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# China Report

## ECONOMIC AFFAIRS

## STUDIES IN THE PROBLEMS OF CHINA'S ECONOMIC STRUCTURE

Ed by

Ma Hong and Sun Shangqing

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# Introduction

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[Text] I. The Present State of Our Nation's Economic Structure and Major Existing Problems

/1. How Should We Evaluate Our Nation's Present Economic Structure?/

Old China was a semifeudal, semicolonial society in which the economic structure was extremely irrational and in which the productive forces were stagnant for a long period. After the nation was established, a great deal of work was done to remold the economic structure of Old China and great accomplishments were made.

First, an independent and comparatively integrated industrial system and national economic system was established. Before the Liberation, agriculture and handicraft industries were predominant in our nation, whereas the proportion of modernized industries was very low and the national economy was an appendage of imperialism.

After the Liberation, we undertook large-scale socialist industrialization. From 1949 to 1978, the total output value of industry increased 38.2 times,[1] with the total output value of heavy industry increasing 90.6 times. The proportion of the total value of industrial output to the total value of industrial and agricultural output increased from 30 percent to 72.2 percent. The proportion of the total value of heavy industrial output to the total value of industrial output increased from 26.4 percent to 57.3 percent. The range of categories of industries gradually increased and the level of modernization continually rose so that our nation has changed from an agricultural nation to an agricultural and industrial nation.

Second, there was a comparatively great development of agriculture. After the land reform, the peasants took the course of collectivization. For 30 years we undertook large-scale basic construction of irrigation and water conservancy

1 The national figures (post-liberation) presented in this book do not include those for the Province of Taiwan.

projects so that marked improvement was obtained in the conditions of agricultural production and that there was a comparatively great increase in the level of production. Total grain output in 1978 amounted to 609.5 billion jin, an increase of 383.1 billion jin over the 226.4 billion jin in 1949. Production per mu calculated on the basis of area of cultivated land was 548 jin, an increase of 377 jin over the 171 jin in 1949. Our nation's agriculture before the Liberation was almost entirely hand-operated, whereas, after the Liberation, there was definite progress in the mechanization of agriculture.

Third, there have been great advances in communications and transportation. Few lines were left to us by the Old China, there was little transportation capacity and distribution was irrational. Changes have been made in these conditions. At present, except for Tibet, all of the nation's provinces, cities and autonomous regions are connected by railroads. Except for the two counties of Motuo in Tibet and Derong in Sichuan, all of the nation's counties are linked by motor vehicles. In 1978, there were 149,000 km of airline routes in the country. There are 12 international airlines providing service to more than 10 countries. We have established a fleet of oceangoing vessels on a preliminary scale that has contact with over 100 countries and regions.

Fourth, there has been rapid expansion of domestic and foreign trade. The vast rural villages of the Old China basically constituted a self-sufficient natural economy. A great change has occurred in this. In the area of foreign trade, the total value of imports and exports in 1950 was $1.13 billion. In 1977, it was $14.8 billion; in 1978, it was $20.64 billion; and, in 1979, it was $29.22 billion. Thus, there was a very rapid increase over the latter 2-year period and there were also changes in the makeup of imported and exported products. The accumulation of funds for building modernization through foreign trade has resulted in the introduction of advanced technology and equipment.

Fifth, there has been marked improvement in the technological structure. Our nation's industries not only have a large amount of mechanized equipment but they also have a large amount of automated equipment. Several types of agricultural machinery and new technology have also been applied in agriculture. The technological structure of our national economy has developed from the pre-Liberation structure in which manual labor was predominant to its present diversified structure in which automated, semiautomated, mechanized and semimechanized labor are combined.

In addition, there has been a very great improvement in the standard of living of the people as compared to before the Liberation.

The basic causes of the aforementioned changes that have occurred in the structure of our national economy lie in having successfully carried out the new democratic revolution and the socialist revolution and having established a socialist system in order to provide advantageous conditions for rapid expansion of production and restructuring of the economic structure. From a comparison of the economic structure before and after the Liberation, it can be seen that there are very many positive factors in our nation's present economic

structure. Because an independent and comparatively integrated industrial system and national economic system has been established in our nation, there has been comparatively great expansion of productive forces and of industrial productive forces in particular and a foundation has been established for modernization. This can basically take a foothold in the nation so that building can be carried out independently and with the initiative in our own hands, thus facilitating adaptation to varying conditions and making us stronger in the face of difficulties.

Our nation's agriculture has an immense latent capacity. We have comparatively abundant mineral resources and hydroelectric resources. At the same time, we have a large labor force, which, if we use it wisely, also can serve as an advantageous condition for expanding production. If we fully utilize the superiority of the socialist system and the aforementioned advantageous factors, we will certainly be able to bring about the gradual establishment of a rational modernized economic structure suited to the circumstances of our nation.

However, at present the structure of our national economy is still beset with relatively serious problems. Because the economic structure is irrational, there is a serious imbalance of proportions in the national economy that has resulted in social reproduction in our nation not being able to advance smoothly. Many factories are operating under capacity because of shortages of raw materials and motive power. According to estimates, there is an annual shortage of 40 to 50 billion kWh of electricity throughout the nation as a whole. For this reason, the decrease in the value of industrial output runs to over 75 billion yuan. We have been forced to abandon many capital construction projects and those that have not been abandoned are afflicted by wars of attrition and will not be able to be completed and go into production for a long time. The utilization ratios of much equipment are very low and there are many unemployed persons needing employment. The irrational state of the economic structure has also led to a decrease in economic effectiveness. Over a 30-year period, there has been a total investment in capital construction in this nation of 600 billion yuan, with 400 billion yuan in fixed assets having been formed. However, only 250 billion yuan, or 40 percent, of this has actually been brought into play. The irrational state of the economic structure has also resulted in severe waste in energy consumption. The national income created through consumption of 1 standard ton of coal in this country is less than one-third that in Japan. The irrational state of the economic structure has also stood in the way of raising the standard of living of the people and has also obstructed reform of the economic management system. At present, the problems in our nation's economic structure are severaly impeding the realization of the four modernizations. This is something about which we must have an adequate understanding.

/2. What Are Some of the Major Problems of the Economic Structure at Present?/

(1) Agriculture is far behind industry. This hinders rapid expansion of the national economy. Since the nation was established, the proportion of the output value of agriculture as a component of the output value of agriculture and industry has tended to decrease sharply, falling from 70 percent in 1949 to

27.8 percent in 1978. Our nation's agriculture is increasingly falling behind industry and there is the danger that industry will grow apart from agriculture and develop in a one-sided way. Labor productivity in agriculture is low. In 1978, the agricultural population in our nation accounted for 84.6 percent of the population and agricultural laborers accounted for 85.5 percent of agricultural and industrial laborers. Although the proportion of those engaged in agriculture is as great as this, agricultural products are still far from being able to satisfy the demands for expansion of the national economy. The structure of our nation's agriculture is also very irrational. Because of one-sided implementation of the policy of "taking grain as the key link," forests and grasslands have been destroyed so that we have not only not been able to make full utilization of our natural resources, but we have also brought about a breakdown in ecological equilibrium. For a long time, the development of our nation's agriculture and the development of our national economy as a whole have been out of step with each other. Within one period, the rate of increase in grain was less than the population growth rate. Since the Second 5-Year Plan, we have had to make net imports of several billions of jin of grain. All it takes for a famine to occur in a given local region is for state purchases to be on the high side or for there to be a poor harvest.

(2) Light industry has fallen behind and cannot satisfy the demand for raising the standard of living of urban and rural peoples. Light industry in our nation has never been put in its proper place and investment in light industry has accounted for an excessively low proportion of the investment in capital construction, the figure for the period of the First 5-Year Plan being 5.9 percent. Following that, there were scarcely any increases in it. Rather, there was a tendency for decreases to occur. Amounts of major light industrial products in this country on the basis of population averages are not only far lower than advanced levels in the world but also in some cases are not sufficient to satisfy the minimum requirements for the people's standard of living. Production technology in our nation's light industries is for the most part on a level comparable to that abroad in the 1940's and 1950's, and, in some cases, on the level of the 1920's and 1930's, with labor productivity being very low. The internal proportional relationships in light industry are also severely out of balance. The backward state of light industry has led to supply shortages on the market. For many years, the difference between the volume of market commodities that could be supplied and purchasing power has amounted to several billion yuan, and, for the most recent 1 to 2 years, has amounted to over 10 billion yuan.

(3) There has been a one-sided development of heavy industry divorced from agriculture and light industry, with an imbalance in internal proportions also having occurred. Our nation's heavy industry is also very undeveloped and needs to be further developed. However, in view of the present overall state of the economy, the scale and rate of heavy industry has exceeded the materials and financial resources that the national economy is capable of providing so that a squeeze has been put on agriculture and light industry. This has also impeded the development of heavy industry itself. There is also very great imbalance among the sectors of heavy industry. One instance of this is the backwardness of the fuel and power industry. From 1953 to 1978, the average annual growth in total industrial output value in this country was 11.2 percent, whereas average annual growth in energy production

was only 9.6 percent. In addition to this, there has been great waste of energy during its use. Thus, the energy problem is a major problem of the national economy at present. A second instance is that raw material industries and processing industries are out of step with each other. At present, machine tool processing capacity in our nation is three to four times greater than the capacity for supply of steel products. Although we possess a large number of machine tools, a high proportion of these machine tools is primarily for crude processing, whereas the proportion of machine tools used primarily for precision processing is small. The efficiency of our machine tools is also much lower than that of foreign countries and the machine manufacturing industry is far from being able to meet the demands for technological transformation of the national economy. A third instance is that the building materials industry is backward. From 1953 to 1978, the average annual growth rate of the building materials industry was 11.8 percent, a level lower than the average annual growth rate of heavy industry of 13.6 percent. Except during the First 5-Year Plan and the "period of readjustment," the growth rate for major building material products has been lower than the industrial growth rates for the same period. There are also imbalances within various heavy industrial sectors. These circumstances have made it difficult for heavy industry to exert a major guiding role on agriculture, light industry and the national economy as a whole to a full extent.

(4) The communications and transportation industries have fallen behind. The length of railroad lines open to traffic in this country is less than one-sixth that in the United States and less than one-half that in the Soviet Union. It is also less than that of India. Our nation's highway and waterway transport cannot satisfy the requirements for expansion of industrial and agricultural production. The handling capacity of our coastal ports is badly insufficient and affects the expansion of foreign trade. Our nation's post and telecommunications are also a weak link in our national economy.

(5) Commerce and the service industry are not adapted to development of the national economy. There was a population increase of 48 percent in this country by 1978 as compared to 1957. The total number of workers has increased more than two times, as has the total retail value of social commodities. However, there has been very little increase in the numbers of personnel in commerce, the catering trade and the service industries. During this same period, the numbers of people that each person served increased from 114 to 209 in retail commerce, from 563 to 984 in the catering trade and from 1,056 to 1,882 in the service industriesl Staff and workers must spend a very great amount of time each day lining up to buy consumer goods, thus adding to the inconveniences of life among our citizens.

(6) The demands of foreign trade and of accelerating modernization are out of step with each other. In 1978, the total sum involved in world trade was $2,621,200,000,000, of which our country accounted for 0.8 percent. The proportion of our nation's export commodities (calculated on the basis of the total value of export commodities purchased in foreign trade countries) in relation to the total output value of agricultural and industrial production is also very low, being 3.9 percent in 1977 and 1978. The slow expansion of foreign trade exports has limited our capacity to import technology and

equipment. The structure of import and export commodities is also irrational and there is a lack of overall comprehensive equilibrium work in the import of full sets of equipment.

(7) The scale of capital construction has been too great and the battle lines have been overextended. Expenditures for capital construction during the period of the First 5-Year Plan accounted for 37 percent of financial expenditures. It is now generally recognized that this proportion was comparatively suitable. During the period of the Second 5-Year Plan," this increased to 46.2 percent, a level far in excess of what was possible. This had a negative effect on production. During the period of the Fourth 5-Year Plan, the average was 40.2 percent, and, in 1978, it was 40.7 percent. The excessively large scale of capital construction had serious effects on the results of investment and at the same time also put a squeeze on regular production and on regular consumption by the people. Definite results were obtained in the reorganization of capital construction in 1979. However, because its scale was still excessively large, the tasks of reorganization were very formidable.

(8) The proportional relationship between "bones" and "flesh" is out of balance. During the period of the First 5-Year Plan, productive investment accounted for 71.7 percent and nonproductive investment accounted for 28.3 percent of the total investment in capital construction. This proportion was basically suited to the requirements for expansion of the national economy at that time. Production and construction expanded rapidly and there were corresponding improvements in the people's standard of living. During the period of the Second 5-Year Plan, productive investment rose to 86.8 percent and nonproductive investment fell to 13.2 percent. Between 1967 and 1976, productive investment rose to 87.3 percent and nonproductive investment fell to 12.7 percent, with a severe imbalance in the proportional relationship between "bones" and "flesh" having thus occurred twice over comparatively long periods. In 1977, the average floor space per person in cities throughout the country was 3.6 $m^2$, a decrease of 0.9 $m^2$ meters as compared to the 4.5 $m^2$ of 1952. There was an urban housing shortage of 6.26 million houses, a figure amounting to 37 percent of the total number of urban houses.

The aforementioned problems are far from being a complete list. Other problems such as the irrational state of the price structure, the many problems left owing to construction of the three sectors, the fact that the defence industry is out of line with civil industries, the slow development of urban industries under collective ownership, the fact that science and education are very far from meeting the requirements for modernization and the very low levels of worker technology and management are also problems that must be solved during the course of readjusting the economic structure.

The most important of the aforementioned problems is the imbalance in the proportional relationship among agriculture and light and heavy industry. The relationship among agriculture and light and heavy industry is essentially a relationship between the two major categories of means of production and means of subsistence. The basic problem in our nation's economic structure at present lies in the fact that production of means of production is out of line with production of means of subsistence, with production of means of subsistence

having fallen critically behind production of means of production. We should take resolution of the relationship between these two major categories as the starting point for resolving the series of problems of economic structure.

/3. What Are the Causes of the Present Irrational State of the Economic Structure/

There are many causes. The more important of them are as follows.

First, we have blindly sought to achieve high speed and have destroyed the overall balance.

Overall balance is the most important task of planning work. Beginning in 1958, we continuously and blindly sought high speed and went counter to the requirements for proportional development and overall balance of the national economy. In the past there was a prevalent formulation to the effect that proportion should be subordinate to speed whereby unrealistic high targets were generally called Marxism-Leninism, realistic goals were generally denounced as right opportunism or revisionism overall balance was criticized as being negative balance and destruction of overall balance was advocated as leading to positive balance. Practice has thoroughly indicated that these viewpoints are completely erroneous.

An ideology of "speeding up" has long been prevalent among the problems of socialist reconstruction whereby economic reconstruction is considered to be overly simple and easy and people have been overanxious for quick results, wanting to do a good job of everything in the space of a single morning. Under the guidance of this type of ideology, it has been difficult to avoid starting out from subjective desires, to propose goals that are divorced from reality and to seek blindly for high speed. The impractical demand that every province be developed into an industrial province and establish complete, idependent industrial systems is also an expression of this ideology of "speeding up." In the future, we should stress opposition to "speeding up" in economic reconstruction. At the same time, we must prevent and overcome defeatist sentiments.

Second, one-sided emphasis and precedence was given to developing heavy industry and agriculture and light industry were neglected.

Comrade Mao Zedong repeatedly pointed out that we must handle the relationships among heavy industry, light industry and agriculture correctly in socialist reconstruction. Nevertheless, in practice, we have often neglected agriculture and light industry and have given one-sided emphasis and precedence to the development of heavy industry. In particular, the long-term implementation of the policy of "taking steel as the key link" brought about a severe imbalance of proportions internally in heavy industry. In the past, there was a prevalent theory to the effect that starting industrialization from light industry was the course of capitalism and that starting industrialization from heavy industry was the socialist road. This theory lacks a scientific basis. In fact, the transition from being an agricultural country to being an industrial country generally involves starting industrialization with light industry, with the requirement of giving precedence to the development of heavy

industry not being effected until light industry and agriculture have developed to a certain stage. It can be said that this is a law. When we began socialist industrialization on a large scale in 1953, there was a definite latent capacity because the proportion of light industry in relation to heavy industry at that time was comparatively great, whereas heavy industry was very backward. For this reason, advancing the policy of giving precedence to heavy industry was essential at that time and implementation of this policy during the First 5-Year Plan resulted in very great accomplishments. However, giving precedence to developing heavy industry cannot be effected in isolation from agriculture and light industry. The rate of development of heavy industry cannot be more rapid than that of light industry in a given period as problems will develop later if one-sided development of heavy industry is carried out in isolation from the foundations of agriculture and light industry.

Third, we have sought accumulation in a one-sided way.

During the period of the First 5-Year Plan, our accumulation rate was basically stable in the range from 23 percent to 25 percent. This was fairly well suited to the conditions of the times. After the Second 5-Year Plan, our accumulation rate was on the high side for a long time. This was one of the major factors leading to the irrational state of the economic structure. In the past, we did not have a clear understanding of the objectives of socialist production. In fact, there existed the view that higher accumulation rates were desirable, it being thought higher accumulation rates meant more rapid development of the national economy. In actuality, this is not so. Practice demonstrates that an excessively high accumulation rate always brings about an imbalance in proportions in the national economy and leads to severe decreases in the effectiveness of investment and in the effectiveness of production. If accumulation is too great and the proportion of productive accumulation is too high, not only will accumulation be out of step with the increase in the means of production but it will also inevitably bring about an excessively low level of consumption, thereby dampening the enthusiasm of the laborers and having a negative effect on production and construction.

Fourth, during the process of organizing the people's communes, certain extremist practices dampened the enthusiasm of the peasants.

Fundamentally speaking, the problem of our nation's economic structure is that agriculture is excessively backward. Because agriculture is backward, light industry cannot move forward and it is difficult for heavy industry to advance rapidly. There are many causes of the excessively backward state of agriculture. Among the most important were the organization of the people's communes and the "leftist" policies that were implemented thereafter which dampened the enthusiasm of the peasants. The cooperative transformation of agriculture in our nation resulted in great accomplishments. However, during the period of cooperative transformation, there were the shortcomings that the speed demanded for cooperative transformation in some regions was too rapid and that the demands for the degree of socialization were too great. In the process of organizing the people's communes in particular, there were high levels of state purchases and confused orders were issued because of the "communist style" which undermined vitality. Subsequently, Lin Biao and the

gang of four continuously carried out a policy of "cutting off the tail of private ownership," whereby they abolished private plots and country fair trade. They also carried out something called "poverty transition." There were some correct policies that had been formulated by the party and the state that could not be implemented consistently and thoroughly.

Fifth, there were serious defects in the economic management system of ownership by all of the people.

