a

Industry names	Number of enterprises (end year)			Gross value of output (million 1970 yuan)		
	1977	1978	1979	1977	1978	1979
1 Basic metallurgy & metal mining	4,259	4,934	5,138	29,052	36,891	41,027
Of which:						
1.1 Iron & steel (incl. mining)	n.a.	n.a.	2,828	n.a.	n.a.	28,702/b
1.2 Nonferrous metals (incl. mining)	n.a.	n.a.	2,310	n.a.	n.a.	12,325/b
2 Electric power	7,386	8,262	8,923	14,135	16,142	17,672
3 Coal mining, washing & dressing	8,887	9,389	9,172	10,312	11,685	12,818
Of which:						
3.1 Coal mining	8,549	9,160	8,805	10,191	11,001	11,624
4 Petroleum extraction & refining	209	250	307	22,680	23,329	24,957
Of which:						
4.1 Petroleum and natural gas extraction	21	21	21	8,394	9,480	9,803
5 Chemicals (incl. mining), plastic and rubber products	20,599	22,393	22,384	42,366	52,498	56,184
Of which:						
5.1 Basic chemicals	1,854	2,300	2,570	5,161	6,167	7,221
5.2 Chemical fertilizers & insecticides	6,840	6,427	5,232	8,083	10,200	10,690
5.3 Rubber & plastic producer goods	3,909	4,642	4,876	8,664	10,240	11,175
5.4 Pharmaceuticals, photo film, fats & oil, soap & detergents	2,994	3,297	3,238	8,785	9,981	10,011
6 Machinery & metal products (incl. electronics & repairing)	94,797	103,753	104,071	103,710	115,546	124,484
Of which:						
6.1 Agricultural equipment	9,768	11,158	9,608	10,676	11,588	10,913
6.2 Industrial machinery & equipment	7,139	7,636	7,786	22,992	25,541	24,027
6.3 Transport equipment (except bicycles)	2,409	2,610	2,842	11,183	12,720	14,542
6.4 Construction & road bldg. machinery	159	160	238	507	553	826
6.5 Machinery for nonproductive use	1,465	1,715	1,871	4,365	5,107	6,040
7 Nonmetallic mineral building materials (incl. mining)	39,065	44,118	46,022	13,334	15,391	16,732
Of which:						
7.1 Cement and cement products	6,554	7,669	9,927	4,122	4,877	6,003
7.2 Refractory materials, (ceramic, brick, lime, etc.)	30,045	33,700	32,941	6,964	8,071	8,119
7.3 Glass	522	553	627	1,056	1,167	1,278
7.4 Nonmetallic mineral mining	1,944	2,196	2,527	1,192	1,276	1,332
8 Timber, wood products & furniture	10,419	12,128	14,252	7,000	7,741	8,475
Of which:						
8.1 Logging & transport of timber	1,398	1,412	1,569	2,703	2,805	2,976
9. Food, beverages and tobacco (incl. salt mining)	37,058	40,953	44,682	43,574	47,171	51,872
10 Textiles	11,305	12,145	13,036	46,065	52,909	59,306
Of which:						
10.1 Synthetic fiber production	200	245	176	2,265	3,129	3,781
11 Paper, pulp and paperboard	2,977	3,648	4,105	4,754	5,384	6,030
12 Other industries (incl. piped water)	85,762	86,474	83,228	35,846	38,388	40,523
Of which:						
12.1 Clothing, footwear & leather products	n.a.	n.a.	23,551	n.a.	n.a.	13,880/b
12.2 Paper products, printing, cultural, educational & sport goods	n.a.	n.a.	11,256	n.a.	n.a.	9,650/b
Total	322,723	348,447	355,320	372,828	423,075	460,080

/a Excludes brigade and team industrial enterprises.

/b Approximate (within 5 million).

Source: State Economic Commission and data provided by Chinese authorities to UN Statistical Office.

Table 7.3: CAPITAL CONSTRUCTION BY BRANCH OF INDUSTRY, 1977-79 /a

Industry names	Value in million current yuan		
	1977	1978	1979
1 Basic metallurgy & metal mining	4,273	4,648	3,472
2 Electric power	3,472	5,091	5,099
3 Coal mining, washing & dressing	2,258	3,180	3,186
Of which:			
3.1 Coal mining	2,247	3,167	3,119
4 Petroleum extraction & refining	2,076	3,160	2,707
Of which:			
4.1 Petroleum and natural gas extraction	1,488	2,347	2,085
5 Chemicals (incl. mining), plastic and rubber products	2,905	3,134	2,946
Of which:			
5.1 Basic chemicals	668	1,196	1,318
5.2 Chemical fertilizers & insecticides	1,907	1,500	1,234
5.3 Rubber & plastic producer goods	68	72	73
5.4 Pharmaceuticals, photo film, fats & oil, soap & detergents	131	173	150
6 Machinery & metal products (incl. electronics & repairing)	3,252	4,081	3,624
Of which:			
6.1 Agricultural equipment	534	651	445
6.2 Industrial machinery & equipment	940	1,388	789
6.3 Transport equipment (except bicycles)	572	558	443
6.4 Construction & road bldg. machinery	55	55	65
6.5 Machinery for nonproductive use	162	210	157
7 Nonmetallic mineral building materials (incl. mining)	669	916	1,244
Of which:			
7.1 Cement and cement products	297	422	728
7.2 Refractory materials, (ceramic, brick, lime, etc.)	254	327	381
7.3 Glass	42	41	44
7.4 Nonmetallic mineral mining	76	126	91
8 Timber, wood products & furniture	286	437	494
Of which:			
8.1 Logging & transport of timber	247	388	436
9 Food, beverages and tobacco (incl. salt mining)	364	512	512
10 Textiles	1,496	1,338	1,412
Of which:			
10.1 Synthetic fiber production	1,190	904	760
11 Paper, pulp and paperboard	147	207	280
12 Other industries (incl. piped water)	538	660	709
<u>Total</u>	<u>21,736</u>	<u>27,316</u>	<u>25,685</u>

/a Includes investment in the state budget and by various localities, state enterprises and industrial departments. Does not include renewal and replacement of fixed assets, or investment of collectives.

Source: Data provided by Chinese authorities to the UN Statistical Office.

Table 7.4: ELECTRICITY CONSUMPTION BY BRANCH OF INDUSTRY, /a 1977-79
(in million kWh)

	1977	1978	1979
Basic metallurgy	34,913	42,333	45,631
Electric power	35,320	39,573	42,629
Coal	13,871	15,162	16,903
Petroleum	6,133	7,410	8,203
Chemicals	35,817	43,228	48,338
Machinery and metal products	16,161	17,692	19,643
Building materials	6,902	8,034	9,405
Food, beverages and tobacco	3,453	3,734	4,565
Textiles	7,774	8,646	9,981
Paper & pulp	3,668	4,353	4,950
Others /b	13,999	15,495	15,868
<u>Total</u>	<u>178,011</u>	<u>205,660</u>	<u>226,107</u>

/a Independent (state and collective) accounting units only. Excludes brigade and team industrial enterprises. See Table 7.2 for more details of sectoral classification.

/b Includes timber and wood products.

Source: Data provided by Chinese authorities to UN Statistical Office.

Table 7.5: KEY INDUSTRIAL STATISTICS BY OWNERSHIP, 1979

	Industrial enterprises				
	Total enterprises	State-owned	Collective		
Sub-total			Urban collective	Rural commune	
<u>All Industrial Enterprises /a</u>					
No. of enterprises (end of year)	355,013	83,837	271,176	99,679	171,497
Gross output (Y billion 1970)	459.07	371.98	87.09	63.72	23.37
Net output (Y billion current)	154.54	126.50	28.04	18.06	9.98
Employment (thousands, end of year)	53,400/ <u>b</u>	31,091/ <u>c</u>	22,300/ <u>b</u>	13,277	9,000/ <u>b</u>
Wages and salaries (Y billion current)	n.a.	23.02/ <u>d</u>	n.a.	6.76	n.a.
<u>Independent Accounting Units Only</u>					
Gross fixed assets (Y billion, end of year)	380.38	346.67	33.71	20.91	12.80
Net fixed assets (Y billion, end of year)	262.97	237.86	25.11	14.96	10.15
Circulating funds (Y billion, average)	133.44	110.87	22.55	17.12	5.43
Net fixed assets plus circulating funds	396.41	348.75	47.66	32.08	15.58
Profits and taxes (Y billion current)	99.41	86.44	12.97	8.56	4.41

/a All industrial enterprises except those in rural production brigades and production teams.

/b Approximate.

/c Average during the year was 30,381. For the breakdown among industrial branches, see Table 10.3.

/d For the breakdown among industrial branches, see Table 10.3.

Source: State Economic Commission.

Table 7.6: KEY INDUSTRIAL STATISTICS FOR LIGHT AND HEAVY INDUSTRY, 1979

	Light industry	Heavy industry	Total	Percentage Shares	
				Light industry	Heavy industry
<u>All Industrial Enterprises</u>					
Number	207,853	147,160	355,013	58.5	41.5
Gross output (bil 1970 yuan)	197.96	261.11	459.07	43.1	56.9
Net output (bil current yuan)	59.13	95.41	154.54	38.3	61.7
<u>Independent Accounting Units Only</u>					
Gross fixed assets (Y billion)	66.55	313.83	380.38	17.5	82.5
Net fixed assets (Y billion)	45.40	217.57	262.97	17.3	82.7
Circulating funds (Y billion)	37.28	96.16	133.44	27.9	72.1
N.F.A. plus C.F. (Y billion)	82.68	313.73	396.41	20.9	79.1
Profits and taxes (Y billion)	39.46	59.95	99.41	39.7	60.3

Source: State Economic Commission.