Under the economic management system implemented in our nation, businesses lacked the autonomy that they should have had and were not able to play their correct role in market regulation. In industry, communications and transportation and commerce, the role of the economy of the urban collective ownership system was not emphasized and brought fully into play and the individual economy was categorically excluded. Under an economic system in which administrative measures were implemented whereby there was excessive centralization and bias toward heavy industry, social production lacked an automatic regulatory mechanism and was unable to discover and solve the problems that arose in the national economy in a prompt way.

/4. What Type of Economic Structure Does Our Nation Have at Present?/

There are many views within the country in regard to the question of what type of economic structure we have and it is very difficult to make a precise summary of them. Many comrades believe that the present economic structure of our nation is abnormal, with one-sided emphasis being placed on steel in industry and one-sided emphasis being placed on grain in agriculture. This is a correct opinion. We feel that our present economic structure gives excessive emphasis to certain heavy industrial sectors and that agriculture, light industry, energy industries, communications and transportation, commerce and service industries are relatively backward. Regions have set up self-sufficient economic systems and sectors and enterprises have also set up large and complete and small complete production systems. This type of economic structure has the defects of imbalance in proportions, a loose structure, poorly working mechanisms, low efficiency and severe waste.

In this type of economic structure, the proportional relationships among the various sectors of the national economy cannot be coordinated. The various sectors, components, organizations and regions of the national economy and the various aspects of social reproduction will inevitably be loose and there will be a lack of close internal relations among them. Coordination between specialization and division of labor will be impeded and circulation of commodities cannot occur smoothly. Planning mechanisms and market mechanisms will not work properly and the contradiction between the links of supply, production and marketing, and between production and circulation cannot be resolved promptly and the market cannot provide sensitive feedback for planning. Decrease in efficiency is inevitably brought about because of the aforementioned circumstances.

To summarize what has been said in the foregoing text, we must consider the positive factors in our present economic structure and we must also consider

the seriousness of the problems affecting it. In this way, we can acquire an overall understanding of it and make a correct appraisal of the existing problems. This will facilitate finding correct methods and measures for solving these problems.

## II. Proposals for Improving the Structure of Our National Economy

A rational economic structure is relative to a given time, place and conditions. The economic structure that should be established in our country should be one that can comparatively fully and comparatively effectively utilize our nation's manpower, material resources and natural resources, one that can bring about coordinated development of the various links of reproduction and of the various individual sectors of the national economy and of agriculture and light and heavy industry in particular and one that can lead to the realization of an economic structure in which there is good circulation of economic activity. What we refer to as realizing good circulation of economic activity means that we must work for continuous stable growth, good economic effects and continual improvement of the people's standard of living in developing the national economy. This will require us, within the next 10 years, to expand agriculture, light industry, energy, and building communications and transportation and posts and telecommunications as quickly as possible. The development of heavy industry cannot be and should not be, too rapid. We will have to be conscientious in assuring the coordination of the proportional relationships of the national economy and we will have to work hard to make the rate of growth in national income higher than the rate of growth of total output value.

In readjusting the existing economic structure in our nation, we mush achieve a firm understanding of the basic characteristics of our national economy, proceed from actual conditions, make the most of our strong points and avoid shortcomings. The basic characteristics of our national economy are primarily as follows. First, there is a large population (a population of 1 billion of which 800 million are peasants), a large labor force and comparatively abundant natural resources. However, funds are insufficient. Second, although great achievements have been made in socialist reconstruction, the foundation is still very poor and the levels of technology and management are still very low. Third, although the socialist economic system has been established, the management system and the economic structure are still very imperfect. An economy under the ownership of all the people and an economy under collective ownership suited to the nature of the productive forces of our nation and to the needs of establishing the four modernizations will have to coexist for a long time. Under conditions in which a socialist economy occupies the dominant position, diversified economic components and diversified management methods will also have to coexist for a long time.

In view of the basic characteristics of our national economy and of the present problems of the structure of our national economy, it appears that we will have to acquire a firm understanding of the following basic points if we are to readjust the structure of the national economy in the future. First, our socialist system requires of our economic structure that it make satisfying the

demands of the people for food, clothing, articles of daily use, housing and transportation as its central concern. Second, we must accelerate the development of agriculture, devote a major effort to expanding production of consumer goods, do a good job of solving the energy problem and truly put communications and transportation into an advanced state. Within the coming 10 years, we should do more to develop labor-intensive and energy-saving industries in order to facilitate solving the employment problem and the energy problem. Third, we must hold to a policy of self-reliance, and, fully utilizing our existing foundation, devote our efforts to tapping the latent potential of old enterprises and to innovation and transformation. Fourth, we must expand our exports and introduce technology and utilize foreign capital in an appropriate way in order to strengthen some of the weak links in our nation. Fifth, military industries must be genuinely combined with each other and military people must live among the people. Sixth, expansion of science and education must be placed in an important position and we must strive to do a good job of such work as population planning, environmental protection, working conditions and public health. In short, we must make adaptation of social production to consumption demands the starting point and overall goal of improving the structure of our nation's economy.

/1. Comprehensive Development of Agriculture in Order to Lay a Firm Foundation for Developing the National Economy/

A major difficulty standing in the way of comprehensive development of agriculture, forestry, animal husbandry, sideline industries and fisheries in our nation at present is that the food problem has not been solved. However, the history of China and foreign countries demonstrates that the food problem can only be solved through the comprehensive development of agriculture, forestry, animal husbandry, sideline industries, fisheries and economic crops and that we cannot concentrate on one thing only, uniformly "taking grain as the key link." Moreover, we cannot expand our food by destroying forests, destroying grasslands and destroying economic crops. Otherwise, we will not only fail to solve the food problem but we may also destroy the rural economy and destroy ecological balance, thereby bringing about disastrous results.

In order to bring about the comprehensive development of agriculture, we propose giving attention to the following points.

(1) We should support production teams as the basic collective ownership system, respect the autonomy of the production teams and implement responsibility systems and other administrative and management systems that are in accord with the level of development of our productive forces, that are effective and that are linked to the volume of production. We must have a long-term stable policy in regard to the private plots and household sideline occupations of the commune members.

(2) We should formulate plans for agricultural regions in a scientific way. We should adapt working methods to local conditions, expand grain production and production of various types of economic crops and allow increased cooperation among regions, with each region supplying the others what they need so that the natural superiority and economic superiority of each region will fully

be brought into play and so that there can be a comparatively great development of forestry, animal husbandry, fisheries and various economic crops within a short period of time.

(3) We should formulate an agricultural mechanization policy suited to the characteristics of our nation and should not mechanize in an indiscriminate and overall way. We should make full utilization of the condition of having a large agricultural labor force, engage in scientific farming and strive to increase output per unit area. Except in regions such as the northeast and northwest in which there are sparse populations over vast areas, in the other regions we should first deal with agricultural mechanization in such areas as agricultural transport, storage and for the busy seasons. Within a given period of time in the future, we should adopt methods suited to supporting the use and development of draft animals. At present, there is a low level of use of chemical fertilizer in this country, with the use of nitrogen, phosphorus and potassium in particular being very low. In the future, chemical fertilizer production should be supplemented and should be developed in a proportional way. At the same time, there should also be an increase in organic fertilizer. In the developed capitalist nations, a situation has developed in which the organic component of agriculture is far greater than that of industry, with very high amounts of fixed assets and liquid assets being used per unit of agricultural product and with an excessively high degree of energy consumption. This situation is very well worth our attention.

(4) We should pay attention to the actual effectiveness of agricultural construction projects. Over the years, there has been a realtively large scale of new capital construction on farmland through state investment and the work of production teams. This has had an important effect on agricultural production. However, the actual effectiveness of some of these projects has been poor and some have even damaged the environment and ecological balance. In the future, when we build water conservancy projects we should change our practice of emphasizing form and neglecting results. We must integrate controlling mountains and regulating rivers with planting trees and grass so that there will be a basic assurance of sources of water. We should oppose formalism, strive for results, put an end to ineffective labor, put an emphasis on maintaining the integrity of completed projects and bring the results of investment fully into play.

(5) The price parities between industrial and agricultural products must be readjusted step by step in a planned way and the scissors differential between the prices of industrial and agricultural products must be reduced.

/2. We Should Speed Up the Development of Light Industry, Increase Accumulations and Improve the Standard of Living of the People/

In the near future, we must see to it that the growth rate of light industry becomes faster than the growth rate of heavy industry and strive to raise the proportion accounted for by light industry in the total value of industrial output from the present level of somewhat over 40 percent to about 50 percent within a few years. We will have to do a good job of planning the relationship between the development of heavy and light industry on the basis of the

objective demands for compatibility between the two major categories of social production.

In order to speed up the development of light industry, we propose:

(1) We should gradually change the raw materials structure of light industry. In view of the trends of development of modern industry and of the circumstances of development of our nation's heavy industry (and of the petrochemical industry and the coal chemical industry in particular) and of market demand, we should plan first to increase the makeup of industrial raw materials and agricultural raw materials for light industrial products from the present proportion of 30 and 70 percent to an equal proportion by 1985 (or somewhat later) and thereafter strive for a proportion of 70 and 30 percent by 1990 (or somewhat later).

(2) We should gradually change the product structure of light industry. As the standard of living of the people rises, the proportion of clothes and of daily use goods among the three categories of consumer goods for food, clothing and daily use goods will rise. There will also be increases in the proportions of durable consumer goods and of medium-grade and high-grade consumer goods. The structure of light industry products will have to undergo corresponding changes on the basis of these aforementioned circumstances. We must rely on the central cities to strengthen their alliances and to strive to develop famous-brand products. By maintaining and developing our traditional handicraft products, we will be able to acquire even more foreign exchange.

(3) We should readjust the ownership structure of light industry. Handicraft production cannot be neglected for a long period of time and industries under collective ownership must be further developed. We can allow the proportion of the output value of industries under collective ownership in the output of light industry to exceed that of industries under ownership by all the people. In addition, we must restore and expand individual handicraft industries to an appropriate extent.

(4) We must resolve to carry through the determined principle of the "six priorities" in the development of light industry, increase the proportion of scientific and technical [S&T] personnel among staff and workers in light industry, readjust the irrational internal structure of light industry, pay up outstanding accounts as quickly as possible and overcome the internal imbalance in proportions in light industry.

(5) The heavy industrial sectors should produce some consumer goods, and durable consumer goods in particular, suited to the needs of the people.

/3. We Should Readjust the Structure of Heavy Industry and Bring the Role of the Machine Industry Fully Into Play in Technological Transformation/

Heavy industry plays a leading role in the national economy. It must provide energy for all sectors of the national economy and must provide raw materials, materials and equipment. At the same time, it must provide durable consumer goods for the people and export products. If heavy industry is to stimulate

rapid development of the national economy in an effective way, we must plan heavy industrial production and construction closely around the aforementioned requirements and increase the proportion of service to agriculture and light industry. In order to improve the structure of the national economy, we must make an appropriate readjustment of the rate of development of heavy industry and of the proportion of total industrial output value for which it accounts. When readjusting the proportion of heavy industry, we must pay attention to the product structure within heavy industry in order to assure and support the rapid development of agriculture and light industry.

In order to achieve the four modernizations, we must carry out a technological transformation of the various sectors of the national economy. The machine industry must take on the responsibility for this task in a very good way and be conscientious in making readjustments in the direction of service. It must serve agriculture and light industry to a greater extent, it must serve urban construction and housing construction in particular to a greater extent and it must serve the people's standard of living and production of durable consumer goods in particular to a greater extent. It must shift from primary concern with serving capital construction of new factories to being primarily concerned with tapping the latent potential and the renovation and transformation of old factories. It must shift from concerning itself only with serving domestic markets to serving exports to a greater extent.

To these ends, we propose:

(1) We should accelerate replacement of equipment in a planned way. The existing equipment in large numbers of our nation's enterprises is obsolete. We should strive to replace excessively obsolete equipment within a 10-15 year period. In this way, we can increase our scrap steel resources and stimulate the development of the steel industry. We can also increase the utilization rates of equipment in machine industry enterprises and mitigate the contradiction of the machine industry not having enough to do. This will be advantageous for improving the technological state of enterprises and for promoting labor productivity. It can also decrease energy consumption and waste of raw materials.

It seems that this could be proposed as a strategic task for a 10-year plan. In the process of replacing equipment, we must consider the fact that we have an excess labor force in this country so that we cannot emphasize overall automation. Rather, we should take as our objectives improving quality, decreasing consumption, increasing the variety of products, conserving energy, preventing and controlling environmental pollution, raising the technological and economic norms of products and expanding production capacity so that the products that we produce will be of an advanced level and will have international competitive capacity, while the increase in the level of automation must be based on the conditions and requirements of production. When the cost of making major repairs of existing equipment would be greater than the cost of purchasing new equipment or when the value of the energy consumed would be greater than the cost of purchasing new equipment, then we must persevere in proceeding with replacements. Increasing the depreciation rate in a suitable way can provide stable sources of funds for technological transformation.

(2) We should make full utilization of the productive capacity of military industries and we should organize special production in the military and civil machine industries in an integrated way on the basis of the types and characteristics of product manufacturing technology. One-tenth of the machine tools in the nation as a whole are found in military industrial enterprises. Moreover, most of them are large machine tools, high-precision machine tools and numerical-control machine tools. However, they are being utilized to a very insufficient extent at present. For this reason, in organizing production in the machine industry, we must break down the demarcation lines between defense industries and civil industries and between industries subordinate to various departments and between industries subordinate to a single department, organizing specialized companies on the basis of products having similar technological properties and organizing production of similar products in an integrated way. It will sometimes be necessary to add some equipment for a military industrial enterprise to produce civilian goods. However, there must not be a blind expansion of capital construction nor should there be increase in new production lines. Rather, we must be able to produce both goods for military use and goods for civilian use on a single production line.

(3) We should raise quality and decrease costs in order to strengthen our competitive capacity on international markets. We are among the forerunners in the world in possession of machine tools. However, the technological performance of our machine tools is poor, their quality is low, their lives are short, their reliability is poor and product costs are high. If we could merely improve their quality and lower costs, we would be able to equip the various sectors of our national economy more satisfactorily and enter the international market. Our export products should gradually be shifted toward consisting primarily of machine industry products and we should increase exports of complete sets of equipment. This could be a strategic ideology for developing the machine industry.

The steel industry is a major sector of heavy industry. In its development, thorough consideration should be given to the requirements of various sectors of the national economy and of the machine industry in particular for quality, varieties, quantities and standards of steel materials. In order to change the state of excessive predominance of the steel industry, within a given period of time, the metallurgical sector can put the emphasis in steel production on developing standards for product varieties and on improving quality. A large amount of investment and energy is required to expand steel production, and, in the process of building the four modernizations in our nation, differing amounts of steel will be required in different stages. This is a problem that will require conscientious study. At present, annual steel production in Japan is 100 million tons, of which 30 million tons are used for export. The products of the shipbuilding industry and the automobile industry, which use the largest amount of steel that is consumed domestically, are primarily for export and the volume of exports of other machine building industries is also very large. Although annual steel production in West Germany is 50 million tons and that of England does not come up to 30 million tons, both countries can staisfy the demands of their domestic manufacturing industries. The amount of steel that we basically need should be determined in accordance with actual circumstances.

Our petrochemical and coal chemical industries are still very backward. Under the potential conditions respecting raw materials and funds over the next 10 years, we should strive for effectively rapid development so that they can provide more raw materials for light industry and so that they can make an even greater contribution to the modernization of agriculture.

/4. A Major Effort Should Be Made to Develop the Energy Industry and to Set a Long-Term, Stable Energy Policy/

Energy is a determinative condition of the scale and speed of development of industry. The average amount of energy consumption per capita is a comprehensive measure of the level of social production and of the standard of living. At present, we have a severe shortage of energy in our country. If we do not solve the energy problem, it will basically not be possible for us to bring about coordinated development of the national economy and continual improvement in the standard of living of the people.

From the standpoint of the requirement for realizing the four modernizations, our nation's natural resources are not abundant and prospects for energy are not bright. Present proven oil deposits, and recoverable reserves in particular, are not very great. We have comparatively abundant coal reserves, with proven reserves of 600 billion tons of which 160 billion tons are precisely verified reserves. Although we have abundant water resources, about 70 percent is distributed in border regions in the southwest. Oe the basis of calculations of recoverable reserves of which we can availourselves at present, the average amount of energy resources per capita in our nation is only one-half the average figure for the world, one-tenth that for the United States and one-seventh that for the Soviet Union. For this reason, we must formuàte a farsighted scientific energy policy.

(1) On the basis of the state of energy resources in our nation, we should use coal as our principal energy source for a relatively long period of time in the future. For this reason, we will have to maintain the present proportion of coal use of over 70 percent as a component of energy consumption over the next 10 years. We should make a great effort to develop our coal resources and should make a particularly great effort aimed at comprehensive development of coal in such regions as Shanxi, Guizhou and Huaibei and Huainan and at establishing several large coal bases in a planned way. We must carryout development in a rational way, improve working conditions and achieve safe production. Over the next 10 years, the problems of gasification and liquefaction of coal cannot be dealt with in a universay way so that we will have to rely primarily on direct combustion. For this reason, we must make corresponding improvements in coal combustion, increase heat efficiency and adopt measures for protecting the environment.

(2) Geological prospectinf for oil must be intensified and oil must be exploited and used in a rational way. In the future, we should use oil primarily as a raw material for the chemical industry and we should make a great decrease in the amount that is directly burned up. We must conduct research into how we can protect our nation's limited oil resources. At the same time,

we should give consideration to intensifying coal-washing work and to gradually increasing our exports of coal.

(3) Water and electricity are cheap and inexpensive regenerable sources of energy. We have comparatively abundant water resources. If we begin to develop the economically rational portion, in 1 year we can generate over 1 trillion kWh of electricity. This corresponds to 600 or 700 million tons of coal. However, what has been developed at present does not come to 3 percent of the theoretical amount of energy. In terms of investment and building periods, hydroelectric power does not have to be inferior to thermoelectric power once thermoelectric, coal mine and transportation equipment is taken into consideration. For this reason, we must get a firm grasp on development and building of water resources in the future.

(4) We must give serious attention to solving the rural energy problem. We will have to undertake conscientious development of hydroelectric power, methane and fuel forests in order to solve the energy problem in rural villages and mountainous regions. In the future, we will have to create the conditions for development of diverse sources of energy in rural areas in the spheres of distribution of investment and materials.

(5) We must make a great effort to conserve energy. We have a very great latent capacity for conserving energy. In the past, the coefficient of energy consumption was about 1 (i.e., an increase of energy consumption of 1 percent for a 1 percent increase in output value). In 1979, progress was made in this area, with the coefficient of consumption falling to 0.33. Although there were some special conditions associated with this sharp drop, this is sufficient to indicate that there are bright prospects for energy conservation. The principle measures for energy conservation should be to be resolute about reducing production of products that use large amounts of energy but for which there is no special social demand, to develop energy-saving industries, and, at the same time, to adopt the necessary measures for saving energy in the course of technological transformation. We should resolve to close down some of the five types of small industrial enterprises that use especially large amounts of energy for long periods.

/5. Developing Building Units Into Business Enterprises and Developing Buildings as Commercial Products/

The most prominent living problem of urban residents of our nation at present is a lack of housing and there is also a very serious shortage of housing in the rural areas. For this reason, in the future we should undertake a planned and massive expansion of the civil building industry. The building industry is an important material production sector of the national economy and we should give serious attention to the function of the building industry. At present, we must give particularly serious attention to the civil building industry and take the required measures to stimulate the expansion of the building industry.

(1) We should strengthen the balance and coordination between the building industry and the concerned sectors of the national economy.

(2) We should gradually develop building products into commercial products.

(3) We should implement a system of house fund savings and of periodic payments to encourage individuals to purchase and build houses. For this purpose, corresponding improvements must be made in distribution and use of housing and in methods of collecting rent.

(4) A great effort should be made to develop the building materials industry. We should accelerate the development of such building materials as cement, glass, bricks and tile. Attention should be given to developing building material industries under local collective ownership in order to guarantee the supply of building materials needed by the civil building industry. We should develop new building materials. We should give selective preference to establishing nonmetal ore bases in order to provide nonmetallic materials for the national economy and defense construction.

/6. We Should Effect Appropriate Decreases in the Accumulation Rate and Make Rational Readjustments in the Investment Structure/

(1) The accumulation rate in this country has been too high for a long time and a very great number of problems has arisen. On the basis of historical experience both in this country and abroad and of the present level of the national economy, the accumulation rate should gradually be reduced to about 25 percent.

(2) The scale of capital construction should be appropriate. The scale of capital construction should be appropriate to the conditions and power of our nation and must have the following limits. First, it cannot lower the standard of living of the people; second, it cannot produce deficits; and, third, it cannot lead to gaps in goods and materials. If we are to effectively reduce the scale of capital construction, we must resolve to stop building a number of large heavy industrial projects. On the basis of national conditions, over the next 10 to 20 years we should take on only one or two large heavy industrial projects each 5 years.

(3) We should adhere to the principle of putting production first and capital construction second. In using investment for capital construction, we must give precedence to guaranteeing the needs for technological transformation of existing equipment. Speeding up the technological transformation of existing enterprises is the major means and basic course that we should take for realizing the four modernizations. Changing from primary concern with new construction to primary concern with renovation and transformation should be a major principle for allocation of investment. The proportion of funds for the technological transformation of existing enterprises in relation to the total amount for central and regional capital construction should gradually be increased from the level of 30 percent in 1978 to as high as 70 percent. Technology and equipment introduced from foreign countries should be used first in the technological transformation of old enterprises; we cannot allocate new construction projects simply on the strength of negotiations on their introduction.

(4) We should determine the direction of investment in a rational way on the basis of the requirements for rational readjustment of the structure of agriculture and light and heavy industry. We must first guarantee the investment required for light industry. In this way, we can mitigate the shortages of supply on the market and can rapidly form new accumulations. At the same time, when the conditions exist, we should suitably increase the investment in agriculture. We should change the method of investment allocation in which we undermine agriculture to supplement industry and in which we put the squeeze on light industry to maintain heavy industry. Investment in heavy industry should also be allocated appropriately. We should first assure the demand for expanding the energy industry. Investment in the metallurgical industry should be used primarily in filling up the gaps, in increasing the variety of products in response to demand and in improving quality.

(5) Suitable increases in investment in building foundation structures is an important aspect of establishing a rational economic structure.

(6) We should increase investment in education and science and speed up the development of scientific education facilities. The backward state of scientific and educational facilities has become a major obstacle to establishing modernization in our nation. Increasing investment in science and education to the greatest extent possible and as rapidly as possible is an extremely important question that must be considered in the allocation of investment.

(7) We should put striving for economic effectiveness of investment in first place. Each sector should establish rational time limits for recovery of investment and rational minimum standards of investment. If the standards are not met, construction should not be permitted. In the future, we should not allow business enterprises that operate at a loss to continue in existence. In the case of policy deficits, we must reduce the scope of subsidies and the amount of subsidy funds.

/7. We Should Readjust the Structure of Import and Export Commodities/

At present, we must readjust the structure of our nation's importand export commodities in order to meet the requirements for rationalization of the economic structure, stimulate coordinated development of agriculture and light and heavy industry and speed up the establishment of socialist modernization.

(1) In the sphere of imports, we should concentrate on bringing in key technology and key equipment and materials and goods of which we have insufficient resources in this country or which it is not advantageous for us to manufacture ourselves from the standpoint of economic effects in order to benefit modernization of various businesses of our nation. Introduction of large full sets of equipment should be strictly controlled and great caution should be exercised. We should strengthen our capacities to make copies, to make refurbished versions and to create new things so that repeated introduction can be prevented. We should formulate protective policies suited to our national circumstances. We must not continue to bring equipment that we can manufacture

domestically or that we will be able to manufacture after a certain amount of technology has been imported.

(2) In the sphere of exports, we must make thorough estimates of what is possible with our domestic resources, make overall plans and take all factors into consideration and do a good job of making allocations of the demands for exports and of the domestic market. On the basis of our capabilities in domestic production and of the demands of the international market, we should make a gradual transition from a structure in which exporting of agricultural products and primary products is predominant to one in which heavy industrial and light industrial products are predominant. In particular, we should adopt vigorous methods to bring about active expansion of exports of machine industry products and high-grade processed products. We must increase our exports of single units of machine industry products, and, at the same time, we must strive to expand exports of full sets of equipment. We must make a great effort to expand production of labor-intensive type products, and, in particular, export of various types of handicraft products and handicraft articles in which we excell. We must formulate policies for protecting our domestic resources as quickly as possible. We must make a great effort to organize exports of a number of "high-gain products" (those values at 1 yuan of RMB or less and that can be exchanged for $1). We should increase the quality of those "high-loss products" among our export products for which the ratio of loss is over 70 percent step by step, lowering their purchase price as export is continued. If we cannot bring about a steady decrease in the ratio of loss, export of such products should either be decreased or stopped.

(3) In readjusting the structure of import and export products, we must give particular attention to using economic measures and to formulating policies and measures for limiting imports and expanding exports. For example, we should formulate a rational system for settling foreign exchange accounts and tax and price policies.

/8. We Must Make Economic Divisions, Establish Rational Regional Economic Structures and Bring Economic Superiority of Each Region Into Play/

A rational economic structure requires that there be rational economic divisions, that rational regional economic structures be established, that the natural superiority and economic superiority of each region be brought into play and that a great effort be made to develop the commodity economy.

(1) On the basis of the state of distribution of natural resources, the original foundations of industrial and agricultural production, communication and transportation conditions and the economic relationships formed in the course of history, the entire nation should be divided into a number of economic districts, with the economic division and the administrative divisions being strictly differentiated from each other. In the future, the administrative divisions should be readjusted appropriately on the basis of the economic divisions.

(2) Each region should set out from the requirements for expanding the national economy and from the actual conditions of the region and establish an

economic structure whereby it can bring its superior features into play, including its natural superiority (climate, soil, resources, etc.) and its economic superiority (technological strengths, management experience, etc.). The economic structures of the various regions should not be uniform, but, rather, each should have its own focal point and its own special characteristics. Each region should apply its manpower, its material resources and its financial resources primarily in sectors in which there can be comparatively high economic effectiveness and should concentrate on producing products for which the costs are comparatively low. However, rationalization of regional economic structures must take the steady raising of the effectiveness of the national economy as its prerequisite. Deviating from economic effectiveness for the nation as a whole and giving one-sided play to regional "superiority" is not advantageous to the rationalization of the economic structure of the nation as a whole.

(3) To establish regional economic structures that can bring superior features into play, we must create a number of corresponding conditions. For example, as conditions of communications and transportation, we must guarantee unobstructed inward and outward movement of the relevant goods and materials. We must work for mutual benefit in setting the prices of goods and materials between regions. And we should see to it that regions that send out their products can obtain the products that they need themselves on time and that the products are of the required quality and in the required amounts. Of even greater importance is to take into consideration the various interests of both raw materials producing regions and processing regions.

(4) We must overcome the idea that each region must establish an economic structure in which there is as complete as possible a variety of categories. Generally speaking, because of differences in natural conditions among regions and because if imbalances in economic development among regions over the course of history, it is not realistic to demand uniform, comprehensive development of each region. Even in those regions in which the conditions exist for comprehensive development of agricultural and light and heavy industrial sectors, attention should be given to concentrating forces for the expansion of even more beneficial industrial sectors. It is only in this way that we can obtain comparatively high economic effectiveness for the society as a whole.

/9. Giving Precedence to Transportation Is an Important Condition for Rationalization of the Economic Structure/

As the socialization of production proceeds, the relationships among the various sectors of the national economy, the relationships among production, supply and sales, the relationship between production and consumption and the relationships among the various regions become closer and closer. This increases the demands on communications and transportation and on posts and telecommunications. The development of our national economy and readjustment of the economic structure require comparatively great expansion of communications and transportation and of posts and telecommunications.

(1) Overall planning and allocation, rational division of labor and rational utilization must be undertaken for the various forms of transportation in

accordance with their differing characteristics and everything possible must be done to change the excessive burden of transportation tasks that has been placed on the railroads. The railroads should be used primarily for transport of goods and materials in large quantities over great distances. We must make full utilization of water transport. Everything that is suited to water transport should be transported by water to the greatest extent possible. An active effort should be made to open up direct coastal shipping lines between the south China and the east China and north China regions. Highways should bear as much of the burden as possible for short-haul transport on the basis of the principle of economic rationality. We should increase the use of civil aviation in long-distance passenger transportation and freight transport. We should organize linking and transfer work among the various modes of transportation and gradually extend through transport via railroads, water transport and highways and through transport on coastal routes and via the Yangtze River and inland rivers.

(2) Overall planning and allocation and ration distribution should be undertaken for posts and telecommunications. Except for the military sector and the railroad sector, the communications system among the various sectors should be under integrated planning, integrated construction and integrated management. Telephone construction and construction of post and telecommunications business network outlets in large and medium-sized cities must be incorporated under planning for urban construction and communication capacity and quality of service must be increased.

(3) The various industrial sectors must rationally allocate distribution of their productive forces and must move toward rational distribution and allocation of products in order to decrease such irrational aspects of transportation as counterflow and transport over excessively long distances. The washing capacity of mines such as coal mines and phosphorus mines must be increased in order to eliminate such irrational phenomena as transport of large amounts of useless rock and ash.

/10. We should Restructure the Economic Management System and Promote Rationalization of the Economic Structure/

At present, the imbalance in proportions in our national economy is a major obstacle to the development of our nation's economy, and, if we do not solve this problem first, restructuring of the economic system cannot be carried out in a comprehensive way. However, in the final analysis, if we do not undertake a thorough restructuring of our economic system, it will not be possible to establish a rational economic structure in which agriculture and light and heavy industry are developed in coordination.

In an administrative system in which long-term implementation of administrative methods is the primary mode of function, heavy industry is for the most managed by various central departments and agriculture and most light industries are under regional management. This is not advantageous for overall equilibrium and impedes the coordinated development of agriculture and light and heavy industry. The independent system of military industries is bound to result in large-scale idleness of the productive capacity of military industries

during times of peace so that they cannot bring proper functions into play. Managing production item by item and managing life piece by piece tends to result in production becoming divorced from life so that production comes to put the squeeze on life. Managing the economy solely through the methods of administrative orders, administrative levels and administrative divisions is a major cause of an economic structure in which development of the commodity economy is obstructed, innumerable projects are set up but no one is sought to carry them out and in which categories are as complete as possible.

In restructuring the economic management system, the functions of economic levers can be correctly brought into play and rationalization of the economic structure can be promoted under the integrated planned guidance of the state only when there is a true organic integration in which affairs are handled in accordance with objective economic laws, the autonomy of enterprises is extended and planned regulation and market regulation are implemented.

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## CHAPTER I

## REVIEW OF CHINA'S ECONOMIC STRUCTURE IN THE LAST 30 YEARS

By Zhou Shulian [0719 0647 5571]; original text pp 23-55; portions within slantlines in boldface in original text.

[Text] The peoples of various races in our nation are, under the leadership of the CPC, currently directing their efforts toward the readjustment of the economic structure and speeding up the pace of the four modernizations. So that we may learn from our past experience and readjust the economic structure in a proper manner, it is imperative that we review the evolvement of the economic structure.

Like our entire economic development, our economic structure has also gone through a tortuous and convoluted process of evolvement since the founding of the republic. At the time of our economic recovery and during the First 5-Year Plan period, the evolution of our economic structure progressed satisfactorily. We were able to transform step by step a semifeudalistic, semicolonial and lopsided economic structure into a socialistic economic structure marked by a coordinated proportional relationship among agriculture and the light and heavy industries. During this phase, economic development proceeded at a steady and rapid pace, the people's standard of living continued to improve and peace of mind was enjoyed by all. However, beginning in 1958, the proportional relationship in the national economy was seriously dislocated, in large measure, by such errors as the adoption of the "communist style," the setting of high quotas and blind leadership. It was only through the unwavering implementation of the policy of "readjustment, restructuring, consolidation and improvement" from 1963 to 1965 that the lopsided proportion was gradually corrected, coordination restored among agriculture and the light and heavy industries and their rapid development made possible. However, this healthy process of development was rudely interrupted by the great cultural revolution. During the 10-year period between 1966 and 1976, due to the frenzied destructive acts perpetrated by Lin Biao and the gang of four, our nation was again plagued not only by a grave dislocation of the ratio, but also suffered from its dire consequences over an unusually lengthy period of time. It was not until the gang of four was vanquished that the situation began to turn around, and it was not until the policy of "readjustment, reform, restructuring and improvement" was implemented that the situation gradually took a turn for the better.

## I. Changes in Economic Structure in Last 30 Years

Despite the two serious setbacks, great strides were made in the remolding of the old economic structure. In the area of production, socialist changes have resulted in the eradication of the exploitation system and established a position of unchallenged supremacy for the socialist public ownership economy. Basic changes have also been made in such areas as the structure of production since the liberation.

In the industrial area, our industries have been developing at a rapid pace since the liberation. In the 28 years between 1950 and 1977, while the average annual rate of increase in industrial production was 9.7 percent for the Soviet Union, 4.5 percent for the United States, 12.4 percent for Japan, 6.9 percent for West Germany, 2.3 percent for Great Britain, 5.2 percent for France and 6 percent for India, it was 13.5 percent, a rate higher than that of any other nation, for China. While the fixed assets (original value) of publicly owned industries amounted to 14.92 billion yuan in 1952, they increased to 319.34 billion in 1978. From 1949 to 1978, the gross value of our industrial products increased by 38.2 times and the ratio between the gross value of our industrial products and that of our industrial and agricultural products increased from 30 to 72.2 percent. The production of raw coal increased from 32 million tons to 618 million tons, electric power from 4.3 billion to 256.6 billion kWh, crude oil from 120,000 to 104.05 million tons, steel from 158,000 to 31.78 million tons, chemical fertilizers from 6,000 to 8,693,000 tons, cotton cloth from 1.89 billion to 11.03 billion meters and sugar from 200,000 to 2.27 million tons. From 1952 to 1978, the ratios between the value of certain major industrial products and the gross value of industrial products showed a considerable increase. The ratio of the metallurgical industry increased from 4.8 to 12.4 percent, while that of the machine industry increased from 5.9 to 8.8 percent, that of the petroleum industry from 0.5 to 5.5 percent, that of the chemical industry increased from 4.9 to 12.4 percent, and that of the machinery industry from 11.4 to 27.3 percent. Whereas we were unable to manufacture airplanes, automobiles and tractors, we can now not only produce them, but have also established many new industries such as the advanced alloy steel, the synthetic fiber, the plastics, the electronics and the atomic energy industries. The continued development of these industries has further speeded up our industrial progress and raised the standard of our modernization projects. Great changes have taken place in the deployment of our industries. The continued development of these industries has further speeded up our industrial progress and raised the standard of our modernization projects. Great changes have taken place in the deployment of our industries. The distribution of our industrial centers was extremely irrational in the olden days. The heavy industries were mainly concentrated in the northeast and the light industries in the large cities along the coastal area. Industrial bases have now been set up in the northeast, eastern China, central-south China, the southwest and the northwest. Improvement has also been made in the distribution of industries along the coastal area and the hinterland. The production capacity of many industries in the areas has reached one-third of that of the entire nation. We have, by and large, established a relatively integrated industrial system and national economy and evolved from an agricultural to an agricultural and industrial nation.

In the agricultural area, whereas the average annual rate of increase in agricultural production between 1950 and 1977 was 3.3 percent for the Soviet Union, 1.9 percent for the United States, 2.7 percent for Japan, 1.8 percent for West Germany, 2.2 percent for both Great Britain and France and 2.7 percent for India, it was 4.2 percent for our nation, a rate unmatched by any of the above-mentioned nations. In the past 30 years, we have carried out on a massive scale the basic construction of irrigation projects for the farms, made a start in harnessing the Haihe, the Huaihe, the Huanghe and the Changjiang, repaired embankments measuring 164,000 km in length, or 4 times the circumference of the earth, and built vast areas of high-yield, drought- and heavy-rain-resistant farms. In 1978, the irrigated areas throughout the nation reached 670 million mu, or 45 percent of the cultivated land. Prior to the liberation, agriculture in our nation depended virtually entirely on manual labor. Since then, a measure of progress has been made in the mechanization and modernization of farming. By 1978, there were in the entire nation irrigation and drainage machinery for farm use totaling 65.58 million horsepower, 557,000 tractors, 1.37 million walking tracters and 40.9 percent of the cultivated land was mechanized. On the average, 11.9 jin of chemical fertilizers (calculated on the basis of 100 percent effectiveness) was used for each mu of cultivated land. The amount of electricity used in the rural areas came to 25.3 billion kWh or 9.9 percent of the electric power generated in the nation. By the end of 1978, agricultural fixed assets owned by the people's communes in the rural areas came to 84.9 billion yuan, or 447 percent over the 15.5 billion in 1957, showing an average annual rate of increase of 7.4 percent. Because of the marked improvement in the conditions for agricultural production, the amount of production has been substantially raised. In 1978, grain production reached 609.5 billion jin, or 383.1 billion jin more than the 226.4 billion for 1949. In terms of the acreage of cultivated land, the per mu production in 1978 was 548 jin, or 377 more than the 171 for 1949. Comparing 1978 to 1952, the gross value of agricultural production increased at the average annual rate of 3.2 percent, while grain production increased at the average annual rate of 2.4 percent, a rate which is faster than the 2 percent increase in the population.