Table 7.7: GROSS INDUSTRIAL OUTPUT BY PROVINCE, 1979
(% of national total)

<u>Northeast Region</u>	
Liaoning	9.1
Jilin	2.7
Heilongjiang	4.6
<u>North Region</u>	
Beijing	4.6
Tianjin	3.8
Hebei	4.4
Shanxi	2.3
Nei Monggol	1.2
<u>East Region</u>	
Shandong	6.5
Anhui	2.5
Shanghai	12.9
Jiangsu	8.4
Zhejiang	3.3
Jiangxi	1.7
Fujian	1.5
<u>Central South Region</u>	
Henan	3.7
Hubei	4.1
Hunan	3.4
Guangxi	1.6
Guangdong	4.6
<u>Northwest Region</u>	
Shaanxi	2.3
Gansu	1.8
Qinghai	0.3
Ningxia	0.3
Xinjiang	0.7
<u>Southwest Region</u>	
Sichuan	5.4
Guizhou	1.0
Yunnan	1.3
Xizang	<u>/a</u>
<u>Total</u>	<u>100.0</u>

/a Negligible.

Source: State Economic Commission.

Table 8.1: GROWTH OF ENERGY PRODUCTION, 1952-80

	Electricity		Hydro		Coal		Oil		Natural gas		Total primary	
	(GWh)	(% p.a.)	(GWh)	(% p.a.)	(mln tons)	(% p.a.)	(mln tons)	(% p.a.)	(Bln cu m)	(% p.a.)	(Mtce)	(% p.a.)
1952	7,260		1,260		66.49		0.436		0.008		48.7	
1952-57		21.6		30.8		14.5		27.3		54.3		14.9
1957	19,340		4,820		130.73		1.458		0.070		97.6	
1957-65		16.9		10.1		7.4		29.2		41.3		8.5
1965	67,600		10,410		231.80		11.31		1.112		187.0	
1965-70		11.4		14.5		8.8		22.1		20.9		10.6
1970	115,860		20,460		353.99		30.65		2.870		310.0	
1970-75		11.1		18.4		6.4		20.2		25.3		9.5
1975	195,840		47,630		482.24		77.06		8.850		488.6	
1975-80		8.9		4.1		5.2		6.6		10.0		5.6
1980	300,627		58,211		620.13		105.95		14.270		640.9	
1952-80		14.2		14.7		8.3		21.7		30.7		9.6

Notes: (1) Mtce (million tons of coal equivalent) coefficients based on tce of 7 million kcal, with calorific values assumed as follows: coal 5,000 kcal/kg; oil 10,200 kcal/kg, natural gas 9,310 kcal/m³; hydroelectric power 2,954 kcal/kg.
(2) Oil production includes shale oil.

Source: Ministries of Electric Power, Coal Industry and Petroleum Industry.

Table 8.2: CRUDE OIL PRODUCTION BY REGION AND MAJOR FIELD, 1977-80
(million tons)

	1977	1978	1979	1980
<u>Northeast</u>	<u>54.875</u>	<u>56.039</u>	<u>57.363</u>	<u>58.59</u>
Daqing	<u>50.314</u>	<u>50.375</u>	<u>50.753</u>	<u>51.50</u>
Others	4.561	5.664	6.610	7.09
<u>North</u>	<u>15.554</u>	<u>20.399</u>	<u>20.404</u>	<u>19.11</u>
Renqiu	<u>12.298</u>	<u>17.230</u>	<u>17.331</u>	<u>16.03</u>
Dagang	3.150	3.000	2.901	2.91
Others	0.106	0.169	0.172	0.17
<u>East</u>	<u>17.660</u>	<u>19.743</u>	<u>19.206</u>	<u>17.92</u>
Shengli	<u>17.520</u>	<u>19.468</u>	<u>18.880</u>	<u>17.59</u>
Others	0.140	0.275	0.326	0.33
Central-South	<u>1.261</u>	<u>2.832</u>	<u>3.385</u>	<u>4.16</u>
Northwest	<u>4.207</u>	<u>4.942</u>	<u>5.687</u>	<u>6.06</u>
Southwest	<u>0.081</u>	<u>0.094</u>	<u>0.104</u>	<u>0.10</u>
<u>Total</u>	<u>93.638</u>	<u>104.049</u>	<u>106.149</u>	<u>105.94</u>

Source: Ministry of Petroleum.

Table 8.3: ELECTRICITY GENERATION AND INSTALLED GENERATING CAPACITY, 1949-80

Year	Total generation (GWh)	Installed capacity (MW)
1949	4,310	1,848.6
1952	7,260	1,964.0
1957	19,340	4,635.0
1962	45,800	13,037.2
1965	67,600	15,076.3
1970	115,860	23,770.0
1971	138,360	26,282.0
1972	152,450	29,501.0
1973	166,760	33,925.0
1974	168,850	38,108.0
1975	195,840	43,406.0
1976	203,130	47,147.4
1977	223,400	51,450.5
1978	256,550	57,122.1
1979	281,950	63,015.9
1980	300,627	n.a.

Source: Ministry of Electric Power.

Table 8.4: HYDRO AND THERMAL INSTALLED CAPACITY BY REGION, 1970-79
(MW)

Year	Type	North East	North	North West	East	Central South	Southwest	Total
1970	Hydro	1,308	254	912	1,328	1,764	669	6,235
	Thermal	3,820	3,373	1,509	4,304	2,406	2,085	17,535
	Total	5,128	3,627	2,421	5,632	4,170	2,754	23,770
1971	Hydro	1,324	288	981	1,591	2,250	1,370	7,804
	Thermal	3,986	3,489	1,625	4,748	2,473	2,151	18,478
	Total	5,310	3,777	2,606	6,339	4,723	3,521	26,282
1972	Hydro	1,335	272	1,231	1,718	2,640	1,499	8,700
	Thermal	4,328	3,836	1,726	5,580	3,016	2,296	20,801
	Total	5,663	4,113	2,957	7,298	5,656	3,795	29,501
1973	Hydro	1,407	308	1,621	1,893	3,243	1,827	10,299
	Thermal	4,611	4,621	1,928	6,655	3,363	2,431	23,626
	Total	6,018	4,929	3,549	8,548	6,606	4,258	33,925
1974	Hydro	1,456	339	1,964	2,198	3,872	1,988	11,817
	Thermal	5,113	5,310	2,120	7,577	3,560	2,583	26,291
	Total	6,569	5,649	4,084	9,775	7,432	4,571	38,108
1975	Hydro	1,564	397	2,290	2,681	4,315	2,181	13,428
	Thermal	6,036	6,026	2,274	8,516	4,484	2,608	29,978
	Total	7,600	6,423	4,564	11,197	8,799	4,789	43,406
1976	Hydro	1,574	428	2,543	2,846	4,787	2,477	14,655
	Thermal	6,676	6,252	2,434	9,438	4,950	2,720	32,492
	Total	8,251	6,680	4,977	12,284	9,737	5,197	47,147
1977	Hydro	1,619	517	2,666	3,097	5,071	2,795	15,765
	Thermal	7,253	7,182	2,504	10,327	5,560	2,848	35,686
	Total	8,872	7,699	5,170	13,424	10,631	5,644	51,451
1978	Hydro	1,658	573	2,833	3,341	5,841	3,032	17,277
	Thermal	8,008	8,123	2,596	11,299	6,735	3,038	39,845
	Total	9,666	8,696	5,428	14,640	12,576	6,070	57,122
1979	Hydro	1,713	597	2,933	3,784	6,528	3,556	19,110
	Thermal	7,919	9,582	2,936	12,688	7,517	3,210	43,906
	Total	9,632	10,179	5,869	16,472	14,045	6,766	63,016

Source: Ministry of Electric Power.

Table 8.5: ELECTRICITY SALES BY CONSUMER CATEGORY, 1949-79

Year	Energy sales (GWh) /a (% figures in parentheses)					Total
	Residential & commercial /b	Industrial /c	Agricultural /d	Transportation	Others	
1949	490(14.2)	2,390(69.0)	20 (0.6)	20 (0.6)	540(15.6)	3,460(100)
1952	817(13.1)	4,981(80.0)	43 (0.7)	59 (0.9)	327 (5.2)	6,227(100)
1957	1,975(11.9)	13,605(82.9)	108 (0.7)	70 (0.4)	649 (4.0)	16,407(100)
1965	3,839 (6.8)	47,723(84.0)	3,710 (6.5)	332 (0.6)	1,198 (2.1)	56,802(100)
1970	- -	- -	- -	- -	- -	- -
1971	4,558 (4.5)	84,203(83.2)	10,433(10.3)	452 (0.4)	1,628 (1.6)	101,274(100)
1972	5,305 (4.3)	101,784(82.3)	12,989(10.5)	707 (0.6)	2,815 (2.3)	123,600(100)
1973	5,830 (4.3)	110,194(81.6)	15,823(11.7)	1,126 (0.8)	2,133 (1.6)	135,106(100)
1974	6,453 (4.7)	107,860(79.5)	17,982(13.3)	1,171 (0.9)	2,242 (1.6)	135,708(100)
1975	7,150 (4.6)	124,782(79.5)	20,877(13.3)	1,435 (0.9)	2,725 (1.7)	156,969(100)
1976	7,721 (4.7)	128,966(78.3)	23,154(14.1)	1,846 (1.1)	3,011 (1.8)	164,698(100)
1977	8,498 (4.7)	142,691(78.5)	24,834(13.7)	2,104 (1.2)	3,564 (1.9)	181,691(100)
1978	8,967 (4.3)	166,087(79.0)	28,742(13.5)	2,280 (1.2)	4,163 (2.0)	210,239(100)
1979	11,252 (4.8)	184,636(79.0)/e	32,493(13.9)	1,323 (0.6)	3,873 (1.7)	233,577(100)

/a Excludes self-generation by industries and mini-hydro owned by communes and brigades.

/b Urban areas only.

/c For details of industrial electricity use, see Table 7.4.

/d Includes rural residential and commercial use.

/e Of which: 35,057 GWh to light industries and 149,579 GWh to heavy industries.

Source: Ministry of Electric Power.

Table 8.6: ELECTRIFICATION OF COMMUNES AND BRIGADES BY REGION, 1979

Region	% of communes electrified	% of brigades electrified
Northeast	98.2	94.5
North	88.0	78.3
Northwest	70.0	47.8
East	90.2	60.7
Central and South	93.3	64.1
Southwest	82.6	46.9
<u>National</u>	<u>87.1</u>	<u>62.6</u>

Source: Ministry of Electric Power.

Table 9.1: TRANSPORTATION INDICATORS, 1949-80

Item	Unit	1949	1952	1957	1977	1978	1979	1980
Railway line open to traffic	thousand km	22.0	24.5	29.9	49.5	50.4	51.5	n.a.
Highway open to traffic	"	80.7	126.7	254.6	855.6	890.0	n.a.	n.a.
Navigable inland waterway	"	73.6	95.0	144.1	137.4	136.0	n.a.	n.a.
Civil aviation routes	"	11.4/a	13.1	26.4	132.1	148.9	160.0	n.a.
Total Volume of goods transport	1000 million ton-km	25.5	76.2	181.0	795.8	980.6	1,089.7	1,202.6
Railway freight transport	"	18.4	60.2	134.6	455.7	533.3	558.8	571.7
Highway freight transport (handled by transport departments) /b	"	0.8	1.4	4.8	25.1	23.4	26.8	76.4/c
Water cargo transport	"	6.3	14.6	41.6	276.2	377.9	456.4	505.3
Air freight shipment	"	0.02	n.a.	0.01	0.08	0.10	0.12	0.14
Oil and gas carried through pipelines	"				38.7	41.9	47.6	49.1
Cargo handled at major sea ports	million ton	8.72	14.40	37.27	159.69	198.34	212.57	217.31
Volume of Passenger Transport	1000 million person-km	15.5	24.84	49.63	158.38	174.06	196.6	228.1
By railway	"	13.00	20.10	36.10	37.37	102.00	109.10	138.3
By highway (handled by transport departments) /b	"	0.80	2.26	8.81	44.80	52.11	60.3	72.9
By waterway	"	1.52	2.45	4.64	9.75	10.06	11.4	12.9
By air	"	0.19	0.024	0.08	1.85	2.79	3.5	4.0

/a Figure for 1950.

/b i.e. excludes freight and passenger traffic by enterprise-owned vehicles and by traditional means, including hand tractors.

/c This figure, from the SSB's April 1981 Communique on Fulfillment of the 1980 National Economic Plan, is consistent with the total for goods transport, but is not consistent with the stated 1979/80 increase of 2.6% for highway freight transport.

Source: State Statistical Bureau.

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Table 9.2: RAILWAYS: SELECTED OPERATIONAL STATISTICS, 1970-79

	1970	1975	1976	1977	1978	1979
A. System (at end of year)						
1. Route length (km)	40,161	45,170	n.a.	n.a.	n.a.	49,808.0
(a) Standard gauge (1.435 m)	n.a.	n.a.	n.a.	n.a.	n.a.	49,034.0
(b) Narrow gauge (1 m and 0.6 m)	n.a.	n.a.	n.a.	n.a.	n.a.	769.2
(c) Wide gauge	n.a.	n.a.	n.a.	n.a.	n.a.	4.8
(d) Double track	n.a.	n.a.	n.a.	n.a.	n.a.	7,899.8
(e) Electrified	n.a.	n.a.	n.a.	n.a.	n.a.	1,031.0
B. Staff (at end of year)						
1. Number of employees ('000)	n.a.	2,222	2,300	2,345	2,542	2,565
C. Rolling Stock /a						
1. Passenger cars, includ- ing railcar trailers						
(a) In fleet, total number	n.a.	n.a.	n.a.	n.a.	n.a.	15,000
2. Freight cars						
(a) In fleet, total number ('000)	n.a.	237	n.a.	n.a.	n.a.	259.0
- Box cars	n.a.	n.a.	n.a.	n.a.	n.a.	40.0
- Gondolas	n.a.	n.a.	n.a.	n.a.	n.a.	159.0
- Flat cars	n.a.	n.a.	n.a.	n.a.	n.a.	20.0
- Tank cars	n.a.	n.a.	n.a.	n.a.	n.a.	33.0
- Refrigerated	n.a.	n.a.	n.a.	n.a.	n.a.	2.4
- Others	n.a.	n.a.	n.a.	n.a.	n.a.	3.9
(b) Available, %	96.6	94.8	n.a.	n.a.	n.a.	97.1
D. Traffic						
1. Passenger traffic						
(a) Number of passengers total (million)	n.a.	696.5	704.9	786.6	807.3	856.1

	1970	1975	1976	1977	1978	1979
- Suburban services	n.a.	162.6	167.7	186.2	190.0	194.6
- Other	n.a.	533.9	537.2	600.4	617.3	661.5
(b) Passenger-km (million)	n.a.	95,259	95,470	102,015	109,081	121,373
- Suburban services	n.a.	3,642	3,843	4,300	4,406	4,577
- Other	n.a.	91,617	91,627	97,715	104,675	116,796
(c) Average journey, total (km)	n.a.	137	135	130	135	142
- Suburban services	n.a.	22	23	23	23	24
- Other	n.a.	172	171	163	170	177
2. Freight traffic						
(a) Net tons (million)	665.5	867.5	821.2	927.1	1,074.9	1,095.0
(b) Net ton-km (billion)	349.4	424.6	386.1	455.7	533.3	558.9
(c) Average freight haul (km)	525	489	470	492	496	510
3. Traffic units (billion) ton-km & pass.-km	n.a.	519.9	481.5	557.7	642.4	680.2
4. Traffic density						
(a) Passenger-km per route km (million)	n.a.	1.91*	1.92*	2.05*	2.19*	2.44*
(b) Freight net ton-km per route km (million)	8.7	9.4	8.4*	9.7*	10.7*	11.8
(c) Traffic units per route km ('000)	n.a.	10.43*	9.67*	11.20*	12.90*	13.66*
E. Operations						
1. Total locomotive-km (million km)	n.a.	741.19	716.25	787.29	883.83	918.14
(a) According to types of train:						
- Passenger (incl. railcars)	n.a.	169.85	180.88	185.22	203.75	215.24
- Freight	n.a.	558.39	523.47	589.37	668.14	691.06
(b) According to types of traction:						
- Steam locomotive	n.a.	609.46	578.95	621.99	676.55	689.70
- Diesel locomotive	n.a.	121.31	126.97	152.52	192.77	214.00
- Electric locomotive	n.a.	10.42	10.33	12.78	14.51	14.44
2. Main loco-km (train-km) (million km)	n.a.	520.02	499.33	554.05	629.06	653.93
(a) Steam locomotives	n.a.	425.77	397.56	430.96	472.45	482.49
(b) Diesel locomotives	n.a.	85.53	93.14	112.35	144.43	159.36

	1970	1975	1976	1977	1978	1979
(c) Electric locomotives	n.a.	8.72	8.63	10.74	12.18	12.08
3. Rolling stock-km (million)						
(a) Freight cars, total	n.a.	13,299	12,019	13,801	15,926	16,649
- Loaded	n.a.	10,262	9,316	10,764	12,396	12,907
- Empty /b	n.a.	3,037	2,703	3,037	3,530	3,742
4. Loaded freight cars forwarded per day	n.a.	51,789	48,541	54,234	62,234	62,789
5. Average freight car turnaround time (days)	3.21	3.46	3.62	3.35	2.99	3.0
6. Average freight car turnaround distance (km)	n.a.	686	660	681	687	711
F. Performance Indicators						
1. Passenger traffic						
(a) Average number of passengers per passenger train	n.a.	604	608	632	610	642
2. Freight traffic						
(a) Average number of freight cars per freight trains	n.a.	35.7	35.1	35.1	35.3	35.8
- Loaded	n.a.	27.6	27.2	27.4	27.5	27.8
- Empty	n.a.	8.1	7.9	7.7	7.8	8.0
(b) Average freight train load (net tons)	n.a.	1,139	1,126	1,159	1,182	1,200
Average gross weight tons	1,953	2,012	n.a.	n.a.	n.a.	2,059
(c) Average load per loaded freight car (net tons)	42.5	45.4	45.8	46.4	46.9	47.4
(d) Average speed of freight trains (km/h)	30.3*	28.5*	n.a.	n.a.	n.a.	28.6*
3. Staff						
(a) Average number of employees per operational km	n.a.	28.2	29.4	30.5	32.8	32.2
4. Rolling stock						
(a) Availability (%)						
- Steam locomotives	n.a.	n.a.	n.a.	n.a.	n.a.	93

	1970	1975	1976	1977	1978	1979
- Diesel locomotives, main line	n.a.	n.a.	n.a.	n.a.	n.a.	84
- Electric locomotives	n.a.	n.a.	n.a.	n.a.	n.a.	95
- Freight cars	n.a.	n.a.	n.a.	n.a.	n.a.	97
(b) Yearly distance covered per available unit ('000 km)						
- Diesel locomotives, main line	n.a.	147	150	152	167	169
- Electric locomotives, main line	n.a.	158	160	155	160	165
- Steam locomotives	n.a.	122	119	122	127	129
(c) Net ton-km per available freight car (million)	n.a.	2.31	2.14	2.45	2.80	2.89

* Mission estimates.