In communication and transportation, we have made a start in developing a varied and comprehensive transportation network formed by railways, highways, river transportation, civil aviation and pipelines. From 1949 to 1978, the mileage of railways open to traffic increased from 22,000 to 50,400 km; the mileage of highways open to traffic increased from 80,700 to 890,200 km; the mileage of inland waterways open to traffic increased from 73,600 to 136,000 km; trucks increased from 32,500 to 1,001,700; passenger cars increased from 17,100 to 25,900; the number of civil aircraft increased by several dozen fold. Freight carried by railroads, highways and waterways increased by 18.2, 9.7 and 16 times respectively. Whereas in 1950, civilian airways totaled only 11,400 km, they reached 149,000 km in 1978. Among these, 12 are international airways totaling 55,300 km. Air traffic has been established with over 10 foreign countries. Our oceangoing fleet has made a promising start. Traffic has been established with over 100 countries and regions. Postal and telecommunication services have also been developed to a considerable extent.

In domestic trade, the total amount of commodities purchased by the commercial departments throughout the nation increased from 17.5 billion yuan in 1949 to

173.97 in 1978. Among the commodities, industrial products increased from 8.45 billion yuan to 126.34 billion; subsidiary agricultural products increased from 9.01 billion yuan to 45.99 billion; retail commodities increased from 14.05 billion yuan to 152.75 billion, among which consumer goods increased from 13.38 billion yuan to 123.38 billion and agricultural means of production increased from 670 million yuan to 29.37 billion. In 1979, the total amount of commodities purchased by the commercial departments throughout the nation further increased to 199.24 billion yuan, while the total amount of retail commodities further increased to 175.25 billion yuan.

In foreign trade, the total amount of import and export trade in 1950 came to 4.15 billion yuan, including 2.13 billion in imports and 2.02 billion in exports. In 1979, the total amount of imports and exports came to 45.5 billion yuan, including 24.3 billion in imports and 21.2 billion in exports. The structure of import and export products has also undergone a change as a result of changes in the special features of the original semicolonial economy. In 1978, the means of production constituted 81 percent and consumer goods 19 percent of the total amount of imports, while mineral products constituted 37 percent, products processed from subsidiary agricultural products 35 percent and subsidiary agricultural products 28 percent of the total amount of exports.

In the scientific and technical [S & T] area, our socialist industry has acquired a large quantity of mechanized and automated equipment. For instance, the 1.7-meter rolling mill in Wuhan, the Jinshan Synthetic Fiber Factory in Shanghai, the Liaoyang Synthetic Fiber Factory in Liaoning and the Yanshan Chemical Plant in Beijing have all acquired the latest technical equipment of the 1970's. Great strides have been made in the manufacturing techniques of our machine industry which has acquired whole sets of equipment and techniques as well as the first set of atomic reactor and diffusion machines. Annually, the steel enterprises combined are capable of producing 1.5 million tons of steel, the coal mines are capable of producing 2.5 million tons of pit coal and 7 million tons of opencut coal, the large oil refineries are capable of treating 2.5 million tons of crude oil, the generators are capable of producing 300,000 kW of hydroelectric power and 300,000 kW of thermoelectric power, the automobile factories are capable of producing 100,000 cars, and the factories are capable of turning out 300,000 tons of synthetic ammonia and 240,000 tons of urea. We now have 30,000-ton hydraulic matric presses, 50,000-ton tankers, 25,000-ton freighters and 4,000-horsepower diesel electric locomotives. In 1978, the various departments in the national economy thoughout the nation had a total of 2.67 million machine tools, including 68,000 large and medium machine tools, 22,800 high-precision machine tools and 5,300 numerical control tools. Whereas the textile industry in Shanghai had originally been saddled with old equipment, old techniques and old technology, the medium and small cotton textile, printing and dyeing, woolen, hemp, silk and knitting factories have largely replaced their old machinery. The woolen sweater factories have even adopted electronic technology. Aside from the textile industry, the light industries, which depended largely on manual labor, are now 70 percent mechanized and 20 percent automated. They have set up 10 automated and semiautomated workshops and 300 production assembly lines. The use of such new technologies as electronics, long-range infrared rays and microwaves has been further extended. As has been

stated earlier, a start has been made in the mechanization and modernization of agriculture in our nation. Whereas our technical structure prior to the liberation was made up of manual labor, it has now developed into a structure involving a combination of automation, semiautomation, mechanization, semi-mechanization and manual labor. Tests have been conducted successfully on atomic bombs, hydrogen bombs and guided missiles. The successful launching and recovery of manmade earth satellites and the production of synthetic insulin also reflect the achievements which our nation has made in S&T. It goes without saying that, in the field of S&T, we still lag far behind the developed nations. Nevertheless, we have, starting from scratch, begun to establish a series of new S&T departments.

So far as the people's standard of living is concerned, our working people were, prior to the liberation, impoverished to the extreme and hundreds of millions of people had to wage an endless struggle against starvation. Since the liberation, the people's standard of living has been improved considerably. Whereas the average per capita rate of consumption for the people in the cities and rural areas was 76 yuan in 1952, it reached 200 yuan in 1979, thus showing an increase of about 90 percent discounting such factors as price increases. By 1979, there was one wrist watch for every 10 people, one sewing machine for every 25, one bicycle for every 12 and one radio for every 11. Although the rate of increase in the national income has been relatively slow during the last 20 years, the people's livelihood has improved immeasurably since the liberation.

There are those who can find nothing good to say about the existing economic structure in our nation. Their view is incorrect in that it is inconsistent with fact. During the First 5-Year Plan period, our economic structure was already relatively sound. Compared to that period, the present economic structure is much improved. In 1978, we were third in the world in the production of raw coal behind the Soviet Union and the United States, fifth in the world in the production of steel behind the Soviet Union, the United States, Japan and West Germany and eighth in the world in the production of crude oil. Production, especially industrial production, has been further developed in the last 20-odd years, making it possible to improve the economic structure. We must take advantage of the favorable conditions and build up our confidence and determination to improve our economic structure.

## II. Major Symptoms of Irrationality of Existing Economic Structure

At present our national economic structure is very irrational; many serious problems still exist. The main problems are:

### /1. The Serious Imbalance Between Agriculture and the Light and Heavy Industries/

The relationship among our agriculture and the light and heavy industries plays a pivotal role in shaping the structure of production. Whether or not there is a coordinated relationship among agriculture and the light and heavy industries has a decisive effect on the relationship of other ratios in the

in the national economy. The serious lack of coordination in the relationship among our agriculture and light and heavy industries over a long period of time is a major indication of the unsoundness of our economic structure.

Because of the high rate of agricultural labor productivity in the economically developed nations, they are able to use a smaller amount of labor in agricultural production to produce a sufficient amount of agricultural products to meet demand. In 1976, for instance, each agricultural worker in the United States produced on the average 174,675 jin of grain, 13,607 jin of meat, 3,032 jin of eggs and 43,275 jin of milk. The number of agricultural workers came to 3.8 percent of the total population and 4.8 percent of the total work force. The United States is able not only to supply its domestic needs, but also to export a large amount of agricultural products. In 1977, the average agricultural worker in our nation produced only 1,932 jin of grain, 50 jin of meat, 14 jin of eggs and 7 jin of milk. Agricultural workers comprised 84.9 percent of the population and 75.7 percent of the work force. Although 800 million people are engaged in food production, the amount of agricultural production still falls far short of meeting the needs for the development of the national economy and for maintaining the standard of living of the people. In 1978, the average per capita amount of major agricultural products required in our nation was 636 jin of grain, 4.6 jin of cotton, 4.8 jin of edible oil, 4.7 jin of sugar, 16.5 jin of meat and 9.7 jin of marine products, all lower than the average level in the world (874 jin of grain, 30 jin of oil, 50 jin of sugar and 40 jin of meat). Our agricultural structure is also extremely backward. The overemphasis on planting and on the cultivation of grain crops carried over from the olden days has remained basically unchanged. The value of agricultural production constitutes 70 percent of that of agriculture, forestry, animal husbandry, subsidiary agricultural products and fishery combined, while the value of grain production constitutes some 70 percent of that of the 12 types of agricultural products including grains, cotton, oil, hemp, sugar, silk, tea, vegetables, tobacco, herbal medicine and dyes. The arbitrary emphasis on "grains as the key link" and the failure to establish a sound agricultural structure have not only resulted in our failure to utilize our natural resources to the fullest extent, but also in the destruction of the ecological balance. At present, the percentage of forest cover throughout the nation comes to only 12.7 percent which is lower than the rate of 22 percent for the whole world. Although there are 1 billion mu of grassy mountains in the south, full advantage has not been taken to use the grassy slopes to develop animal husbandry. The rate of utilization of the shallow waters along the coast and beach areas for breeding purposes falls below 15 percent, while only two-thirds of the total area of fresh water is utilized for breeding. At one time, the rate of increase in grain production even lagged behind the rate of increase in the population. From 1957 to 1977, for instance, the average per capita amount of grain available dropped from 603 jin to 598 jin. In 1978, the level, although slightly higher than that of 1957, had yet to exceed the 660 jin level in 1936 prior to the liberation. In 1978, we imported 13.92 billion jin of graings, 9.52 million dan of cotton, 582 million jin of animal and vegetable fat and 1,328,000 tons of sugar, an anomalous situation for a large agricultural nation. A rate of agricultural labor productivity exceeding the personal needs of the laborers themselves is a condition necessary for other material and spiritual productions. The

backwardness of our agricultural production makes it difficult to develop the entire national economy at a rapid pace and in a healthy manner.

Our light industries have been relegated to a secondary position over a long period of time. There is too wide a discrepancy between the pace of development of the heavy industries and that of the light industries. Between 1949 and 1978, the heavy industries increased 90.6 times at the average annual rate of 16.9 percent while the light industries increased only 19.8 times at the average annual rate of 11 percent. The ratio between the production value of the light industries and the total production value of the heavy industries dropped from 73.6 percent in 1949 to 42.7 percent in 1978. During the First 5-Year Plan period, the ratio of investment in the light industries was 5.9 percent of that in capital construction. Since then, it has not only failed to go up, but has shown signs of going down. The ratio of investment in the heavy and light industries was 8 to 1 during the First 5-Year Plan period, 11 to 1 during the Second 5-Year Plan period, 13 to 1 during the 3-year period of readjustment, 14 to 1 during the Third 5-Year Plan period, 10 to 1 during the Fourth 5-Year Plan period and 8.3 to 1 during the first 3 years of the Fifth 5-Year Plan period. The latter ratio is still higher than that for the First 5-Year Plan period. The shortage of raw materials for the light industries is extremely acute. In 1952, among the light industrial products, those using agricultural products as raw materials constituted 87.5 percent and those using industrial products as raw materials constituted 12.5 percent. Since 1978, those using agricultural products as raw materials constituted 68.4 percent and those using industrial products as raw materials constituted 31.6 percent. Because of the slow increase in the supply of agricultural raw materials, the development of the light industries has been seriously stymied. The ratio of steel allocated to the light industries has also dropped. It was 21.3 percent during the First 5-Year Plan period, 13.7 percent during the Second 5-Year Plan period, 12.7 percent during the Third 5-Year Plan period, 11.3 percent during the Fourth 5-Year Plan period and 12.4 percent during the first 3 years of the Fifth 5-Year Plan period. The ratio between the amount of electric power consumption by the light industries and the total amount of consumption was 28 percent in 1952 and only 12.9 percent in 1978, representing a drop of more than half of the 1952 figure. During the Fourth 5-Year Plan period, the average annual rate of increase in the production of cotton yarn and cotton cloth was only 0.5 percent. In 1978, the average per capita consumption of cotton cloth in the cities and rural areas throughout the nation was 23.2 feet, or 1.6 feet less than the 24.8 feet for 1956. Some light industrial products are not produced in a sufficient amount to meet the minimal needs of the people. The acute shortage of many light industrial products in the market, such as paper, furniture, cleaning agents, beer and bicycles has not been eased for a long period of time. The amount of some light industrial products sold directly to the market is likely to be further reduced. According to the statistics of the Second Light Industries Bureaus in 16 provinces, whereas 50.6 percent of the structure of products in the system was placed in the market in 1965, the figure dropped to 43.4 percent in 1978, while the percentage made available to the large industries rose from 27.7 percent to 34.2 percent. The standard of production technique and the rate of labor productivity of the light industries are extremely low. The ratio of relationship among the light industries themselves is also lacking in coordination. For instance, the dyeing capacity of cotton cloth is only 60 percent of the grey cotton cloth

produced and only 15 percent of that is capable of being printed. The capacity for treating silk fabrics and knit goods after dyeing is even smaller. Compared to other countries, the backwardness of our light industries becomes even more evident. In 1977, the average per capita consumption rate of cotton cloth in our country was less than 50 percent of that of the Soviet Union, Japan and France. Sugar consumption was less than one-tenth of that in the Soviet Union, the United States, France and West Germany. The annual production of television sets in our country was three per 10,000 of the population, whereas it was 360 in the United States and 1,340 in Japan.

Our heavy industries have the tendency to develop independently of and with scant regard for the development of agriculture and the light industries. Because the scale and the pace of development of the heavy industries are beyond the material and financial resources of the national economy, they have not only adversely affected the development of agriculture and the light industries, but also created obstacles in their own development. An imbalance in the ratio has occurred among the heavy industries themselves. The lack of coordination is particularly evident in the production of raw materials and in the processing industries. The rate of increase in the production of machine tools far outstrips that of steel production. Whereas in 1978 there were 2.67 million machine tools in our country, or 2.8 times the number of 700,000 in 1956, steel production increased by only 1.5 times during the same period. At present, the processing capacity of our machine tools is three to four times the available supply of steel. In 1978, we produced 180,000 machine tools, an amount equivalent to that produced by the United States and the Soviet Union when they were producing 80 million tons of steel. Despite the large number of machine tools, they are poorly put together and far less efficient than those in foreign countries. Although we have 34 1,000-ton-plus hydraulic presses, a number equivalent to that owned by the EEC nations, they are so poorly put together technologically that they cannot be used to full capacity, so that we have to purchase large-size forgings from abroad. The overall capacity of the engineering machine industry is also low. Taking the electric power generating equipment as an example, while the capacity of the three large main engines comes to over 5 million kW, the high-pressure transformer equipment has the capacity of only 4 million kW. The production capacity of such accessories as engines, pumps, valves and automatic instruments is even lower. The construction of most of the farm machines produced in our country is outmoded. They are high in energy consumption and low in efficiency and adaptability. There is still a shortage of many urgently needed farm machines. In 1977, in the relative quantity of automobiles and steel produced, France is 35 times, the United States 25 times, Japan and Great Britain 15 times and the Soviet Union 2.7 times that of our country. There is also a lack of balance within the metallurgical industry in our country. First, our mines are in a backward state. Among the 10 large steel production bases in our nation, 6 cannot supply their own iron ore, and among the 28 iron-producing provinces, municipalities and autonomous regions, 16 are short of iron ore. In 1978, some 8 million tons of iron ore was imported. Second, our steel rolling is far from being adequate. The ratio between our steelrolling capacity and our steelmaking capacity is only 0.65 to 1, whereas the ratio in foreign countries is 1 to 1. For this reason, the rate of steel output in foreign countries is high, as is their capacity for adjusting the variety

of steel. Third, we are lagging behind in nonferrous metals. The extremely low self-sufficiency rate of many nonferrous metals in our country is getting lower and lower and the import ratio higher and higher. The amount of some traditionally exported nonferrous metal products is getting smaller year by year. Our construction and construction materials industries are also not what they should be. From 1953 to 1978, the average annual rate of increase in the construction material industry was 11.8 percent, a rate lower than the 13.6 percent average annual rate of increase of the heavy industries. There has been an acute shortage of many construction materials over the yeras. The situation described above indicates that our heavy industries have badly failed to play a dominant role in fully promoting agriculture, the light industries and the national economy.

/2. Shortage of Energy Supply/

Energy is an important element in the development of the national economy and a necessity for maintaining the standard of living of the people. Without an adequate supply of energy, it would be difficult to maintain steady progress in production and circulation and impossible to ensure that standard of living of the people. As the world is in the grips of an energy crisis, the shortage of energy has also posed a serious problem for our country. While the total value of our industrial production increased at the average annual rate of 11.2 percent between 1953 and 1978, our energy production increased at the average annual rate of only 9.6 percent. In the 2 years between 1977 and 1978, about one-fourth of our enterprises operated at less than full capacity. According to an investigation conducted by the electric power departments into the major users of electric power such as the metallurgical, chemical, light and textile and machine industries and the major regions with a shortage of electric power supply such as the northeast, east China and central-south China, the nation is short of installations capable of generating 10 million kW and 30 to 40 billion kWh so that the loss in production value of the industries amounts to tens of billions of yuan. While the farm machines throughout the nation have the motive power of 160 million horsepower, the state is able to supply only 8 million tons of diesel oil annually. Since the average of only 50 kg of oil is supplied for each horsepower, the machines can only operate some 50 days in a year. This has severely limited the efficient use of farm machines. There is also an acute shortage of energy for daily use. Many peasant households are short of firewood for part of the year. In some localities, tree barks are stripped, trees are uprooted and forests are denuded to solve the fuel shortage problem. In Sichuan Province, over 8 million cubic meters of trees, half of the amount felled by the entire province, are destroyed annually. The excessive mining for coal and oil and the excessive generation of thermoelectric power has created a ratio of imbalance among the energy industries. In recent years, we have not had a firm energy policy and there have been many structural changes in the use of oil and coal. Changes in the use of energy from coal to oil as the mainstay and back again have created heavy losses. The less than ideal industrial structure has also contributed to the energy shortage. It is estimated that for each 100 million yuan in production value, the heavy industries consume 4 times the energy and 2 times the electric power consumed by the light industries. According to a revised estimate of the total value of industrial

products in 1978, it is possible to consume over 6 million fewer tons of energy (standard coal) by increasing the ratio of production of the light industries and reducing the ratio of the production of the heavy industries by 1 percent. If the light industries are to maintain the same ratio in the total industrial production value prevailing in 1957, it is estimated that over 50 million tons of energy (standard coal) can be saved. There is also a serious waste in the use of energy in our nation is around 30 percent, whereas it is as high as 50 percent in the advanced industrial nations. In 1978, we consumed 178,000 tons of energy for each 100 million yuan in industrial production value, whereas in 1975, the amount of energy consumption was 65,000 tons in the United States and 50,000 tons in Japan. The production value generated by each 10,000 tons of energy is $5.62 million, which is 63 percent and 72 percent lower than that in the United States and Japan respectively. Compared to Japan, the total amount of energy consumption in our nation is more or less the same. However, the total value of our production is only about one-fourth of that of Japan. A 2 percent increase in the energy utilization rate above the present level in our nation would be equivalent to an increase of 20 million tons of standard coal.