/a Number in fleet is average of number at beginning and end of year. Available number is average number during year.

/b Including cabooses.

Source: Ministry of Railways.

Table 10.1: LABOR FORCE AND EMPLOYMENT, 1952-80
(millions)

	1952	1957	1965	1970	1977	1978	1979	1980
<u>Total Labour Force /a</u>	207.29	237.71	286.70	344.32	393.77	398.56	405.80	n.a.
<u>Employment by Economic Sector</u>								
Agriculture /b	173.17	193.10	233.98	278.14	293.45	294.26	299.34	n.a.
Industry /c	12.46	14.01	18.28	28.09	48.09	50.09	53.40	n.a.
Other, of which /a, /d	21.66	30.60	34.44	38.09	52.23	54.21	53.06	n.a.
Construction, transport, commerce /a, /d	n.a.	n.a.	n.a.	n.a.	n.a.	26.01	23.26	n.a.
Nonmaterial services	n.a.	n.a.	n.a.	n.a.	n.a.	28.20	29.80	n.a.
<u>Employment by Institutional Sector</u>								
Workers and staff, of which	16.03	31.01	49.65	62.16	91.12	94.99	99.67	104.44
State organizations /b	15.80	24.51	37.38	47.92	71.96	74.51	76.93	80.19
Urban collectives	0.23	6.50	12.27	14.24	19.16	20.48	22.74	24.25
Commune workers	-	-	235.34	281.20	302.50	303.42	305.82	n.a.
Urban self-employed	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0.31	0.81

/a Includes those awaiting permanent jobs, most of whom are in temporary jobs.

/b Includes state farms.

/c Includes commune but not brigade industry. Industry defined as mining, manufacturing and power.

/d Derived residually.

Source: State Statistical Bureau.

Table 10.2: WAGES OF STAFF AND WORKERS, 1952-80

	1952	1957	1965	1970	1975	1977	1978	1979	1980
Total wage bill (billion yuan)	n.a.	n.a.	n.a.	n.a.	n.a.	51.47	56.92	64.66	77.30
State-owned enter- prises	(6.75)	(16.64)	(23.50)	(27.80)	(36.60)	(42.57)	(46.90)	(52.94)	(62.80)
Urban collectives	n.a.	n.a.	n.a.	n.a.	n.a.	(8.90)	(10.02)	(11.72)	(14.50)
Average wage in state- owned enterprises (yuan)	446	637	652	609	613	602	644	705	803

Source: State Statistical Bureau.

Table 10.3: EMPLOYMENT AND WAGES BY BRANCH OF
(STATE-OWNED) INDUSTRY, 1977-79/a

	Number of workers and staff /b			Wage bill of workers and staff		
	1977 --- ('000 persons) ---	1978	1979	1977 ----- ('000 yuan) -----	1978	1979
Basic metallurgy	3,017	3,068	3,012	1,960,630	2,199,870	2,454,950
Electric power	701	742	786	429,480	491,070	577,560
Coal	3,653	3,728	3,770	2,684,400	3,024,320	3,422,890
Petroleum	480	485	478	327,470	371,510	413,040
Chemicals	2,765	2,825	2,815	1,598,100	1,751,550	1,965,300
Machinery and metal products	9,107	9,247	9,175	5,601,000	6,174,820	6,723,450
Building materials	1,836	1,848	1,857	1,088,090	1,184,450	1,308,910
Timber and wood products	1,215	1,181	1,200	937,750	956,560	1,039,190
Food, beverages and tobacco	1,970	1,937	2,006	1,085,650	1,166,100	1,329,860
Textiles	2,576	2,651	2,740	1,559,720	1,726,060	1,981,750
Paper & pulp	382	389	410	229,010	252,520	296,350
Others	1,864	1,770	2,132	1,198,500	1,105,740	1,505,660
<u>Total</u>	<u>29,566</u>	<u>29,868</u>	<u>30,381</u>	<u>18,702,800</u>	<u>20,404,570</u>	<u>23,018,910</u>

/a State-owned units only. Excludes urban and rural collectives (see Table 7.4). See Table 7.2 for more details of sectoral classification.

/b Average number during year.

Source: Data provided by Chinese authorities to UN Statistical Office.

Table 11.1: NUMBER OF PUPILS ENROLLED, 1949-80 /a
(millions)

Year	Primary	Secondary	Tertiary	Total
1949	24.39	1.27	0.117	25.78
1950	28.92	1.57	0.137	30.63
1951	43.15	1.96	0.153	45.26
1952	51.10	3.15	0.191	54.44
1953	51.66	3.63	0.212	55.50
1954	51.22	4.25	0.253	55.72
1955	53.13	4.47	0.288	57.89
1956	63.47	6.01	0.403	69.88
1957	64.28	7.08	0.441	71.80
1958	86.40	12.00	0.660	99.06
1959	91.18	12.90	0.812	104.89
1960	93.79	14.87	0.962	109.62
1961	75.79	10.34	0.947	87.08
1962	69.24	8.34	0.830	78.41
1963	71.58	8.38	0.750	80.71
1964	92.95	10.20	0.685	103.84
1965	116.21	14.32	0.674	131.20
1966	103.42	12.97	0.534	116.92
1967	102.44	12.55	0.409	115.40
1968	100.36	14.05	0.259	114.67
1969	100.67	20.25	0.109	121.03
1970	105.28	26.48	0.048	131.81
1971	112.11	31.49	0.083	143.68
1972	125.49	36.17	0.194	161.85
1973	135.70	34.95	0.314	170.96
1974	144.81	37.14	0.430	182.38
1975	150.94	45.37	0.501	196.81
1976	150.06	59.06	0.565	209.69
1977	146.18	68.49	0.625	215.30
1978	146.24	66.37	0.856	213.47
1979	146.63	60.25	1.020	207.90
1980	146.27	56.78	1.144	204.19

/a Excludes, for example, TV university, factory-run and spare-time education, adult education, etc. See Annex I for further information.

Source: Ministry of Education.

Table 11.2: TECHNICAL SECONDARY AND POST-SECONDARY EDUCATION, 1979

	Industry	Agriculture	Forestry	Medical Health	Economics Business	Physical Cultural	Arts	Others	Total
Schools	627	337	35	543	297	23	70	48	1,980
Students									
Students (mln.)	0.243	0.110	0.011	0.210	0.105	0.005	0.012	0.016	0.714
Graduates (mln.)	0.024	0.011	0.002	0.025	0.013	0.001	0.002	0.001	0.079
Teachers (full-time equivalent) (million)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0.079
Students/school	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	360
Students/teacher	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	9.1
<u>Skilled Worker Training Schools</u> (at senior secondary and post-secondary levels)									
Students (mln)			0.640						
Schools			3,000		Students/school	210			
Teachers (full-time equivalent) (mln)			0.055		Students/teacher	11.6			

Source: Ministry of Education.

Table 11.3: HIGHER EDUCATION INSTITUTIONS AND STUDENTS BY CLASSIFICATION AND PROVINCE, 1979

	Number of institutions							Number of students						
	Total	Compre- hensive univ.	Inst. of & engin.	Inst. of agr. & forestry	Inst. of teacher training	Inst. of med. & pharmacy	Others	Total	Compre- hensive univ.	Inst. of & engin.	Inst. of agr. & forestry	Inst. of teacher training	Inst. of med. & pharmacy	Others
Sichuan	42	1	12	5	12	5	7	69,055	5,216	24,598	5,118	20,778	8,219	5,126
Guizhou	14	1	1	1	6	3	2	18,244	1,767	2,235	1,601	8,367	3,750	524
Yunnan	15	1	2	2	7	2	1	18,979	2,874	4,108	915	7,993	2,213	876
Xizang	4	-	-	1	1	1	1	1,480	-	-	591	441	133	315
Shaanxi	28	2	13	1	5	3	4	43,392	3,392	22,592	1,974	8,181	2,206	5,047
Gansu	12	1	2	1	5	2	1	15,563	2,721	3,725	1,225	5,651	1,241	1,000
Qinghai	6	-	1	1	2	1	1	3,736	-	479	84	1,641	684	848
Ningxia	4	1	-	1	1	1	-	3,630	1,350	-	841	697	742	-
Xinjiang	10	1	1	3	3	2	-	11,666	2,699	1,190	2,865	2,326	2,167	419
Henan	24	1	5	4	8	5	1	33,804	2,603	5,853	3,733	15,843	5,254	518
Hubei	33	1	13	1	9	6	3	60,200	4,062	24,304	3,553	15,400	9,672	3,209
Hunan	22	2	6	2	8	3	1	42,912	2,500	14,129	4,356	14,721	5,328	1,878
Guangxi	17	1	4	1	5	4	2	21,213	2,687	1,137	2,162	10,021	3,506	1,700
Guangdong	29	2	3	4	8	7	5	42,382	5,411	9,132	6,255	12,003	7,081	2,500
Shanghai	27	1	15	-	2	3	6	67,404	5,520	38,979	472	11,267	5,798	5,368
Jiangsu	36	1	15	3	8	8	1	73,943	4,855	26,981	2,902	26,628	11,868	709
Zhejiang	19	1	3	3	7	3	2	32,227	3,784	8,929	3,289	11,693	3,768	764
Anhui	20	2	6	1	6	4	1	33,290	3,533	10,095	2,295	12,973	3,968	426
Fujian	16	1	4	3	5	2	1	40,555	4,155	7,118	4,528	20,759	3,092	903
Jiangxi	17	1	6	1	5	3	1	29,139	2,195	7,206	2,149	11,405	5,320	864
Shandong	34	1	11	2	10	7	3	44,771	3,376	12,917	3,515	17,446	7,297	220
Beijing	48	2	14	4	3	4	21	72,991	12,061	33,279	2,528	7,999	5,294	11,830
Tianjin	14	1	4	-	2	3	4	28,197	4,571	14,425	292	3,877	2,139	2,893
Hebei	27	1	10	3	8	4	1	35,952	2,333	11,251	4,293	13,150	4,734	191
Shanxi	16	1	5	1	5	3	1	25,308	3,185	7,334	2,246	7,898	3,268	1,377
Nei Monggol	13	1	2	3	4	3	-	15,674	1,289	2,309	1,549	8,107	2,204	216
Liaoning	34	1	15	2	5	6	5	58,007	2,965	32,582	2,569	10,429	5,876	3,586
Jilin	25	2	8	4	5	4	2	35,670	5,977	10,661	2,446	10,948	4,721	917
Heilongjiang	27	1	10	3	6	5	2	40,566	2,187	15,992	4,276	11,532	5,090	1,489
Total	633	33	191	61	161	107	80	1,019,950	99,268	353,540	74,622	310,174	126,633	55,713

Source: Ministry of Education.

Table 11.4: NUMBER OF GRADUATES FROM HIGHER EDUCATION BY DISCIPLINE,
1978 AND 1979

Classification	1978	1979
Engineering	56,512	21,362
Agriculture	13,929	9,748
Forestry	2,605	1,281
Medicine and pharmacy	27,459	13,483
Teacher training	35,430	24,331
Liberal arts	11,808	5,421
Science	12,743	5,682
Finance and economics	1,627	1,904
Politics and law	99	-
Physical culture	1,256	1,498
Arts	1,113	375
<u>Total</u>	<u>164,581</u>	<u>85,085</u>

Source: Ministry of Education.

Table 11.5: MAJOR ITEMS OF MINISTRY OF EDUCATION EXPENDITURE, 1979
(Y million)

	Total expen- ditures	Salaries	Subsidies	Staff benefits	Student subsidies	Utilities & others	Consum- able instr. matl.	Eqpt.	Maint. of bldgs.
Higher education	1,580	390	30	25	144	184	180	418	166
Normal schools	240	43	6	3	78	26	9	27	44
Secondary schools	2,390	1,210	171	76	88	244	51	168	351
Primary schools	1,950	1,172	205	98	6	123	18	56	237
Subsidies to commune-run secondary schools and primary schools	840	-	-	-	-	-	-	-	-
<u>Total</u>	<u>7,000</u>	<u>2,815</u>	<u>412</u>	<u>202</u>	<u>316</u>	<u>577</u>	<u>258</u>	<u>669</u>	<u>798</u>

Source: Ministry of Education.

Table 12.1: HEALTH SERVICE INDICATORS, 1949-80

	1949	1952	1957	1965	1970	1975	1977	1978	1979	1980
Health										
Hospital beds ('000)	80	160	295	766	1,105	1,598	1,777	1,856	1,932	1,982
Professional medical workers ('000)	505	690	1,039	1,532	1,453	2,057	2,341	2,464	2,642	2,798
Of which:										
Doctors - Traditional medicine ('000)	(276)	(306)	(337)	(321)	(225)	(229)	(240)	(251)	(258)	(262)
Senior doctors - Western ('000)	(38)	(52)	(74)	(189)	(221)	(293)	(329)	(359)	(395)	(447)
Junior doctors - Western ('000)	(49)	(66)	(136)	(253)	(256)	(356)	(409)	(423)	(435)	(444)
Nurses ('000)	(33)	(61)	(128)	(235)	(295)	(379)	(405)	(407)	(421)	(466)
Barefoot doctors ('000)	-	-	-	94	1,218	1,559	1,760	1,666	1,575	n.a.

Source: State Statistical Bureau.

Table 12.2: NUMBERS OF HOSPITALS AND BEDS BY PROVINCE, 1979

Region	Total			Comprehensive hospitals		Chinese hospitals		Hospitals attached to medical schools		Hospitals for mental diseases		Hospitals for tuberculosis		Commune clinics		Other hospitals /b	
	No. of hospitals	No. of beds	Population per bed /a	No. of hospitals	No. of beds	No. of hospitals	No. of beds	No. of hospitals	No. of beds	No. of hospitals	No. of beds	No. of hospitals	No. of beds	No. of hospitals	No. of beds	No. of hospitals	No. of beds
NATIONAL TOTAL	65,009	1,932,083	503	7,737	907,998	582	42,861	140	59,775	254	46,918	111	25,744	55,263	771,231	922	77,556
Southwest Region																	
Sichuan	10,375	175,577	557	667	71,458	52	3,051	10	3,780	14	2,558	2	300	9,568	90,264	62	4,166
Guizhou	4,516	40,001	683	208	19,642	6	403	3	1,482	1	260	1	300	4,283	16,918	14	996
Yunnan	1,859	58,505	536	348	33,557	6	339	3	1,100	2	350	1	200	1,482	21,026	15	1,933
Xizang	528	4,125	463	93	3,332	1	30	-	-	-	-	-	-	433	403	1	360
Northwest Region																	
Shaanxi	3,078	53,220	527	288	29,457	21	1,092	3	1,870	1	250	2	650	2,752	17,698	11	2,203
Gansu	1,626	33,531	565	234	21,143	3	309	2	1,180	1	217	1	118	1,375	8,917	10	1,647
Qinghai	506	10,666	349	93	7,691	1	273	1	670	1	-	-	-	403	1,307	7	725
Ningxia	302	7,110	512	56	4,553	1	152	1	430	1	130	-	-	243	1,845	-	-
Xinjiang Uygur	817	42,301	297	195	24,343	4	650	3	1,860	2	300	3	370	607	14,358	3	420
Central South Region																	
Henan	2,501	106,293	676	338	46,950	24	1,957	5	1,630	11	2,075	2	490	2,075	49,771	46	3,420
Hubei	1,809	108,859	426	315	43,936	23	1,425	7	3,284	9	1,580	6	1,039	1,375	55,018	74	2,577
Hunan	4,387	115,565	452	390	44,518	95	7,723	5	2,182	24	2,423	2	480	3,832	55,400	39	2,839
Guangxi	1,217	45,358	765	157	22,030	17	823	4	1,362	6	715	1	250	1,017	16,908	15	3,270
Guangdong	2,442	103,793	547	389	46,214	36	2,703	11	3,479	12	2,712	4	808	1,925	42,009	65	5,868
East Region																	
Shanghai	394	47,774	237	111	24,071	2	135	13	6,253	13	3,031	5	1,516	201	7,454	49	5,314
Jiangsu	2,453	114,004	517	243	36,496	45	3,453	7	2,677	30	3,505	5	795	2,050	60,515	73	6,563
Zhejiang	3,535	59,892	633	154	25,083	24	1,570	5	1,830	11	1,708	1	87	3,303	25,927	37	3,687
Anhu	3,039	72,786	660	214	29,907	11	841	4	1,856	6	1,360	-	-	2,791	37,693	13	1,129
Fujian	1,117	45,821	543	145	21,629	15	1,950	2	410	6	1,153	1	500	918	18,845	30	1,334
Jiangxi	2,157	67,398	479	388	35,484	32	1,505	4	1,356	7	1,484	-	-	1,704	25,414	22	2,155
Shandong	2,541	115,501	626	390	48,357	19	2,084	6	2,091	21	3,262	16	2,396	2,060	54,001	29	3,310
North Region																	
Beijing	387	26,788	325	82	13,523	6	745	8	3,630	3	2,674	2	853	263	2,696	23	2,667
Tienjin	327	17,929	413	55	10,100	2	318	3	1,259	1	785	2	750	213	2,086	51	2,631
Hebei	4,343	86,990	587	421	44,816	8	840	6	2,801	9	1,312	4	648	3,871	34,606	24	1,967
Shanxi	2,330	66,519	368	359	35,366	10	659	2	961	7	1,110	1	150	1,904	25,830	47	2,443
Nei Monggol	1,743	46,495	398	278	23,712	25	1,250	3	978	8	780	6	1,120	1,400	17,862	23	793
Northeast Region																	
Liaoning	1,686	107,696	320	360	54,598	27	2,500	6	3,130	24	5,412	18	6,300	1,186	28,698	65	7,058
Jilin	1,233	59,687	366	231	29,095	24	1,435	7	3,018	11	2,351	9	1,884	926	18,868	25	3,036
Heilongjiang	1,761	91,899	345	535	56,937	42	2,646	6	3,216	12	3,421	16	3,740	1,103	18,894	47	3,045

/a These figures were computed using the 1979 end-of-year provincial population totals provided by the State Statistical Bureau.