/3. Lack of Coordination Between Transportation and the Development of Production/

It was Marx who said that "The revolution of the form of industrial and agricultural production, especially the revolution of the means of communication and transportation which provide the general conditions for the process of production in society, has become a matter of necessity."[1] Lenin also said that "Transportation constitutes the mainstay four our entire economy."[2] The weak link in our national economy is the backward state of our communication and transportation. The transportation capacity of our railways in 120 districts, or one-third of the total, has reached the saturation point. The railways in over 10 other districts, which can meet only 45 to 70 percent of transportation needs, have become bottlenecks. Our highway and water transportation likewise is inadequate to meet the needs for the development of industrial and agricultural production. Only 67 percent of our highways are open to traffic in all kinds of weather. Because consideration had not been given to comprehensive utilization when irrigation projects were being constructed, river traffice, instead of being increased, has been reduced by 20,000 to 30,000 li since 1962. The capacity of the Yangtze River from Chongqing to Shanghai is insufficient to meet the transportation needs for such materials as coal used by the factories along the coastal area. The grossly inadequate handling capacity of the coastal ports has had an adverse effect on the development of foreign trade. There are only 137 coastal ports capable of berthing 10,000-ton ships and only 90 can be used for foreign trade. In the first half of 1979, there were on the average 220 ships engaged in foreign trade in port, a number insufficient to handle the export freight which we have contracted to carry, so that 27 percent of the freight has to be

1 "Collected Works of Marx and Engels" Vol 23 p 421.

2 "Collected Works of Lenin" Vol 33 p 125.

carried by foreign bottoms at an annual cost of $150 million in rent. Because of lapses in administration, the lack of a proper division of labor among the various means of transportation has laid certain sealanes idle, put a heavy burden on the railways, made it necessary to transport freight over long distances by motor vehicles and for ships to dock frequently at a number of ports resulting in considerable loss and waste.

/4. Lack of Coordination Between Circulation and the Development of Production/

Under conditions for expanded production in society, the smooth progress of reproduction requires not only a coordination among the various production departments, but also that between production and transportation and between circulation and production. In some economically developed countries, the ratio of labor engaged in the commercial and service trades is being continually increased. Between 1870 and 1950, the number of workers engaged in the wholesale and retail trades in the United States increased by two times, a rate of increase higher than that of the major material production departments. The rate of increase was specially rapid between 1900 and 1950. Whereas one-tenth of the work force in the United States was engaged in trade in 1900, the number rose to one-fifth in 1950. The commercial and service trades in our country are in a deplorably backward state. In 1977, it was estimated that only a little over 3 percent of our work force was engaged in the commercial and service trades. More serious still is the tendency for the relative number of workers engaged in the commercial and service trades to be further reduced in the last 20-odd years. Comparing 1978 with 1957, when the population increased by 48 percent and the total amount of retail commodities in society increased by over two times, the number of workers engaged in the commercial, food and service trades increased by only 6.6 percent. Comparing 1978 with 1957, the number of commercial and service trade network outlets in Liaoning Province was reduced by over 80 percent and the number of food network outlets was reduced by over 90 percent, so that no shops can be found along 10-li stretches of streets in some cities and the workers are hard put to buy food and vegetables and to find a place to take a bath. In 1957, there were in the rural areas of that province 28,500 cooperative stores and 11,800 cooperative restaurants. By the end of 1979, only 580 poorly distributed stores remained. Many communes do not have network outlets so that commune members have difficulty finding a place to eat when they go to the market, a place to spend the night and a place to have their pictures taken. In 1952, there were in Fuxin municipality a population of 140,000 and 1,020 commercial network outlets. While the population has increased to over 400,000, only 316 commercial network outlets remain. While the population has increased three times, the number of network outlets has been reduced by two-thirds. There is an acute shortage of warehouses and grain, oil and cold storage depots in the commercial system. Because of the shortage of warehouses, there is not sufficient space to store the pigs put up for sale after they have been slaughtered by the peasants, so that in 1979 alone, the purchasing of pigs had to be suspended on three occasions. Because of the small number of commercial network outlets in that city, tens of thousands of its residents have to go a distance of over 2 li to buy food and vegetables and to ride their bicycles to have their soy sauce bottle refilled. While it is true that

the low rate of industrial and agricultural labor productivity is responsible for the inadequate development of the commercial and service trades, the main reason is due to the defects and errors in operation which have impeded the smooth progress of reproduction in society, thus creating many difficulties for the residents.

Our foreign trade likewise is far from being in a flourishing state. The total amount of our foreign trade accounts for a very small ratio of the total amount of trade in the international market. In world trade, we ranked 15th in 1973 and 1974, 25th in 1975 (our province of Taiwan ranked 35th) and 29th in 1976 (our province of Taiwan ranked 27th). The value of our export commodities (according to the total value of export commodities purchased by the importing nations) accounts for a very small ratio of the total value of our industrial and agricultural production. The average ratio was 4 percent since the establishment of the republic over 30 years ago and 3.9 percent in 1977 and 1978. In 1976, the ratio was 55.4 percent for West Germany, 30.4 percent for Japan, 22.8 percent for the United States and 10.6 percent for the Soviet Union. The composition of our export commodities also leaves a great deal to be desired. In 1978, 54 percent of our export commodities were primary products, 38 percent light industrial and textile products and 8 percent heavy industrial products. In the same year, 10.8 percent of the export commodities of South Korea were primary products, 54.6 percent light industrial and textile products and 34.6 percent heavy industrial products. This situation is hardly calculated to contribute to the development of our industries or to meet the requirements of modernization.

/5. Imbalance Between Accumulation and Consumption/

The excessive rate of accumulation in our country over a long period of time, which has resulted in an imbalance in the ratio between accumulation and consumption, is another major indication of the incompatibility of our economic structure.

During the First 5-Year Plan period, the accumulation rate in our nation basically held steadily between 23 and 25 percent which may be considered suited to the situation at the time. Since excessively high over a long period of time. It was 33.9 percent in 1958, 43.8 percent in 1959, the average of 30.8 percent during the Second 5-Year Plan period, 26.3 percent during the Third 5-Year Plan period, 33 percent during the Fourth 5-Year Plan period, 31.1 percent in 1976, 32.3 percent in 1977 and 36.5 percent in 1978. The high rate of accumulation since the First 5-Year Plan period was the result of the high rate of increase in accumulation and the low rate of increase in consumption. Since 1958, not counting the 3-year period of readjustment, the rate of increase in the amount of consumption by residents in the cities and rural areas. but also the rate of increase in the total amount of the national income. During the Fourth 5-Year Plan period, our rate of accumulation (except for Japan with a rate of 36 percent) was higher than that of the Soviet Union (28 percent), France (25.4 percent), West Germany (25 percent) and Great Britain (18.2 percent).

Compounding the high rate of accumulation is the excessive scale of capital construction which overtaxes the available financial, material and manpower resources. During the First 5-Year Plan period, capital construction expenditures constituted 37 percent of the total expenditures of the state, a rate which may be considered more or less reasonable. It rose, however, to 46.2 percent during the Second 5-Year Plan period, the average of 40.2 percent during the Fourth 5-Year Plan period and 40.7 percent in 1978, a rate that is far beyond what is permissible and therefore prejudicial to the development of production. At the end of 1978, there were 65,000 projects in the process of construction under the public ownership system throuhgout the nation requiring a total amount of investment exceeding 370 billion yuan. Aside from the projects which have been completed at a cost of 210 billion yuan, a further investment of 260 billion yuan is required for the completion of all the projects. On the basis of the annual amount of investment within the financial means of the state, it will take 6 or 7 years to complete the construction projects even if not a single new project is added. The overhauling of capital construction projects undertaken in 1979 has yielded certain positive results. However, the capital construction battle line at the present time is still overly extended, the number of construction projects is still excessive and the scale of the projects is still too large. Furthermore, the number of construction projects financed by various other funds is on the rise. Without overall planning and proper guidance, the battle line is likely to be further extended.

There is also a serious imbalance between productive accumulation and nonproductive accumulation. Productive accumulation came to 59.8 percent during the First 5-Year Plan period, rose to 87.1 percent during the Second 5-Year Plan period, dropped to 65.5 percent during the 3-year period of readjustment, rose to 74.5 percent during the Third 5-Year Plan period and rose again to 77.4 percent during the Fourth 5-Year Plan period. It was 83.2 percent in 1976, 75.4 percent in 1977 and 75.9 percent in 1978. As for the ratio of nonproductive accumulation, it dropped sharply from 40.2 percent during the First 5-Year Plan period to 12.9 percent during the Second 5-Year Plan period, rose to 34.5 percent during the 3-year period of readjustment and again dropped to 25.5 percent and 22.4 percent during the Third 5-Year Plan and the Fourth 5-Year Plan periods respectively. This situation has led to a serious imbalance in the ratio between "bones" and "meat." As regards investment in housing, it came to 9.1 percent of the investment in capital construction during the First 5-Year Plan period and dropped to 4 percent during the Second 5-Year Plan period and 5 percent during 1967 to 1975. In 1977, the average per capita living space in the cities throughout the nation came to only 3.5 square meters [$M^2$], or 0.9 $M^2$ less than the 4.5 $M^2$ in 1952. Compared to the living space in foreign countries, the disparity is even more striking. For instance, the average per capita living space was 18 $M^2$ in the United States (1974-1976), 13 in Japan (1978), 7.14 in the Soviet Union (1974-1976), 9.6 in Romania (1977) and 13.6 in Yugoslavia (1979). In 1977, the number of households lacking in adequate housing came to 37 percent of the total number of households in our cities. The inadequate supply of water in the cities, traffic congestion, the shortage of cultural, educational and public health facilities and the lack of school buildings are all problems of serious proportions.

/6. The Many Problems Left Behind By Construction of the Three Sectors/

At the end of 1965, China began to undertake construction of the three [economic] sectors on a large scale, with military construction as the core component. Overestimating the seriousness of the international situation at the time, we considered it a matter of urgency to complete these projects during the Third 5-Year Plan period. By greatly increasing the ratio of investments in the three-sector construction projects, we not only adversely affected the national economy as a whole, but also failed to do well in the three sectors. Despite the heavy investments in the three sectors during the Third 5-Year Plan and the Fourth 5-Year Plan periods, the result left a great deal to be desired. Although many factories had been set up, they were not able to play the role they were expected to play and the actual amount of production lagged far behind that according to the plan. Taking the development of coal mines in Liupanshui in Guizhou Province as an example, although 21 mines with a projected capacity of 11.2 million tons had been constructed, they were, due to the lack of certain accessories, capable of producing only 7.2 million tons. Again, according to an investigation conducted by Sichuan Province, due to the adoption by the military of an independent production and a "closed" administration system, it took no part in the productive process in the national economy and in civilian production despite the fact that 40 to 50 percent of its productive power lay idle at any given period of time. To help meet the heavy responsibilities of the war industry, the localities were hard put to supply the accessories it needed. Because of the emphasis put by three-sector construction on dispersion and on locating them in mountains and caves, their distribution was irrational in the extreme. For example, an enterprise engaged in the war industry in a certain province had to scatter 43 units in 3 municipalities, 3 special administrative regions and 9 counties for a distance of 350 km. The difficulty of negotiating mountain roads and of communication created insurmountable problems in production and in the maintenance of normal lives. All the three-sector construction projects entailed long lists of accessories. In an investigation conducted in the southwest in 1977, an estimate was given by the concerned parties that Sichuan Province would need a further investment of 4.7 and Guizhou Province 2 billion yuan to acquire all the accessories. Many of the projects, unable to go ahead or to retreat, have become millstones.

That the economic structure is not what it should be may be seen in many other areas. Our educational, scientific and economic construction projects are likewise extremely uncoordinated. The modernization of S&T constitutes the key and education the foundation for the implementation of the four modernizations. Education in our country is in an extremely backward state. Taking universal and elementary education as an example, although 90 percent of the students are nominally enrolled in elementary schools, only 60 percent actually complete the fifth grade and only 30 percent actually achieve the sixth grade level. There are in the nation some 140 million illiterates. In 1976, while out of every 10,000, 550 were in college in the United States, 210 in Japan, 200 in the Soviet Union and 58 in India, there were only 9 in China. In 1979, while the average per capita expenditure on education came to 7.3 yuan in China, it came to 366 yuan in Great Britain, 350 yuan in Italy and 1,266 yuan in the Netherlands. According to the Ministry of Education, some 54 million

$M^2$ of the middle and elementary school premises, 17.2 percent of the total, are considered hazardous. The collapse of buildings, which occurs every year, poses a threat to the safety of teachers and students. Our scientific projects, likewise, have not been given the attention they deserve. In 1977, the average per capita expenditure on scientific research came to $2.50 or 1.4 percent of the gross value of our national product, whereas it came to 2.2 percent in the United States (1977), 2.6 percent in the Soviet Union (1975), 2 percent in Japan (1973), 2.1 percent in West Germany (1973), 2.7 percent in Great Britain (1969) and 1.8 percent in France (1971). The ratio of S&T personnel in relation to our population is far smaller than that of the above-mentioned nations.

What is the problem posed by the economic structure at the present time? The main problem is, in our opinion, the lack of coordination in the relationship between the two major categories. As everyone knows, the proper adjustment of the relationship between the two major categories is a prerequisite for successfully bringing about reproduction in society. Generally speaking, two basic conditions are required for expanded reproduction in society. First, the production departments producing the means of production required to sustain simple reproduction and make available the additional means of production required for expanded reproduction. Second, the departments producing the means of subsistence must produce the means of subsistence required for sustaining simple reproduction and make available the additional means of subsistence required for expanded reproduction. It is only when these two conditions are met that expanded reproduction is possible. Expanded reproduction would be difficult in the absence of any one condition. The main problem plaguing our economic structure at the present time is the lack of coordination between the production of the means of production and the means of subsistence. In short, the problem lies in the fact that the production of means of subsistence lags far behind the production of the means of production.

It is a fact that economic life is sustained by agriculture and the light and heavy industries rather than the two major categories of the means of production and the means of subsistence. In the work of planning and in other economic fields, the two major categories must be merged with agriculture and the light and heavy industries. However, the interrelationship among agriculture and the light and heavy industries cannot accurately reflect the relationship between the two major categories. We usually regard agriculture and the light industries as belonging to the means of subsistence department and the heavy industries as belonging to the means of production department whereas in actual fact, agriculture and the light industries also produce certain means of subsistence. It is very difficult to regard certain departments, such as the chemical industry, as belonging to the light or the heavy industries. Whether or not the relationship among agriculture and the light and heavy industries is well coordinated depends in the final analysis on whether or not reproduction in society meets the needs of the two major categories. To deal with the relationship among agriculture and the light and heavy industries without reference to the demarcation between the two major categories would be to depart from the objective standard and the scientific basis.

## III. The Consequences of the Defects in the Economic Structure

The problems cited above are indicative of the defects in our economic structure and the serious imbalance in the ratio of our national economy. This situation has done great harm to our socialist construction projects.

### /A. It Impedes the Smooth Progress of Reproduction in Society/

The imbalance in the ratio of the national economy inevitably makes it difficult to engage in reproduction in society. Over a long period of time, the situation has been marked by a low rate of equipment utilization, a large amount of stockpiled products and a large number of people seeking employment. This is a clear indictaion of the hindrance put in the path of reproduction in society. We would do well to compare the rate of equipment utilization and of unemployment in our country with that in the capitalist countries. Many of our enterprises are in the practice of operating certain plants while others are being idled. The utilization rate of metal-cutting machine tools throughout the nation was 54.6 percent in 1977, and 55.6 percent in 1978. During the great crisis in the 1930's in the United States, the lowest equipment utilization rate was 42 percent in 1932, 52 percent in 1933, 53 percent in 1931 and 58 percent in 1934 while the rate for all other years exceeded 65 percent. In our country, certain products are being imported in large quantities while the amount being stockpiled keeps increasing. The steel being stockpiled, for instance, was 12 million tons at the end of 1976, 12.6 million tons at the end of 1977, 15.5 million tons at the end of 1978 and 18.65 million tons at the end of 1979, an amount sufficient to meet the needs for 8 months, whereas Romania and Japan have stockpiles calculated to last no more than 90 and 30 days respectively. There is in our nation a wide discrepancy between the number of people seeking employment and the number of jobs available. In early 1979, employment was sought by 20 million people, of whom 8 million needed a job desperately. During the great crisis in the 1930's, the rate of unemployment in the United States was, from the highest rate of 24.9 percent in 1933, 23.6 percent in 1932, 21.7 percent in 1934, 20.1 percent in 1935, 16.9 percent in 1936, 15.9 percent in 1931 and 8.7 percent in 1930. In the 1950's, the highest rate was 6.8 percent in 1958 and the lowest rate was 2.5 percent in 1954. In early 1979, the number of employable workers in our nation was 94.99 million of whom a high ratio were without employment. The man-hour utilization rate of many enterprises in our country is extremely low. According to an investigation conducted by the Beijing Municipality, the rate in 1978 was 84.3 percent, while that of the industrial enterprises in Beijing under the third, fourth and fifth engineering industry departments came to only 74.5 percent. That reproduction in society in our nation is being impeded is further demonstrated by the ups and downs of the national economy and by the fact that many capital construction projects have been stalled. The annual rate of increase in the gross production value of our industries was 54.8 percent in 1958 and 36.1 percent in 1959, while the annual rate of decrease was 38.2 percent in 1961 and 16.6 percent in 1962. The annual decrease in the gross value of our agricultural products was 13.6 percent in 1959 and 12.6 percent in 1960. The amount of investment in capital construction in 1961 was reduced by two-thirds compared to 1960, while that in 1962 was further reduced by one-third compared to 1961. During the period

of readjustment of the national economy, many engineering projects have also been suspended. Because production is society-oriented, the capitalist system and the conflicts inherent in the capitalist system would inevitably create economic crises. The socialist system, having overcome the conflicts inherent in the capitalist system, should be immune to economic crises. However, if the economic structure is unsound, various crises similar to those which plague the capitalist countries can also beset the socialist system.

/B. An Unsound Economic Structure Also Reduces Economic Effectiveness/

During the First 5-Year Plan period, our economic effectiveness was rather high. However, beginning in the Second 5-Year Plan period, except for an upturn during the period of readjustment from 1963 to 1965, it has been on a downward trend. The utilization rate of fixed assets was 83.7 percent during the First 5-Year Plan period, 71.4 percent during the Second 5-Year Plan period, 59.5 percent during the Third 5-Year Plan period, 61.4 percent during the Fourth 5-Year Plan period and the average of 68.5 percent from 1952 to 1978. From 1952 to 1978, the total amount of capital investment in our country came to 600 billion yuan of which only 400 billion consisted of fixed assets. If the utilization rate of fixed assets could be maintained at the level of the First 5-Year Plan period, it would be possible to add an additional 100 billion yuan to fixed assets. The amount of investment necessary to increase the national income by 1 yuan was 1.68 yuan during the First 5-Year Plan period, 73.7 [as published] yuan during the Second 5-Year Plan period, 2.32 yuan during the Third 5-Year Plan period, 3.76 yuan during the Fourth 5-Year Plan period and 3.2 yuan during the period from 1976 to 1978. It can therefore be seen that the amount of investment required to increase 1 yuan in the national income has almost doubled that during the First 5-Year Plan period. The amount of profit and taxes generated by the state enterprises for every 100 yuan in capital was 29.4 yuan during the First 5-Year Plan period and 18.2 yuan, or 11.2 yuan less, for 1978. At the end of 1978, the total capital of the state enterprises came to 609.5 billion yuan. If the amount of taxes and profits generated by each 100 yuan of capital could reach the level for the First 5-Year Plan period, it would be possible to increase income by over 60 billion yuan.