/b This heading includes hospitals for infectious diseases (116 with 17,650 beds), hospitals for maternal and child health (128 with 10,309 beds), and children's hospitals (24 with 4,956 beds).

Source: Ministry of Public Health.

Table 12.3: MISCELLANEOUS SOCIOECONOMIC INDICATORS, 1949-80

	Unit	1949	1952	1957	1977	1978	1979	1980
Electricity consumed by rural areas	('000 mln. kWh)	-	0.05	0.14	22.2	25.3	28.3	32.1
Post & telecommunication transactions (at constant prices of 1970)	(mln. yuan)	97	164	294	1,114	1,165	1,255	1,334
Total number of tourists coming to China	(thousands)	-	-	-	-	1,883	4,204	5,700
Feature films produced	(number)	6	4	40	-	46	65	82
Film projection units	(thousands)	0.6	2.3	10.0	-	115.9	122	125
Performing art troupes	(number)	1,000	-	2,884	-	3,143	3,482	3,533
Cultural centers	(number)	896	2,448	2,748	-	2,733	2,892	2,912
Public libraries	(number)	55	83	400	-	1,256	1,651	1,732
Broadcasting stations	(number)	43	-	-	-	93	99	106
Television centers	(number)	-	-	-	-	32	38	38
Books produced	(mln copies)	105	786	1,275	3,308	3,770	4,070	4,590
Magazines	(mln copies)	20	204	315	559	762	1,180	1,120
Newspapers (national & provincial only)	('000 mln. copies)	0.41	1.38	2.04	10.54	10.95	13.08	14.04

Source: State Statistical Bureau.

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Kenya: Population and Development

Rashid Faruqee, chief of mission, and others

States that fertility in Kenya is high, appears to be increasing, and shows considerable variation by region, tribal group, and socioeconomic status. Recognizes that rapid population growth is resulting in the need

for increased public expenditure for basic needs services, such as education, health, water, and housing. Argues that a rapid decline in fertility will facilitate the implementation of the government's commitment to the provision of basic needs, but that the satisfaction of basic needs, such as education, is an important instrument for securing lower fertility. Explores the socioeconomic determinants of fertility, the current status of the country's family planning program, the social status of women and fertility, and makes recommendations for a comprehensive population policy.

July 1980. xiii + 213 pages (including bibliography).

Stock No. RC-8010. \$10.00 paperback.

Korea: Policy Issues for Long-Term Development

Parvez Hasan and D. C. Rao

Can Korea's growth rate continue with greater considerations of equity, structural changes to maintain the comparative advantages of Korean exports, and new roles for government in response to changing domestic and external conditions?

The Johns Hopkins University Press, 1979. 558 pages (including map, appendixes, index).

LC 78-21399. ISBN 0-8018-2228-9, \$35.00 (£22.75) hardcover; ISBN 0-8018-2229-7, \$15.00 (£7.75) paperback.

Korea: Problems and Issues in a Rapidly Growing Economy

Parvez Hasan

Analyzes the phenomenal economic progress made by Korea since the early 1960s.

The Johns Hopkins University Press, 1976. 292 pages (including map, 5 appendixes, statistical appendix, index).

LC 76-17238. ISBN 0-8018-1864-8, \$20.00 (£12.00) hardcover.

Madagascar: Recent Economic Development and Future Prospects

P.C. Joshi, mission chief, and others

Examines, in the light of recent economic developments and the government's objectives, the strategy

underlying both the 1978–80 Development Plan and those plans to be implemented subsequently. Points out that the overall performance of the economy has been disappointing in recent years, but that the government has been able to focus on certain important social objectives: the satisfaction of basic needs, reduction of urban-rural income disparities, and the protection of living standards of low-income urban groups. Proposes a policy framework characterized by increased reliance on external assistance, vigorous export promotion, and a general relaxation of economic controls, and considers the feasibility and appropriateness of this strategy in relation to the resources of the economy and long-term development goals of the country.

November 1980. iii + 304 pages (including 6 annexes, 4 appendixes). English and French.

Stock Nos. RC-8013-E, RC-8013-F. \$15.00 paperback.

Malaysia: Growth and Equity in a Multiracial Society

Kevin Young, Willem Bussink, and Parvez Hasan

Rapid growth is essential to achieving Malaysia's economic and social objectives; favorable resource prospects are conducive to such growth.

The Johns Hopkins University Press, 1980. 364 pages (including appendixes, index).

LC 79-3677. ISBN 0-8018-2384-6, \$25.00 (£17.50) hardcover; ISBN 0-8018-2385-4, \$12.95 (£5.50) paperback.

The Maldives: An Introductory Economic Report

K. Sarwar Lateef, chief of mission, and others

Provides a brief introduction to the Maldives, a nation that is among the twenty poorest countries in the world, and points out that the fisheries sector accounts for 44 percent of employment and nearly all visible export earnings and discusses other important sectors—agriculture, tourism, cottage industries, health, and education. Outlines the development

priorities for the country in the 1980s and the role of external assistance.

December 1980. vi + 172 pages (including 5 annexes, statistical appendix).

Stock No. RC-8014. \$5.00 paperback.

Mexico: Manufacturing Sector Prospects and Policies

Alexander G. Nowicki, chief of mission, and others

Emphasizes three basic objectives for developing the manufacturing industry—rapid and efficient growth of production, management of aspects of the manufacturing sector related to the balance of payments, and the creation of productive jobs for the country's rapidly growing labor force.

March 1979. 174 pages (including 5 annexes).

Stock No. RC-7905. \$5.00 paperback.

NEW

Morocco: Economic and Social Development Report

Christian Merat, coordinating author, and others

This study examines the growth and structural changes the Moroccan economy has experienced during the ten-year period, 1968–77. It seeks to determine the results that can be expected from the annual plans of financial adjustment that dominate the period 1978–80 and looks ahead to the overall prospects for the economy during the period 1981–90. Considers growth problems at the sector level and outlines the general employment situation and the social development strategy the country is pursuing.

October 1981. xxxi + 422 pages (including statistical appendix). English and French.

Stock Nos. RC-8103-E, RC-8103-F. \$20.00 paperback.

Nepal: Development Performance and Prospects

Yukon Huang, chief of mission, and others

Reviews Nepal's achievements during the Fifth Development Plan and its strategy options for the Sixth Plan for key sectors such as agriculture,

industry, tourism, energy, and transportation, as well as human resource development.

December 1979. ii, ii, vii + 123 pages (including map, 2 annexes, statistical appendix).

Stock No. RC-7912. \$5.00 paperback.

Nigeria: Options for Long-Term Development

Wouter Tims and others

Examines prospects through the early 1980s, with detailed description of the petroleum industry and brief discussion of education, agriculture, manufacturing, and infrastructure.

The Johns Hopkins University Press, 1974; 2nd printing, 1975. xi + 256 pages (including statistical annex, maps).

LC 73-19354. ISBN 0-8018-1602-5, \$19.00 (£12.25) hardcover; ISBN 0-8018-1603-3, \$6.00 (£4.25) paperback.

Papua New Guinea: Its Economic Situation and Prospects for Development

George B. Baldwin and others

Assesses prospects for increasing economic self-reliance and financial creditworthiness by developing considerable natural resources.

The Johns Hopkins University Press, 1978. xvi + 22 pages (including appendixes, statistical appendix, bibliography).

LC 77-17242. ISBN 0-8018-2091-X, \$6.50 (£4.50) paperback.

NEW

Papua New Guinea: Selected Development Issues

Alice Galenson, chief of mission, and others

This report constitutes part of a continuing dialogue between the World Bank and the Government of Papua New Guinea on a wide range of economic and sector issues. It focuses on a few specific areas that were agreed to be among the most important for the country's development during the 1980s. Points out that the major goal facing the country in the 1980s will be to provide rising incomes for its people and productive livelihood for its growing labor force.

Discusses, in particular, the employment, agriculture, forestry, fisheries, and industry sectors.

1982. 280 pages (including 4 annexes).
Stock No. RC-8201. \$10.00.

Paraguay: Economic Memorandum

Manmohan Agarwal and others

Reviews Paraguay's high economic growth rate generated by expanded agricultural production and the construction of two huge hydroelectric plants. Highlights the need to improve support services in the countryside, promote industrial development, increase expenditures on education, health, and rural development, and improve the tax base.

June 1979. v + 178 pages (including map, annex, statistical appendix).

Stock No. RC-7906. \$5.00 paperback.

Paraguay: Regional Development in Eastern Paraguay

Alfredo Gutierrez, chief of mission, and others

Reviews recent economic developments and provides a framework for policy actions and investment projects designed to make maximum use of development possibilities, and suggests the need to coordinate public-sector activities in a geographic and sectoral dimension to exploit the eastern region's natural resources.

August 1978. viii + 50 pages (including maps, statistical appendix). English and Spanish.

Stock Nos. RC-7802-E, RC-7802-S.
\$3.00 paperback.

Peru: Major Development Policy Issues and Recommendations

Ulrich Thumm, chief of mission, and others

Notes that expansionary monetary and fiscal policies pursued during most of the 1970s led to high public-sector and balance-of-payments deficits and to increased recourse to foreign financing. The situation, exacerbated by a sharp deterioration of the country's terms of trade during 1975-78, culminated in a severe

economic and financial crisis in 1977-78. Examines the stabilization-economic recovery program the government started in 1978 and notes that, in spite of the program's success, the present economic situation remains highly volatile with high inflation, high public-sector deficit, unemployment, stagnating agricultural production, rapid population growth, and widespread poverty. Considers key policy measures that are necessary to provide a solid basis for medium-term and long-term development efforts.