Although there are obviously many reasons accounting for the decline of economic effectiveness, a major reason is certainly the irrationality of the economic structure. During the First 5-Year Plan period, when the rate of accumulation and the scale of constructions were more rational, the rate of economic effectiveness was also higher. It was no accident that since the Second 5-Year Plan and the Third 5-Year Plan period, when the rate of accumulation was too high and the scale of construction was too large, economic effectiveness also took a big plunge. The reason is that when the scale of constructions exceeds the financial, material and manpower resources that can be provided by the state, it is only natural that the construction projects cannot acquire the funds, equipment, materials and labor when they are needed. Since, during the last few years, the supply of lumber, steel and cement was able to meet only 60 to 80 percent of requirements, it was only natural that the construction period would be extended and that higher costs would be entailed. Many construction projects were not completed in time, and even

when they were completed, they were not able to begin operations due to the shortage of raw materials and power. The excessive scale of constructions also has the effect of hampering the production of the original enterprises in that expanded reproduction is given priority over simple reproduction so that neither expanded nor simple reproduction stands to gain. Overemphasis on the heavy industries at the expense of the light industries also has the effect of reducing economic effectiveness. In 1978, the amount of profits and taxes generated by each 100 yuan in funds was 54.1 yuan for the light industries and 18 yuan for the heavy industries, while the term of recovery of funds was 1 year and 4 months for the light industries and 5 years and 7 months for the heavy industries. The irrational agricultural structure also has the effect of reducing economic effectiveness. For instance, the denudation of the forests to open up wastelands and the destruction of grasslands for the planting of crops have resulted in the destruction of the vegetation, the severe loss of water and the erosion of the soil. It is estimated that at the present time, 1.5 million sq km of land throughout the nation suffers from the loss of water and from soil erosion, that every year 5 billion tons of top soil is being washed away and that the amount of nitrogen, phospherous and potassium equivalent to 40 million tons of chemical fertilizers is being lost. It is estimated that of the 9.6 million sq km comprising the land area of our nation, 10 percent consists of high mountains, glaciers, shifting sand dunes and the Gobi Desert which was considered unsuited to agricultural production. Only 10 percent of the land suitable for cultivation is being used mainly for agricultural production, while the remaining 80 percent has not been used to good advantage. According to one estimate, the 80 percent produces only 10 percent of the production value and that the major part of the production value of animal husbandry and subsidiary production is derived from the farm areas. This situation is largely due to the irrationality of the agriculture structure. The irrationality of the distribution of industrial centers also has an adverse effect on economic effectiveness. The expenditure for three-sector capital construction and the cost of production, for instance, are much higher than those in other regions.

/C. Furthermore, [the Irrationality of the Economic Structure] also Makes It Difficult To Improve the People's Standard of Living/

As has been stated above, if we are to look at statistical figures, it would appear that our national economy is being developed at an even more rapid pace than that in some of the major countries in the world. However, the rate of improvement in the economic life of our people is slower and there is a general shortage of food, clothing, articles of daily use and housing for the people. From 1957 to 1978, while the average increases in the annual gross production value of our industries came to 9.7 percent, the standard of living of our workers showed a decline instead of an upturn. According to a rough estimate, the level of the real wages of our workers, not counting the commodity prices factor, was slightly lower in 1978 than in 1957. During this period, the income of workers in many foreign countries showed a considerable increase. The real annual wages of workers in Japan increased by 7.1 percent from 1955 to 1975. From 1950 to 1977, the annual increase of real wages for workers in Romania came to 5.9 percent. In 1978, the income of each commune member in the rural areas in our country allocated by the collectives came to

73.9 yuan, representing an increase of 33 yuan compared to 1957 and an average annual increase of 2.9 percent. If the factor of commodity prices is not taken into account, the amount of increase would be even smaller. At the present time, many peasants are still short of food and clothing. In 1978, 30 percent of the members of impoverished brigades received less than 50 yuan from the collectives. The annual per capita grain ration is less than 400 jin in the paddy areas. Some 20 percent of the nation's production team members in areas producing grains other than wheat and rice are allocated less than 300 jin of grains. The percentage is 30 in Qinghai and Ningxia and 40 in Inner Mongolia, Gansu and Guizhou.

While the unsound economic structure obviously cannot be held solely responsible for contributing to this situation, it is nevertheless a major contributing factor. It is not difficult to see that an excessively high rate of accumulation would inevitably have an adverse effect on consumption, making it difficult to raise to a proper degree the standard of living of the people. Furthermore, the irrationality of the production structure, as evidenced by the neglect of agriculture. the light industries and the commercial and service trade operations and the failure to attach to them the importance that is due, would make it difficult to improve the people's standard of living. Subjectively, it is our hope that the excessively high rate of accumulation and the excessively low rate of consumption would soon be corrected and that a higher standard of living for the people would soon be made possible. However, that is something that is limited not only by the rate of increased production, but also by the existing production structure. In the past 2 years, the considerable increase in the wages of workers and the income of commune members has resulted in a shortage of supplies in the market. That goes to show that a proper economic structure is a prerequisite to the improvement of the people's standard of living and that the irrationality of the economic structure would have the opposite effect.

/D, The Irrationality of the Economic Structure Hinders the Reform of the Economic Administration System/

Our economic administration system is saddled with many serious problems crying out for reform. The general public has become increasingly aware of the urgent need for reform. However, under circumstances marked by the serious imbalance in the ratio of relationships in the national economy, it would be difficult to bring about reforms in the economic administration system on a large scale. Even the work of launching pilot projects is met with difficulties brought on by the irrationality of the economic structure. For instance, the replacement of state allocations by the extension of loans for capital construction is hampered by the lack of certain supplies when they are needed. The irrationality of the economic structure also puts a limit on the supply and sale of certain products, thus hampering the development of competition, the production of commodities and the implementation of the policy of integrating planned readjustment with market readjustment. The irrationality of the economic strucutre also hampers the consolidation of the enterprises, the reform of the economic administration system and the reorganization of the industries in coordination with the specialized departments. While some enterprises have now been accorded a larger measure

of autonomy, they have nevertheless no assurance of getting the fuel, the power and the raw materials that they need, with the result that they are unable to proceed smoothly with production and capital construction and to develop their initiative and enthusiasm. We are not, of course, saying that the irrationality of the economic structure precludes the reform of the economic administration system. We must, of course, insist on bringing about the necessary reforms if we are to succeed in gradually putting the economic structure on the right track. Nevertheless, the problems inherent in the existing economic structure do not lend themselves to the overall and basic reform of the economic administration system.

## IV. Certain Lessons Derived From Experience

Why is our economic structure not what it should be 30 years after the establishment of the republic? There are objective as well as subjective reasons. From the objective point of view, the semifeudal and semicolonial type of economic structure that existed prior to the liberation could not but have a dire effect on the economic structure after the liberation. After the liberation, we continued to be subjected to the encirclement and the threat posed by imperialism and social imperialism. When we made a start in launching projects of construction, the Soviet Union served as the only socialist model. Consequently, we adopted for ourselves lock, stock and barrel the entire economic administration system and the economic structure from the Soviet Union. On top of that, having existed for thousands of years in a feudal society, we were steeped in the feudalist tradition. For instance, our failure to attach importance to, and even our low regard for, the production of commodities and the law of values and our remissness in directing our attention to economic accounting and economic effectiveness have a deep-rooted foundation. However, the irrationality of our economic structure is largely due to subjective factors. Aside from the disruption and destruction caused by Lin Biao and the gang of four, it may be attributed to errors in leadership, errors resulting from one-sidedness in matters of theory and flaws in the economic administration system. If we had acquitted ourselves in a more creditable manner and committed fewer errors, the problems resulting from the economic structure would not have been as serious as they are today. If we had continued to develop the economic structure in a healthy manner after the First 5-Year Plan period, we would now have a sounder economic structure. In order to reduce or to refrain from committing the errors of the past, we must learn in all earnestness to benefit from the sum of our experiences.

What lessons have we learned from our experiences in dealing with the economic structure? The following are, in our view, the major lessons:

### /A. It Is Necessary to Establish a Rational Production Relationship That Meets the Demands of the Productive Forces and the Productive Level of the Productive Relationship/

The economic structure is comprised of both the structure of the productive forces and the productive level of the production relationship. Marx said, "Those who assume responsibility for production must use the natural

relationships and their mutual relationship to arrive at the sum total of the various relationships in production and must look at society from the point of view of the economic structure in society."[3] This definition of Marx is applicable to a socialist society. It follows, therefore, that a rational production relationship structure is the substance of a rational economic structure. We must correctly deal with such problems as that of the ownership structure in conformance with the demand that the production relationship should be in accord with the state of the productive forces.

It should be noted that the structure of production relationships has a decisive effect on many aspects of the structure of the productive forces. Unless there is a proper structure of production relationships, it would be difficult to set up a sound structure of productive forces. The evolution of our economic structure goes to show that the establishment of a sound structure of production relationships is a prerequistie to the establishment of a sound structure of productive forces.

That the evolution of our economic structure was able to proceed smoothly during the First 5-Year Plan period was due to the implementation of land reform measures and the adoption of the proper methods and proper steps to bring about socialist reforms in agriculture, the handicraft trades and the capitalist industrial and commercial enterprises. Because the measures we adopted met with the demands of the productive forces situation in production relationships, we were able to promote the rapid development of our productive forces and to create favorable conditions for the establishment of a sound economic structure. The serious problems in our economic structure emerged in 1958 when the people's communes were first organized. It was when the organization of cooperatives was at its height in 1956 that we committed the error of organizing cooperatives at too great a speed and demanding too high a degree of socialization. Later, the stirring up of "the winds of communism" during the movement to organize people's communes had the effect of dampening the zeal of the peasants and of dealing a blow to the development of agriculture. The reduction in agricultural production had an adverse effect on the light and heavy industries. On top of that, the destruction of such socialist economic accounting and distribution systems as distribution according to work not only created problems in the production relationship, but also dealt a blow to the productive forces, thus creating a serious imbalance in the relationship of the national economy. The economic upturn during the 3-year period of readjustment was due to the readjustment of the production relationship (such as making the production teams the basic accounting units, the discontinuance of the supply system and the closing down of mess halls) to conform with the productive forces situation. The period of the great cultural revolution and the history of recent years point to the fact that from both the obverse and the reverse side, a sound structure of production relationships is one of the keys to the establishment of a sound economic structure.

The present situation of our productive forces is in a serious state of imbalance. In order to adapt the multilevel productive forces to each other,

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[3] "Collected Works of Marx and Engels" Vol 25 p 925.

it would be necessary to establish a production relationship on many levels. Thus, in order to establish a proper structure of production relationships, it is necessary, under conditions marked by the overwhelming superiority of the socialist public ownership system, to permit the coexistence of diversified economic components and diversified operations.

The view was held at one time that the more extensive and the more public the ownership system, the better it is. This point of view is based on the theory that it is ossible for production relationships to take precedence over productive forces and that it is only thus that it is possible to develop and to promote the development of the productive forces. It is this point of view which leads to the blind pursuit of what is "large in size and more collectivized in nature" and the the arbitrary uniformity in economic forms. This point of view runs counter to the Marxist theory that the production relationship must conform with the basic principle that it must be suited to the nature and the level of the productive forces. Facts indicate that when the production relationship lags behind the productive forces, it would inevitably hamper and undermine the development of the productive forces and that when the production relationship exceeds the productive forces, it would in turn hamper and undermine the development of the productive forces. In the past, we tended to take a one-sided view of the relationship between mechanization and the cooperative movement. True enough, we should not proceed with mechanization before the organization of cooperatives. However, we cannot accept the view that the organization of cooperatives can proceed independently of mechanization, let alone the view that the organization of cooperatives can exceed the level of development of the productive forces. First of all, the pace and the scale in the organization of cooperatives are determined by the state of the productive forces and especially by the level of mechanization. Second, the economic methods adopted by the cooperatives in organizing production, exchange and distribution are also determined by the state of the productive forces. Furthermore, the consolidation and development of the cooperatives are likewise determined by the development of the productive forces. It was Lenin who said, "Without an entire cultural revolution, it would not be possible to organize out-and-out cooperatives."[4] The cultural revolution referred to includes the improvement of the productive forces and the cultural level of the peasants. History has proved Lenin's thesis to be correct. We have been remiss in not having completely suited our action to Lenin's words.

Recently, the party Central Committee has urged the relaxation of policy and more and more relaxation of policy for the specially economically backward regions. By the relaxation of policy is meant the thorough redressing of the "leftist" policy which has been enforced over a long period of time and of the error of doing things in an arbitrary manner so that the various links in the relationship of production may be suited to the nature and the level of the productive forces. This policy of the party Central Committee is unassailable. It is only by the implementation of this policy in a determined manner that we can fully motivate the posistive attitude of the workers,

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4 "Selected Works of Lenin" Vol 4 p 687.

make it possible to develop industrial and agricultural production at a rapid pace and gradually put the economic structure on a sound footing.

/B. We Must Deal Correctly With the Speed and the Ratio of Relationships and Achieve an Overall Balance in the National Economy/

It is the development of a national economy that is in line with a plan and proportionate that makes the socialist public ownership system superior to the capitalist system. To ensure the development of a national economy that is in line with a plan and proportionate, it is imperative that we should strive to achieve an overall balance. Our past experience clearly shows that an overall balance is an important element which makes it possible to proceed smoothly with socialist modernization projects of construction and to put the economic structure on a sound footing.

Although we were short of experience during the First 5-Year Plan period, we did stress the fact that "the achievement of an overall balance is the basic method to go about our work of planning." That was why the economy was being developed rather smoothly at the time. Later, as a result of putting a premium on speed in a blind manner and of not paying sufficient attention to, or even of going against, the requirement of an overall balance, we suffered bitter setbacks. For instance, from the 5.35 million tons of steel produced in 1957, we set quotas of 10.7 million tons for 1958 and 18 million tons for 1959. It was this demand for speed with no consideration being given to the realities that led to a serious proportional imbalance which prevailed over a period of 3 difficult years. Not having learned our lesson, we again made the error of setting a high quota during the Third 5-Year Plan and the Fourth 5-Year Plan periods, thus creating once more a serious proportional imbalance.

In order to achieve an overall balance, it is essential that we should deal properly with the relationship between speed and proportion. What kind of relationship is that between speed and proportion? According to the theory of Marx on reproduction, the smooth progress of reproduction in society requires the development of the two major categories and various other categories themselves according to a certain proportion. In other words, the maintenance of a proportion should take precedence over speed, and speed should be subordinated to the need for the maintenance of a proportion instead of the other way around. In the past, however, the view was current that the proportion should be subordinated to speed, that everything in the work of planning should be undertaken with a view to achieving a high rate of speed and that speed should be the alpha and the omega of planning. Speed in the development of the economy is of course a matter of importance. It is often said that the socialist economy should be developed at a high rate of speed. The rate of speed, however, must have a scientific basis. It must be capable of being sustained over a long period of time. It must be able to contribute to the coordinated development of the various sectors in the national economy, the shaping and the development of a sound economic structure and the speedy improvement of the people's standard of living. A prerequisite for that is the achievement of an overall balance. As a result of errors in our guiding ideology, we often failed to take this requirement into account, sought to achieve a high rate of speed and even resorted to such questionable means as

killing the goose that laid the golden eggs and indulging in wasteful practices in order to increase gross production value. The speed thus achieved covers up many hidden shoals and results in the abnormal phenomenon of achieving speed without improving the standard of living of the people. Experience tells us in a convincing way the utter mistake of entertaining such views as the need to subordinate proportion to speed. The socialist national economy can be developed at a high rate of speed only when it is developed according to a proper ratio.

This involves the question of the purpose of socialist production. The purpose of planning serves the purpose of production, and to make speed the purpose of planning is in fact to achieve speed for the sake of speed. It was pointed out by Marx years ago that "Without production, there is no consumption. However, if there is no consumption, there is also no production because without consumption, there is no purpose to production."[5] Under the socialist system, the direct purpose of production is the improvement of the people's standard of living. However, we had in the past long overlooked the standard of living of the people and seldom delved into the problem of consumption in our study of political economy. The long-current argument that "importance should be attached to production first and the people's standard of living second" and that "the mountain slope should be taken care of first and the pits second" reflects the one-sided view of our ideological understanding.

What caused us to seek to achieve a high rate of speed in a blind manner over a long period of time? That is a question that needs looking into. One of the major contributing factors was the backwardness of our economy and the impoverished state of our people. The urgent need to alter our backward state and to improve the livelihood of the people tended to create an impetuous and hasty state of mind and a tendency toward "leftist" trends in our guiding ideology. It was this ideology which was behind our projects of socialist construction. This ideology, aside from being manifested in an effort to achieve a high rate of speed at any cost, is also revealed in other ways, such as the demand that the various provinces should set up within a short period of time an independent and integrated industrial system. Some of our provinces are larger than some countries in Europe. In matters concerning economic construction, we should of course develop to the full their initative and spirit of enthusiasm. At a time when the productive forces in our country are at a low level, the demand that each province should establish an independent and integrated industrial system within a brief period of time would inevitably lead to an attempt to make a hundred enterprises prosper and to undertake a myriad of chores at one and the same time, an attempt which would result in the decentralization of our resources, the duplication of our construction projects, the projection of our capital constructions on an excessively large scale and an imbalance in the proportions of our national economy.

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5 "Selected Works of Marx" Vol 2 p 94.

/C. We Should Set a Proper Relationship Among Agriculture, the Light and the Heavy Industries/

In the past, we had tended to regard the road to industrialization as mainly a matter pertaining to the relationship among agriculture and the light and heavy industries. It seems that this understanding should be revised upward. The reason is that the process of industrialization, aside from the setting of a proper relationship among agricultrue and the light and heavy industries, also involves the proper handling of many important problems such as energy resources and problems in communication and transportation, S&T and education. Some of these problems do not involve the relationship among agriculture and the light and heavy industries at all or in a conspicuous manner. In order to put the economic structure on a sound basis, we must properly deal with all these problems.

However, the problem relating to agriculture and the light and heavy industries is also key to the achievement of industrialization and the establishment of a sound economic structure. Agriculture and the light and heavy industries account for over 80 percent of our national income and over 85 percent of our employable workers. The relatively sound economic structure during the First 5-Year Plan period was due mainly to the proper way in which we dealt with the relationship among agriculture and the light and heavy industries. Among the total industrial and agriculture production value at the time of the First 5-Year Plan, agriculture, the light industries and the heavy industries constitued 47.9 percent, 29.6 percent and 22.5 percent respectively. This ratio was relatively sound under the circumstances at the time. During the Second 5-Year Plan period, the ratio was changed to 27.2 percent, 29.7 percent and 43.1 percent. The sharp drop in the ratio for agriculture and the sharp rise registered by the heavy industries was indicative of the serious imbalance in the national economy. The view has been advanced by some comrades that the present ratio of 3:3:4 for agriculture and the light and heavy industries is relatively sound and that the ratio for agriculture and the light industries should not be lower than 60 percent and that for the heavy industries should not be higher than 40 percent of the gross value of industrial and agricultural production. This view needs further study.