June 1981. vii + 220 pages (including 3 annexes, statistical appendix).

English and Spanish.

Stock Nos. RC-8102-E, RC-8102-S.
\$10.00 paperback.

The Philippines: Aspects of the Financial Sector

Edward K. Hawkins, chief of mission, and others

Focuses on the implications of proposals to move the country's banking system towards more universal banking and suggests ways to mobilize savings to strengthen the financial sector.

A Joint World Bank/IMF Study. May 1980. ix + 99 pages (including map, 3 appendixes).

Stock No. RC-8006. \$5.00 paperback.

Philippines: Industrial Development Strategy and Policies

Barend A. de Vries, chief of mission, and others

Outlines the country's industrial development strategy, its major objectives, and industrial investment priorities and determines that the nontraditional manufactured export drive should continue with increased participation by industries, firms, and regions and that policies for the home industries should be reoriented toward better use of capital and domestic resources and more employment creation.

May 1980. ix + 301 pages (including statistical appendix, 9 annexes).

Stock No. RC-8007. \$15.00 paperback.

The Philippines: Priorities and Prospects for Development

Russell J. Cheetham, Edward K. Hawkins, and others

Assesses the country's long-term prospects for growth and projects possible effects of the government's development strategy on employment and income distribution.

The Johns Hopkins University Press, 1976. 594 pages (including maps, 3 appendixes, statistical appendix, index).

LC 76-17243. ISBN 0-8018-1893-1.
\$8.50 (£6.00) paperback.

Portugal: Agricultural Sector Survey

Jacques Kozub, chief of mission, and others

Analyzes the main issues of agricultural development and identifies investor needs for future World Bank consideration.

November 1978. v + 323 pages (including 2 appendixes, 10 annexes, maps).

Stock No. RC-7803. \$15.00 paperback.

Portugal: Current and Prospective Economic Trends

Basil Kavalsky, chief of mission, and Surendra Agarwal

Discusses Portugal's difficult transition after the revolution of 1974/75 and notes that the country has a sound economic base, but will have to come to terms with the serious unemployment problem, increase investment and output in export-oriented manufacturing, and improve agricultural productivity.

November 1978. vi + 52 pages (including statistical appendix, map).

Stock No. RC-7804. \$3.00 paperback.

Romania: The Industrialization of an Agrarian Economy under Socialist Planning

Andreas C. Tsantis and Roy Pepper

The first comprehensive study of the Romanian economy, the study con-

tains a data base of the economy and describes the planning and management system.

The Johns Hopkins University Press, 1979. 742 pages (including maps, appendixes, bibliography).

LC 79-84315. ISBN 0-8018-2269-6, \$35.00 (£22.75) hardcover; ISBN 0-8018-2262-9, \$15.00 (£7.00) paperback.

Seychelles: Economic Memorandum

Robert Maubouche and Naimah Hadjitarkhani

Traces the development of Seychelles' economy from its primary dependence on the export of copra and cinnamon to a service economy with tourism as its major industry. Concludes that the country's management capability is impressive and its development strategy well designed, but that it is likely to be confronted with financial constraints in the near future, and its investment program will require increased domestic efforts, as well as substantial levels of external capital aid.

July 1980. ii + 71 pages (including statistical appendix).

Stock No. RC-8009. \$3.00 paperback.

The Solomon Islands: An Introductory Economic Report

Edward K. Hawkins, chief of mission, Nizar Jetha, deputy chief, and others

States that the country faces four main development issues: (1) creating sufficient jobs for a fast-growing work force; (2) increasing the opportunities for earning cash incomes in rural areas; (3) balancing regional disparities; and (4) improving educational and training facilities at all levels to raise the supply of administrators, managers, and professionals.

April 1980. viii + 134 pages (including statistical appendix).

Stock No. RC-8004. \$5.00 paperback.

Thailand: Income Growth and Poverty Alleviation

John Shilling, chief of mission, and others

Synthesizes the results of four special studies on poverty-related issues and

discusses some of the determinants of poverty, the impact of socio-economic and political factors on the poor, and the relationship between basic needs and poverty. Formulates guidelines for policies aimed at alleviating poverty and promoting equitable growth. Companion paper to *Thailand: Toward a Development Strategy of Full Participation*, March 1980.

June 1980. viii + 56 pages (including 2 annexes, maps).

Stock No. RC-8011. \$3.00 paperback.

Thailand: Industrial Development Strategy in Thailand

Bela Balassa, chief of mission, and others

Notes that the country had an outstanding economic record during the postwar period, especially between 1960 and 1973, but points out that there is a slowdown in the growth of Thai exports that will have a negative effect on the economy. Examines the prospects for future exports of processed food and manufactured goods and analyzes the country's comparative advantage in these products. Considers the need for the economic evaluation of large government-sponsored projects; examines measures of import protection and export promotion schemes and questions relating to regional development. Provides recommendations for a coherent industrial development strategy for the country that is aimed at increasing industrial employment, expanding small and medium-sized firms, and improving the living standards of the poor.

June 1980. x + 59 pages.

Stock No. RC-8012. \$3.00 paperback.

Thailand: Toward a Development Strategy of Full Participation

E.R. Lim, chief of mission, John Shilling, deputy chief, and others

Shows that rapid and sustained growth has helped a substantial proportion of the population, but that, to a large extent, the rural population has not benefited. Stresses that the country should not follow a type of "trickle down" development strategy, but should focus on raising the productivity and incomes of the poorest farmers. This strategy would be a logical continuation of the economic

change that began in the middle of the 19th century, with development based primarily on indigenous capital and skills and the gradual assimilation of foreign technology.

March 1980. xiv + 232 pages (including statistical appendix).

Stock No. RC-8002. \$10.00 paperback.

Turkey: Policies and Prospects for Growth

Vinod Dubey, mission chief, Shakil Faruqi, deputy mission chief, and others

States that overall economic growth during the 1960s and most of the 1970s was good compared with other developing countries. Concludes, however, that the recent sharp increase in oil prices had an unfavorable impact on the country and that resumption of sustainable growth depends on the adoption of an export-oriented strategy; on policies aimed at increasing domestic savings and at keeping aggregate demand for resources in line with aggregate supply; and on the support for these policies by various donors and the financial community.

March 1980. xxxi + 316 pages (including 6 appendixes, statistical annex).

Stock No. RC-8003. \$15.00 paperback.

NEW

Uganda: Country Economic Memorandum

Mark Baird, mission leader, and others

This is the first economic report prepared by the World Bank on Uganda since 1969. It reviews events prior to the 1978-79 war and developments since the war, including the government's new financial program. Outlines the priority areas for further action and the implications of the balance-of-payments outlook for aid requirements. A more detailed review of the problems and issues in five major sectors—agriculture, industry, transport, energy, and education—is also discussed.

1982. v + 161 pages (including statistical appendix).

ISBN 0-8213-0027-X. \$5.00 paperback.

Uruguay: Economic Memorandum

Alfredo Gutierrez, chief of mission, and others

Examines the government's liberalization policies designed to improve resource allocation and emphasizes that these will need to be molded into a policy framework conducive to rapid development.

January 1979. viii + 201 pages (including map, statistical appendix).
Stock No. RC-7902. \$5.00 paperback.

Yemen Arab Republic: Development of a Traditional Economy

Otto Maiss, chief of mission, and others

Outlines the far-reaching changes in the socioeconomic and political structure of the Yemen Arab Republic since the 1962 revolution and discusses major development issues of the late 1970s and the 1980s.

January 1979. 2, xxviii + 303 pages (including 3 maps, 7 annexes, statistical appendix, selected bibliography).
Stock No. RC-7901. \$10.00 paperback.

People's Democratic Republic of Yemen: A Review of Economic and Social Development

Shahid A. Chaudhry, chief of mission, and others

Reviews the government's economic policies and the socialization of the economy between 1971 and 1978 and concludes that the absence of significant natural resources will inevitably influence the country's development, which must concentrate on solving urban/rural disparity, increasing productivity, and using manpower efficiently.

March 1979. vi + 169 pages (including map, annex, statistical appendix).
Stock No. RC-7903. \$5.00 paperback.

Yugoslavia: Development with Decentralization

Vinod Dubey and others

Evaluates the country's pragmatic and dynamic approaches to economic problems and its general commitment to an open market-oriented economy, improved efficiency of domestic industry, and higher living standards.

The Johns Hopkins University Press, 1975. 504 pages (including 5 appendices, glossary, bibliography, statistical annex, maps, index).

LC 74-24404. ISBN 0-8018-1702-1, \$27.50 (£16.50) hardcover; ISBN 0-8018-1715-3, \$9.95 (£6.00) paperback.

Yugoslavia: Self-Management Socialism and the Challenges of Development

Martin Schrenk, Cyrus Ardalan, and Nawal A. El Tatawy

Describes major development issues and the overall performance of the economy, showing that the new economic framework of the 1970s strengthens decisionmaking at the lowest microeconomic level and at the same time allows greater coordination of economic activity by extending self-management principles to the macroeconomic level.

The Johns Hopkins University Press, 1979. 410 pages (including map, appendix, glossary, index).