In order to deal propoerly with the relationship among agriculture and the light and heavy industries, we must redress the error of arbitrarily giving priority to the development of the heavy industries. The priority which we had in the past arbitrarily given to the development of the heavy industries is not unrelated to the one-sided theories which were popular at the time. The view was held that it was by giving priority to the development of the heavy industries that we could achieve socialist industrialization and that giving priority to the development of the light industries would lead to capitalist industrialization. Actually, this theory cannot be substantiated. It was common practice on our part to use the history of industrialization in such capitalist countries as Great Britain and France to support this theory. While it is true that such capitalist countries as Great Britain and France did engage in industrialization through the development of the light industries as a start, it does not follow that using the light industries as a start in the process of industrialization is the capitalist way of engaging

in industrialization not because of the capitalist production relationship, but because of the situation of the productive forces which existed at the time. When such countries as Great Britain and France made a start in industrialization, agriculture played a dominant role and the textile and other light industries were the major industries because such heavy industries as coal and iron-smelting were far from being developed. It was this factor in the productive forces which accounted for the fact that a start was made in industrialization by developing the light industries. At the time, these countries had a sure supply of raw materials, a ready market for their textile industry and the necessary technical means to engage in the Industrial Revolution, so it was only natural that they should develop the textile industry as a start. The capitalist enterprises, being small in scale, limited in accumulation and not having the capability to develop heavy industries on a large scale, were in a better position to operate light industries. However, the scale of the enterprises and the size of their accumulations are, in the final analysis, determined by their productive forces. It is evident, therefore, that in view of the state of their productive forces, these countries had no alternative but to begin the process of industrialization by developing the light industries. When the state of their productive forces had taken a turn for the better, when their heavy industries were better developed and when their accumulation of capital had reached considerable proportions, they all gave priority to the development of the heavy industries and made use of the heavy industries to give an impetus to the development of the entire national economy. Looking at the history of the development of human society, we can see that in the transition from being an agricultural to an industrial nation, a country must begin the process of industrialization by first developing its light industries. Following the phase in which priority is given to the light industries, they are then used to give an impetus to the development of agriculture and the heavy industries. When the development of the light industries and agriculture has reached a certain stage, then priority is given to the development of the heavy industries.

We are not, for this reason, categorically opposed to giving priority to the development of the heavy industries. The question is when, where and how. For instance, we were correct in adopting to policy of giving priority to the development of the heavy industries during the First 5-Year Plan period. It was in 1953 that we made a start in socialist industrialization on a large scale, At that time, our light industries, already developed to a certain extent, were possessed of a certain potential while the heavy industries were far from being developed. In 1952, the gross production value of the heavy industries constituted less than 15 percent of the gross value of industrial and agricultural products. The nation was able to produce in a year only 66 million tons of raw coal, 1.93 million tons of pig iron, 1.35 million tons of steel, 1.06 million tons of finished steel and 13,700 metal-cutting machine tools. Under such circumstances, giving priority to the development of the heavy industries was a matter of necessity. As a matter of fact, the implementation of this policy during the First 5-Year Plan period was well justified. Later on, however, we made the mistake of continuing to give priority to the development of the heavy industries, or arbitrarily placing emphasis on the production of steel in disregard of the changed circumstances and of arbirarily developing the heavy industries without giving any thought to the development of agriculture and the light industries.

The priority we gave to the development of the heavy industries in an arbitrary manner is also closely related to the importance we arbitrarily attached to the theory on the need to place priority on the increase of the means of production. The view was prevalent in the past that unless priority was given to the increased production of the means of production, it would be idle to talk about the expansion of reproduction. This view was arbitrary to the extreme and at odds with Marxist-Leninist theory. The formula enunciated by Marx for expanded reproduction did not call for giving priority to the increased production of the means of production. Lenin was of the view that it was by adding the increase to the component of capital derived from technical improvements to Marx's formula that it was justifiable to place priority on the increase of the means of production. According to his view, the priority given to the increase of the means of production is conditional and the expansion of reproduction does not at all times require the increase of the means of production on a priority basis. It should be pointed out that the conclusion was drawn by Lenin that priority should be given to the increase of the means of production under a number of conceivable conditions or when the component parts are upgraded as a result of technical progress under certain hypothetical conditions. Lenin's formula, aside from Marx's hypothesis that "if the entire amount of constant capital (c), the rate of surplus value (m:v) and the rate of labor productivity remain unchanged within the course of a year," presupposes a reduction in the rate of accumulation and a faster rate of increase in the components of the first category than the second. These suppositions are of course well founded in that such conditions may well exist from the objective point of view. Objective circumstances are, however, extremely complicated. We, too, can put forward well-based hypotheses that differ from Lenin's. The problem is that technical progress and the increase in the organic components tend to be accompanied by various complex circumstances such as an increase in the rate of labor productivity an increase in the rate of surplus value and an increase in the rate of accumulation. If these complicated circumstances are taken into account, the expansion of reproduction, under other equally well-based hypotheses, as a result of technical progress and the increase in the organic components does not necessarily require the increase of the means of production on a priority basis. Furthermore, we have not as yet taken into consideration the various circumstances prevailing at the time the formula was established. If the original first category is already so far advanced as to adversely affect the smooth progress of reproduction, then it is necessary to give priority to the development of the means of subsistence instead of the means of production. We had in the past given priority to the unconditional increase of the means of production and used it to bolster the view that the heavy industries should be developed on a priority basis unconditionally. We were obviously mistaken. However, some comrades now simply deny that the increase in the means of production on a priority basis is subject to certain laws or that such laws have an effect on socialist reproduction. This view is without scientific basis. Lenin's analysis of the increase in the means of production on a priority basis is based on science. Under such conditions as technical progress and the increase in the organic components, the expansion of reproduction is predicated upon the increase in the means of production on a priority basis. Virtually all the major economically developed nations in the world have passed through the stage where the increase in the production of

the means of production was placed on a priority basis. Our nation is still in the transitional stage when manual labor is being replaced by mechanization. With technical progress, organic components are certain to be increased and the law governing the increase in the means of production on a priority basis is bound to have a continuing role to play. In the application of this law, it is obviously necessary to give adequate consideration to the actual circumstances in our nation.

/D. We Should Get A Proper Relationship Between Accumulation and Consumption/

The relationship between accumulation and consumption has a considerable impact on the national economy. While accumulation and consumption, belonging as they do to the area of distribution, are determined by production, they also exert a countereffect on production. It is only by dealing properly with the relationship between accumulation and consumption that it is possible to establish a sound economic structure.

It was because of the relatively sound relationship between accumulation and consumption during the First 5-Year Plan period that it was possible to develop the economic structure in a healthy manner. In summing up the experiences during this period, Comrade Bo Ibo [5631 0001 3134] proposed that in the coming years, the ratio of accumulation should be slightly higher and not lower than 20 percent of the national income, that the ratio of the budgeted receipts should be slightly higher but no lower than 30 percent of the national income and that the ratio of capital construction expenditures should be slighly higher but no lower than 40 percent of the budgeted expenditures. These figures are scientifically justified. Unfortunately, we failed to do what we should have done and the excessive rate of accumulation over a long period of time led to a serious imbalance in the economic structure.

A viewpoint which had gained considerable currency at one time maintained that a higher rate of accumulation would speed up the development of production and that a higher level of consumption would inevitably reduce the speed of development. This viewpoint, by polarizing accumulation and consumption, by one-sidedly stressing the importance of accumulation and downgrading consumption, by favoring the achievement of speed at any cost and by recommending the sacrifice of consumption to increase accumulation, is mistaken in theory and damaging in actual practice. Subsequently, it was Lin Biao and the gang of four who took advantage of this viewpoint in publicly spouting such drivel as "a greater hardship in the standard of living of 800 million people is a matter of no importance" and "a greater hardship in the standard of living is of no consequence." Experience over the past 30 years has proved that the rate of accumulation should be determined by the level of development of production. Under present circumstances, an accumulation rate of 25 percent would tend to speed up production, a rate of over 30 percent would reduce the speed of production and a rate in excess of 40 percent would cut back production.

Why would an excessive rate of accumulation inevitably lead to an imbalance in the ratio of the national economy? The reason is that the rate of

accumulation is in itself not only an important factor in the ratio of the national economy, but that it also affects the ratio of other relationships. Lenin said, "'The consumption capacity in society' and 'the ratio of the various production departments'--these are definitely isolated and independent entities unrelated to each other. On the contrary, the specific state of consumption constitutes one of the major factors in the ratio."[6] Under present circumstances in particular, when our productive forces remain undeveloped, when the rate of labor productivity is low and when the people's standard of living has yet to reach a state of affluence, the rate of accumulation should not be too high. Even when production is being developed at a rapid pace, the rate of accumulation should not be increased to any great extent within a short period of time. Otherwise, the enthusiasm of the workers would be dampened, the development pf production would be adversely affected and the balance in the ratio of the national economy would be upset.

Some people cite the accumulation rate of Japan in excess of 30 percent to bolster their view that our rate of accumulation in the past was not too high. That argument is lacking in scientific basis. The rate of accumulation should be determined by actual circumstances. The average per capita income of consumption is more rapid. For this reason, we should not mechanically compare Japan's rate of accumulation with ours. As a matter of fact, Japan's rate of accumulation is also being gradually raised. It has been estimated that the ratio of accumulation and the gross value of the national product in Japan was 25.6 percent from 1946 to 1955, 33.4 percent between 1956 and 1965 and 38.8 percent between 1966 and 1973 and that in the 18-year period between 1956 and 1973, the rate of accumulation was 35.7 percent of the gross value of the national product and 29.6 percent of the national income, rates which are lower than the level registered in our country during the Second 5-Year Plan and the Third 5-Year Plan periods.

There is now a tendency by some people to believe that the lower the rate of accumulation, the better it is. Some comrades hold the view that the rate of accumulation was too high and the rate of consumption too low even during the First 5-Year Plan period. Their opinon is that the rate of accumulation at the time was higher than it should have been. This is a mistaken view. The average rate of accumulation which remained more or less the same from year to year, was 24.2 percent during the First 5-Year Plan period. At this level of accumulation, the various sectors of the national economy were being developed at a rapid pace and the average annual increase in the gross value of industrial and agricultural production was 10.9 percent. Comparing 1957 to 1952, the productivity rate of the entire labor force of the publicly owned industrial enterprises increased 52.1 percent, while the average increase in the wages of the workers came to 42.8 percent. As a result of the development of production during this period, the standard of living of the people was improved to a considerable extent. On what basis could they say that the rate of accumulation was too high and the rate of consumption too low? It was Engels who said a long time ago that accumulation was "the

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6 "Collected Works of Lenin" Vol 4 p 44.

most important function which society can perform in the achievement of progress" and that accumulation constituted "a basis for continual social, political and intellectual development now and in the past."[7] In order to maintain a certain speed of increase in the national economy, we must maintain a certain rate of accumulation. According to an estimate made by some scholars, the rates of accumulation from 1931 to 1936 were -4.1 percent, 2.4 percent, -2 percent, -9 percent, 01.8 percent and 6.4 percent respectively.[8] That was the result of the oppression imposed by imperialism, feudalism, bureaucratic capitalism and the exploiting class. This low rate of accumulation not only made it impossible to provide the necessary funds for industrialization, but also led to the stagnation and recession of the national economy. We now have the accumulation to provide the necessary funds to proceed with industrialization and modernization. That is truly an indication of the superiority of the socialist system. We cannot, of course, conclude that the higher the rate of accumulation or the lower the rate of accumulation, the better it is.

/E. We Must Reform the Public Ownership Economic Administration System/

Our present economic administration system was taken over from the Soviet Union in the early 1950's. The special features for this administration system are the one-sided emphasis on the highly centralized and unified leadership exercised by the state on the national economy, the direct leadership and control exercised by the state over every aspect of the operations of the state enterprises, the handing down by the state of the mandatory planned quotas to the enterprises, the unified supply by the state of the necessary means of production needed by the enterprises, the exclusive purchasing and marketing of commercial commodities by the state, the setting of unified commodity prices by the state, the payment to the national treasury of most of the profits made by the enterprises, the subsidization by the state of losses suffered by the enterprises and the allocation by the state of funds to the enterprises for capital construction, etc. Under such an administration system, the enterprises, deprived of their initiative, their independence and their economic motivation, become merely beads in the abacus wielded by the administrative departments of the state. Divested entirely of their freedom to make adjustments in the market, the enterprises no longer have the initiative and the power to engage in production to meet market needs. The inevitable result is a dislocation between what is produced and what is needed in society, which in turn leads to an imbalance in the national economy. Due to the lack of a self-adjusting mechanism under such a system, there is no way to avert an imbalance in the proportions of the national economy and to promptly redress such an imbalance in proportion once it has occurred.

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7 "Selected Works of Marx and Engels" Vol 3 pp 350, 233.

8 "The National Income of China" compiled by Wu Baosan [1566 1405 0005] Vol 1 p 173.

The theory behind this system is derived from treating the socialist economy as a natural economy or seminatural economy. The traditional view of the science of political economy is that the economic units of the socialist public ownership system (among the enterprises under the public ownership system) should have nothing to do with the production and exchange of commodities and that the exchange of commodities should be the concern of the economic units and the various collective economic units under the economy of the public ownership and collective ownership systems. The reason is that the exchange of commodities among the economic units under the public ownership system does not affect ownership rights and that the products become commodities only when a change in ownership has occurred through their exchange. Those who hold this view are, therefore, of the opinion that since the commodities being circulated internally among the enterprises under the public ownership system only have the appearance of, but are not in fact, commercial commodities, they are not subject to the law of values. Actual practice has proved the invalidity of this view. Although all socialist state enterprises belong to the public ownership system, they also have a relative degree of independence. This relative degree of independence is determined by the existing state of their productive forces and by the role that they play by virtue of their status. This relative degree of independence is contingent upon their productive technology, the administration of their operations and their economic effectiveness. It is this relative degree of independence of state enterprises that makes their products, be they the means of subsistence or the means of production, commercial commodities which, in turn, are subject to the law of values. Failure to regard these products as commercial commodities and to place due emphasis on the effect of the law of values would inevitably impair the relative independence of the socialist enterprises, dampen the initiative and zeal of the enterprises and their workers and exert a negative effect on the national economy. We are going in the right direction, now that we have adopted the necessary measures to enlarge, step by step, the autonomous powers of the enterprises and to bring about reforms in the economic administration system.

/F. We Must Attach Importance to Economic Administration and Economic Effectiveness/

The establishment of a sound economic structure under socialist conditions requires in the final analysis that we act in accordance with objective economic laws, that is, we must strengthen economic administration and continue to improve the standard of administration. Lenin once said that after having seized political power, the proletariat must immediately address itself to the task of administration. Since the economy of our country is extremely backward to begin with and in view of our lack of experience in organization and in the administration of the economy, it is all the more important that we should direct our attention to the work of administration. During the First 5-Year Plan period, we did a relatively creditable job in economic administration and the economic structure was relatively coordinated. Since then, however, we have for a long period of time been guilty of negligence and failed to attach to this work the importance that it deserves. The recurring political movements, in particular, have constantly disrupted and damaged the normal order of the entire national economy and the enterprises and created a situation of political instability over a long period of time. During the 10-year period of turmoil, the various government departments at various levels in general and the economic departments in

particular were reduced to a state of paralysis and the entire national economy was in a shambles.

The defects in our economic structure may also be traced to our failure to attach sufficient importance to economic effectiveness. In going about our work in the economic field, we must keep an eye on economic effectiveness. That is an unalterable principle. Comrade Liu Shaoqi once said that, according to the principle of economics, the achievement of maximum results with the minimum amount of labor is a principle that is not subject to change. However, this principle had been condemned over a long period of time as being revisionist and inapplicable in a socialist society. Such "theories" as "squaring political and not economic accounts" were bandied back and forth. Due to the scant attention paid to economic effectiveness, we have in the past seldom given any thought or no thought at all as to how to take full advantage of our strong points and how to minimize our weaknesses in the process of modernization. Whether or not the economic structure is sound is a question of a relative nature. It depends on the time, the place and the circumstances. A sound economic structure is one which suits the circumstances of our country, which makes full use of our advantages and which seeks to surmount our disadvantages. Ours is a vast socialist country. The socialist system requires that we seek continuously to improve the people's standard of living through the development of production. In order to develop the national economy at a rapid pace and in a healthy manner, it is necessary that we should speed up the development of agriculture and the light industries and that we should satisfy the needs of the people for food, clothing, daily necessities, housing and transportation. We had been negligent in that regard in the past. Since we have an abundant supply of labor and a shortage of funds, we should make full use of our labor and direct our efforts toward the accumulation and conservation of funds. The development of the light industries would put our labor to full use, on the one hand, and contribute to the accumulation of funds, on the other. And yet, we had over a long period of time arbitrarily favored the development of the heavy industries on a priority basis and at the expense of the light industries. Although the average per capita acreage of our farmland is small, we have vast areas of grassland, mountainous regions and watery expanses that could be developed and put to good use. While attaching importance to agriculture in the narrow sense of the word, we should also turn our attention to the overall development of forestry, animal husbandry, byproducts and fishery. However, we made the mistake of arbitrarily making the production of grains our key concern and of minimizing the importance of forestry, animal husbandry, byproducts, fishery and even cash crops. The various regions in our country also often fail to take advantage of their assets. Although Shanxi has extremely abundant resources in coal, no advantage has been taken to invigorate the local economy. Although Gansu, Qinghai and Inner Mongolia have an abundance of woolen products, no advantage has been taken to give an impetus to the development of the local economy. At the mention of steel and iron-smelting, everybody tries to jump on the bandwagon regardless of whether or not it is justified by the actual conditions. When the subject of developing chemical fertilizers is broached, every locality rushes in no matter whether or not it is economically feasible. The result of using methods for launching political campaigns to approach the work of economic construction is not to pursue what is advantageous and to shun what is calamitous. It is to pursue what is calamitous and not what is advantageous and to achieve not the increase but the decrease of economic effectiveness.

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## CHAPTER II

## SET UP A RATIONAL ECONOMIC STRUCTURE AND ENHANCE SOCIALIST MODERNIZATION

By Zhang Zhuoyuan [1728 0587 0337]; original text pp 56-98; portions within slantlines in boldface in original text.