LC 79-84316. ISBN 0-8018-2263-7, \$27.50 (£17.50) hardcover; ISBN 0-8018-2278-5, \$12.95 (£6.75) paperback.

Zaire: Current Economic Situation and Constraints

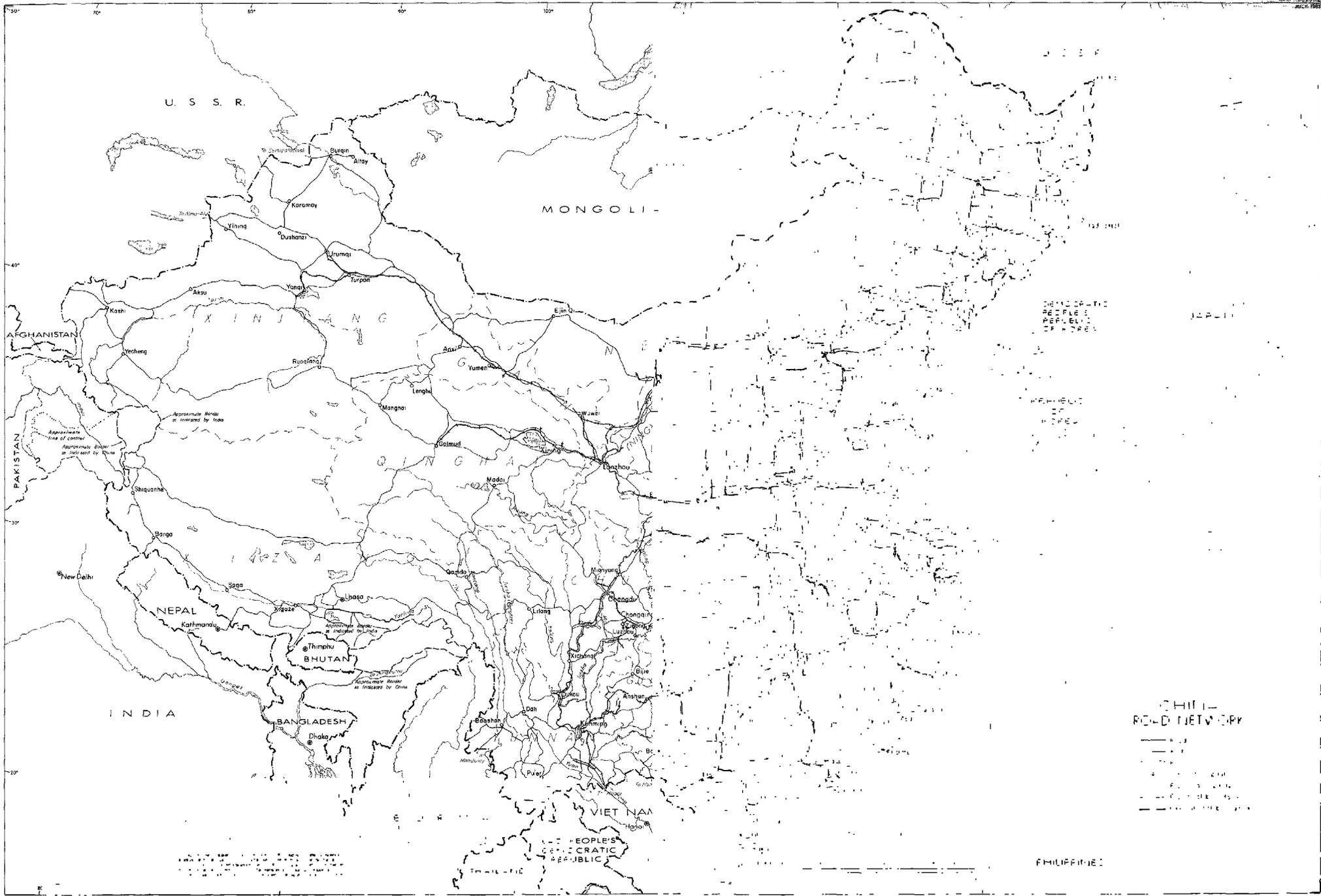
Bension Varon, chief of mission, and others

Presents an integrated analysis of the difficulties experienced by the Zairian economy between 1975 and the first half of 1979 and suggests that the country needs to revamp its institutions and its system of incentives and adopt policies that will lay the foundation for a development pattern that will render it less vulnerable to changes in the world economy.

May 1980. v + 191 pages (including map, annex, statistical appendix).
English and French.

Stock Nos. RC-8005-E, RC-8005-F.
\$5.00 paperback.

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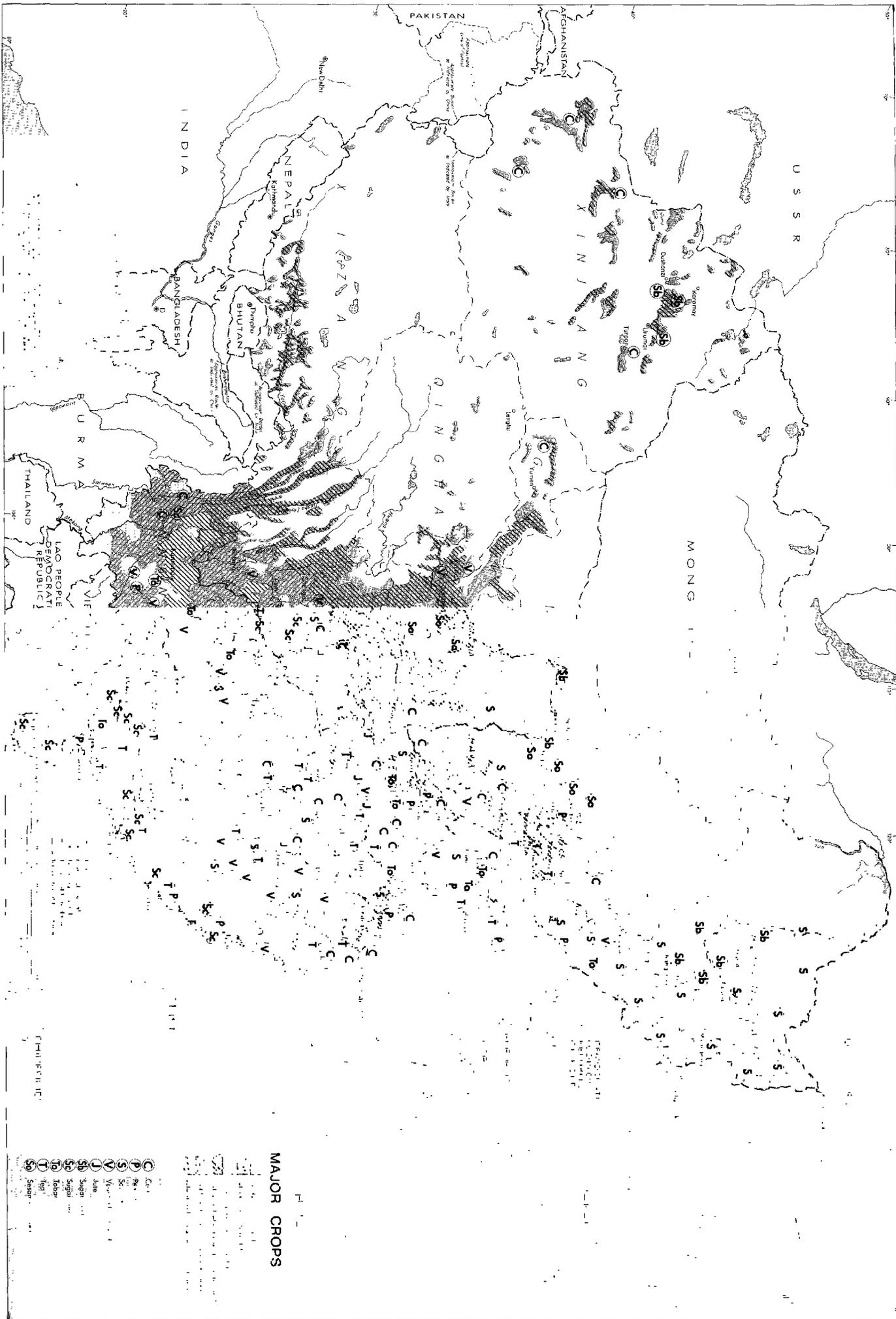


CHINA
ROAD NETWORK

- National Highway
- - - Provincial Highway
- County Highway

Scale: 1:1,000,000
Projection: Mercator

PHILIPPINES



- MAJOR CROPS**
- Cereals
 - P Rice
 - S Soybeans
 - W Wheat
 - J Jute
 - SB Sugar
 - S Sugar
 - T Tobacco
 - L Linen
 - S Sheep

MAJOR CROPS

- Cereals
- P Rice
- S Soybeans
- W Wheat
- J Jute
- SB Sugar
- S Sugar
- T Tobacco
- L Linen
- S Sheep

The World Bank

Headquarters

1818 H Street, N.W.
Washington, D.C. 20433, U.S.A.
Telephone: (202) 477-1234
Telex: WUI 64145 WORLDBANK
RCA 248423 WORLDBK
Cable Address: INTBAFRAD
WASHINGTONDC

European Office

66, avenue d'Iéna
75116 Paris, France
Telephone: (1) 723-54.21
Telex: 842-620628

Tokyo Office

Kokusai Building
1-1 Marunouchi 3-chome
Chiyoda-ku, Tokyo 100, Japan
Telephone: (03) 214-5001
Telex: 781-26838