[Text]

### I. The Significance of the Rationalization of the Economic Structure toward Our Country's Socialist Modernization

Since the smashing of the gang of four, in particular, since the Third Plenary Session of the 11th CPC Central Committee, the broad masses of economic workers and economic theoretical workers in our country have adopted as their weapon the principle that practice is the only criterion for examining the truth, shattered superstition, emancipated their thinking and conscientiously studied and summed up the experiences and lessons in socialist construction in our country over the last 30 years. More and more people have realized that a series of problems exist in our country's economic life and economic work and these problems have seriously prevented us from developing the social productive forces and giving play to the superiority of the socialist system. Among these problems, the most important ones are the imperfect economic management system and the irrational economic structures, which are in urgent need of reform.

Under the socialist system, although the problem of the economic management system and the problem of the economic structure overlap, they are involved with each other in content. For instance, the economic structure embodies such problems as the structure of ownership and the structure of prices, which can also be said to belong to the realm of the study of the economic management system. However, generally speaking, the problem of the system of organization is primarily a problem of the readjustment of the production relations (and the superstructure), while the problem of structure is primarily a problem of the organization of the productive forces. This is because the focus of the economic structure is the industrial structure, which includes the relationship between the two main categories of the production of the means of production and the production of the materials for consumption, the relationship among agriculture, light industry and heavy industry, and the relationship among the various sectors of the national economy and the realtionship within the various sectors.

Thus, the key content of the rationalization of the economic structure of a socialist country is the rational organization of the productive forces, so as to enable the various sectors of the national economy, the various economic organizations, the various links (production, circulation, distribution and consumption) in the process of reproduction, the various economic spheres and the technological measures at various levels to maintain a rational structure, and enable social economic life to run well, thereby promoting the development of the socialist economy. It is not difficult to imagine that, if the economic structure is irrational and if the relationship among the various sectors and various key elements in the national economy are in disharmony, the national economic will not develop smoothly and socialist modernization will encounter all sorts of difficulties.

What are the criteria for the rationalization of the economic structure under the socialist system?

Different social systems will have different criteria for assessing whether or not the economic structure is rational.

Under the capitalist system, because the production target of capitalism is the attainment of the highest profit margin, the highest profit rate is thus the greatest economic result. The formation and development of the capitalist economic structure are governed by the law of surplus value and the law of profit. Whether the profit rate is high or low is the criterion for the bourgeoisie in assessing whether or not the economic structure is rational. The capitalist adopts advanced technology, exploits natural resources and develops different industrial sectors all for the sake of obtaining more profit. Such a situation, on the one hand, shatters the economic structure of technological standstill and self-sufficiency, makes production more and more specialized and labor more and more socialized; while "the mode of production and the means of production continue to change and continue to undergo revolutionization; division of labor inevitably brings about further division of labor; and large-scale production inevitably brings about production on an even larger scale."[1] On the other hand, capitalism often cannot fully and rationally make use of the manpower, material strength, financial strength and natural resources of its own country. An obvious example is that we can see the predatory way of doing business by the capitalists everywhere. It is known to all that the capitalist economic crisis has brought about tremendous waste in social labor. The capitalist system has restricted the establishment of a truly rational economic structure.

The bourgeois economists have conducted studies on many aspects of the problem of the economic structure. Although the purpose of their study is different from ours, we can still use as reference their methods of study, the materials they have gathered and some conclusions which they have drawn. For instance, some bourgeois economists have divided the national economy into primary industries, secondary industries and tertiary industries, and studied the trends of change of these industrial sectors in the course of the economic development and how to adapt to these changes (for instance,

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1 "Selected Works of Marx and Engels," Vol 1, p 375.

with the development of the social economy, the proportion of the number of people employed by the primary industries out of the total number of people employed will gradually decrease while that of the tertiary industries will gradually increase). The bourgeois economists have also utilized such concepts as "economy of concentrated capital" and "economy of concentrated labor" to study the approaches to establishing a rational economic structure and speeding up economic development under different conditions. All this is of definite reference value to us. However, their studies are, after all, restrained by the capitalist system, and cannot provide a rational program from the angle of the interest of the entire national economy.

Socialist conditions are different. Socialist production is collective production. Here, "the socialized individuals, the producers who have allied themselves, will rationally regulate the exchange of materials between themselves and nature and place it under their common control, and will not allow its blind force to rule over them; by virtue of consuming the least amount of strength they will carry out such an exchange of materials under conditions that are most worthy of and most appropriate to their human nature."[2] "The economical use of time and the planned distribution of labor time among the different production departments are still the foremost economic laws on the basis of carrying out production side by side. This even becomes the law to a much higher degree."[3] The role of this law requires the establishment of a rational economic structure whose aim it is to obtain the greatest economic results and actually realized [these results] through a rational economic structure. Thus, the socialist system is the necessary social condition for establishing a rational economic strucutre. The socialist system has also provided a realistic prerequisite for people to study in an all-round manner the rational structure for the entire national economy in order to consciously and rationally regulate the exchange of materials between the producers who have allied themselves and nature.

Under the socialized system, in spite of the immense variety of specific conditions of the various countries, there is a common criterion for a rational economic structure (the primary one of which is the industrial structure). Generally speaking, a rational economic structure must meet the following requirements.

1. Utilize manpower, material strength, financial strength and natural resources in a relatively adequate and effective manner, so as to make the most of the economic superiority of the entire country and its various regions and properly make use of the advantages of the international division of labor.

2. The various sectors of the national economy should develop harmoniously, the movement of social capital should be smooth and the expansion of social reproduction should be carried out smoothly.

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2 "Collected Works of Marx and Engels," Vol 25, pp 926-927.

3 "Collected Works of Marx and Engels," Vol 45 (Part I), p 120. People's Publishing House, 1975, p 112.

3. Technology should continue to advance, labor productivity should continue to be raised and the actual strength of the country's economy should continue to be strengthened.

4. The national economy should continue to develop steadily, the results of the economic activities should continue to be raised, accumulation should increase relatively quickly, the people's standard of living should improve relatively quickly and a favorable cycle of economic movement should be realized.

In sum, the sign of a rational economic structure of a socialist country is the ability to guarantee that society will continue to obtain the greatest results in its economic activities, the first being the macroeconomic results, which is to obtain the most useful results that will satisfy society's needs with the least labor consumption within the realm of the entire society. That is to say, the criterion to assess a rational economic structure lies primarily in whether or not it accords with the greatest macroeconomic results.

If we say that even bourgeois economists can study the various aspects of the problem of the economic structure and give counsel to the bourgeoisie, then, Marxist economists should be better at studying the problems of the economic structure and provide scientific propositions and assumptions for perfecting the economic structure of a socialist country that will serve the development of the socialist national economy and speed up the realization of the four modernizations.

At present, because the condition of proportional disharmony in our country's national economy is still serious, our key task in the next few years is still the readjustment of the national economy. The primary content in the readjustment of the national economy is the reform of the economic structure. Thus, in the reform of the economic structure, it is of special importance to change the abnormal economic structure that is in serious proportional disharmony into a mutually harmonious and enhancing economic structure. The second conference of the First NPC proposed that the first battle in realizing the four modernizations is to readjust the national economy and overcome the proportional disharmony. That is to say, to realize the four modernizations, we must first of all properly readjust the economic structure, such as readjusting the proportional relationship among agriculture, light industry and heavy industry, and the relationship between accumulation and consumption, so as to ensure the proportional development of the national economy. At the same time, in light of the objective economic laws and the specific situation in our country, coordinate the composition of the various sectors and various factors in our country's national economy in favor of the progress of the four modernizations.

The proposal and study of the problem of rationalization of the economic structure is closely related to our country's proposition to shift the focus of work onto the path of realizing the four modernizations.

Toward the end of the fifties, the great leap forward that aimed at "taking steel as the key" and developing heavy industry in a one-sided manner brought

about a proportional disharmony in the national economy and serious economic difficulties. The theoretical circle at one point put forth the viewpoint of the unity of opposites existing between the high-speed development and the proportional development of the socialist economy, and held that we should not just go for high speed at the expense of proportional development, as the national economy would not be able to develop harmoniously and tremendous loss of social labor would result. However, the above correct viewpoint was soon denounced as rightist opportunism and was condemned. After this, particularly during the 10 years of unrest, we worked blindly and subjectively without paying attention to the objective economic laws and disrupted the proportional relationship in the entire national economy. We gave prominence to heavy industry in an isolated manner, and the development in agriculture and industry again lagged far behind the needs of the national economy. As a result, we were unable to launch social reproduction smoothly, until finally we dragged the national economy to the brink of collapse.

After the smashing of the ganag of four, we vigourously restored the economy which was seriously undermined by Lin Biao and the gang of four, restored order in production and attained definite results. However, before the Third Plenary Session, due to our inadequate estimate of the seriousness of the sabotage by the gang of four, and at the same time, not having conscientiously summed up the experiences and lessons of socialist construction for over 20 years, we failed to have a profound understanding of the mistakes of the leftist thinking and line and its harmful effect in the economic work for some 20 years, and failed to truly absorb the lessons in the past when we were overanxious for success and did not develop the national economy proportionally. In 1978, we underwent another "leap forward to the West," which further intensified the proportional disharmony. Fortunately, we discovered this soon enough. In April 1979, in accordance with the spirit of the Third Plenary Session of the 11th CPC Central Committee, the party Central Committee proposed the principle of readjusting, restructuring, consolidating and improving with readjustment as the key, and started to correct the proportional disharmony. However, in light of the passive situation which included the proportional disharmony intensified during the "leap forward to the West," in 1978, it appears that we will have difficulty overcoming the situation entirely in a short period of time. This shows that, up until 1978, many of our comrades still could not truly comprehend the fact that there would be no high-speed development without a proportional development. They also did not recognize the necessity to analyze and study the problems that exist in our country's economic development by looking at whether or not the entire structure of the national economy was rational.

Since the Third Plenary Session, with the shift of focus in its work, the broad masses of economic theoretical workers and economic workers have emancipated their thinking and, in light of all the difficult situations which our country's economy is facing, proposed and probed the following questions: Although statistically it seems that the speed of development of our country's national economy is not slow, yet, why is the country still very poor today, and why is it that, in the last decade or so, the gap between the level of economic and technological development of our country and that of the world's economically advance countries has widened instead of narrowed?

Why is the standard of living of the people still so low? Through studying the experiences in socialist construction over the past 30 years since the founding of the nation, and through consulting the experiences of economic development abroad, many people hold that an important reason here is the irrational economic structure of our country. In this structure, there are many intermediate products in the course of reproduction (thus the ouput value seems high) and yet there are very few final products that can be used directly to satisfy the needs of the people's standard of living. In the course of production, consumption is high (many intermediate products are consumed in the course of production), waste is great, efficiency is low, development of the various economic sectors is extremely unbalanced, speed varies greatly, economic superiority cannot be brought into play and the economic results are very poor. Hence, great difficulties are encountered in the expansion of social reproduction. Thus, although the speed seemingly is now slow according to the calculation of the gross value of output, the increase of the national income is very slow and it is difficult to raise the people's standard of living. This not only is a problem of disharmony in proportional relationships but also a problem of the irrational structure and abnormal operation of the entire national economy. In order to change this abnormal situation, realize the shift of focus of work throughout the country and advance toward the four modernizations, we must readjust the existing economic structure. This way, the people's vision will go beyond the scope of the relationship between speed and proportion as proposed in the late fifties. People have begun to regard the national economy as a large sytem that is composed organically of all kinds of elements and have devoted themselves to studying the large system of the national economy, of what branch systems it is formed and how it is formed, studying the irrational manifestations of our country's economic structure and the reasons behind them, and probing the factors that determine the rationalization of an economic structure and the means to make a transition over to a rational economic structure.

We can see that the study of the problem of the rationalization of an economic structure is launched to meet the needs of realizing the four modernizations and embodies great significance to our country's socialist modernization.

## II. Proceed From Our Country's Actual Situation in Establishing a Rational Economic Structure

A rational economic structure is based on specific time, place and conditions. What is rational for this country may not necessarily be rational for another country. What is rational for this locality may not necessarily be rational for another locality. What is rational for this period also may not necessarily be rational for another period. To establish a rational economic structure in our country, we must proceed from the reality of our country, and regard as our focus the attainment of the highest macroeconomic results in order to serve the acceleration of the four modernizations.

In view of the major aspects, we can summarize the actual situation in our country's economy in the following points:

/A. Both production and construction have embraced a definite foundation, but this foundation is still poor, the technological level and labor productivity are relatively low and the people's income and standard of living are also relatively low./

We should be able to see that we have scored very great achievements in our material production through the construction over the last 30 years. Our country has established an independent and relatively complete industrial system and system of national economy. The industrial sectors have gradually been completed and the productive capacity and output of the major industrial and agricultural products have increased conspicuously. The entire nation has 2.68 million machine tools, the third highest in the world. It has 370,000 industrial enterprises, which not only have a large volume of mechanized facilities, but also have a group of automated facilities. Agricultural machinery and new technology have also been adopted in agriculture. This shows that we already possess a definite material basis. In the course of establishing a rational economic structure and carrying out socialist modernization, we must make good use of this basis and give full play to its role.

At the same time, we must also be able to see that our foundation is still poor. In 1979, our country's per capita gross national output was only $253. This was less than one-tenth that of the economically advanced nations. Our country's basic structure is relatively weak. For instance, a very prominent contradiction is the insufficient energy resources. For 1980, and it was estimated for 1981 as well, that not only would there be no increase in the production of coal and crude oil, but that there would even be a reduction. Energy resources are the grain of industrial production, and insufficient energy resources will seriously affect the development of our country's industry. The mileage of railroad traffic is only some 50,000 Km, which is less than one-sixth that of the United States, one half that of the Soviet Union, and even less than that of India. The harbor handling capacity is also seriously insufficient. Because for many years, there was proportional disharmony between "productive investment" [7539 7333] and "nonproductive investment" [5131] in capital construction, the urban public works, culture, education, health and sanitation, and scientific causes and commercial service trades have not met the needs of the development of the national economy. The problem of residential quarters is especially prominent. Furthermore, our country's economic management is also very backward.

The important manifestations of our country's poor foundation are insufficient capital and a relatively low level of production and technology.

Our country's labor productivity is low and its increase and growth are also slow. Calculating by current prices, the average per capita national income of the laborers of the entire society was 838 yuan in 1979, an increase of 1.2 times over that of 1957. Calculating by comparable prices, there was only an increase of 87 percent, an average yearly increase of 2.9 percent, which was 3.5 percent lower than the average 6.4 percent increase during the First 5-Year Plan. If we calculate the speed of increase according to the First 5-Year Plan period, we could increase our national income by over 10 billion yuan in a year.

Agricultural labor productivity is even lower and the increase slower. Calculating by current prices, the net output value of each agricultural labor force was only 441 yuan in 1979. Calculating by comparable prices, there was only an increase of 28 percent over that of 1957, an increase of only 18 percent over that of 1966, and an average yearly increase of 1.3 percent.

An important reason for the low agricultural labor productivity and its slow increase is the very poor material and technological equipment of the agricultural laborers and the very low capital that is used without repayment. Just as Marx said: "The special development of the social labor productive forces in each special production sector varies in degree. Some development is high and some is low. This is directly proportional to the amount of the means of production that is promoted by a definite amount of labor. Or, we can say that it is directly proportional to the amount of the means of production that is pomoted under the condition of a definite number of workers and workdays. That is to say, it is inversely proportional to the amount of labor that is needed to promote a definite amount of the means of production."[4]

Take agricultural fixed assets as an example. In 1977, compared with foreign countries, our country's situation was as follows:

| Items/country | PRC | USA | USSR | FRG | Japan (1976) |
|---|---|---|---|---|---|
| Average fixed assets for every mu of cultivated land (RMB, yuan) | 49.2 | 121.9 | 74.3 | 627.3 | 520 |
| Average fixed assets for every labor force (RMB, yuan) | 250.1 | 82,289.6 | 9,699 | 50,818 | 7,157 |

Compared to that of industry, the level of equipment of our country's agricultural fixed assets is also much lower. In 1977, the average fixed assets for every industrial laborer in our country's system of ownership by all people amounted to 10,849 yuan, 42 times higher than that of the agricultural laborer.

The amount of the means of production (manifested as the amount of capital used without repayment) promoted by the industrial laborers in our country's system of ownership by all the people has increased a little over two times from 1952 to 1979. Correspondingly, the industrial labor productivity of our country has definitely increased since the Liberation. The net output value of every industrial laborer (including collective) was 3,046 yuan. Calculating by comparable prices it showed an increase of 92 percent over that of 1957, with an average annual increase of 3 percent; and an increase of 7 percent over that of 1966, with an average annual increase of 0.5 percent. Calculating by

[4] "Collected Works of Marx and Engels," Vol 25, p 183.

gross output value, the all-member labor productivity of the state-run industrial enterprises was 11,790 yuan in 1979, which was only an increase of 17 percent over that of 1966. Looking at the sectors separately, besides the textile, petroleum, machinery and food industries, the labor productivity of the majority of the sectors, including the metallurgical, coal, forestry, chemical, construction material, paper making and electricity sectors, was lower than the highest level in history. Looking at the 33 kinds of material labor productivity, 14 of them were still lower than the highest level in history. For instance, each worker produced 1,196 tons of iron, which was 25 percent lower than that of 1965. Each flat furnace worker produced 555 tons of steel, which was 13 percent lower than the highest level in history. The efficiency in coal mine tunneling was 32 percent lower than the highest level in history.

Compared to the advanced countries, the amount of capital with which our country's industrial laborers are equipped is also very low. Thus, compared to foreign countries, our country's industrial labor productivity is much lower. Using some industrial products as examples (in 1977):

| Items/countries | PRC | USA | USSR | Japan | FRG | France |
|---|---|---|---|---|---|---|
| Steel (ton/per person per year) | 10.5 | 274 | 113 (1976) | 330 | 194 | 150 (1976) |
| Raw coal (ton/worker) | 0.87 | 7.7 (1976) | 2.9 (1976) | 3 (1976) | 3.2 (1976) | 1.7 (1975) |
| Crude oil (ton/per person per year) | 101 (1975) | 3,050 (1960) | 3,478 (1972) | 192 (1970) | 1,250 (1970) | 128 (1970) |
| Electricity (10,000 KWH/per person per year) | 41 | 318 (1971) | 136 (1974) | 227 (1975) | 160 | 151 (1975) |
| Cement (ton/per person per year) | 328 | 3,165 (1973) | 1,369 (1975) | 5,430 (1973) | 2,920 | 3,640 (1973) |
| Cotton textile (piece/ per person per year) | 38 | | | 48 (1970) | 46 (1970) | 45 (1970) |
| Cotton cloth (10,000 meters per person per year) | 1.9 | | | 5.3 (1974) | 2.2 (1975) | 2.7 (1968) |

Because of the low level of industrial and agricultural production and labor productivity, the level of our country's national income and the level of income and consumption of the people of our country are also relatively low.

The trend of our country's per capita national income is as follows (calculated from current prices):

| Year/Item | Average per capita national income per person per year throughout the country (yuan) | Average per capita national income per person per year in agriculture (yuan) |
|---|---|---|
| 1949 | 66 | 55 |
| 1952 | 102 | 69 |
| 1957 | 140 | 88 |
| 1962 | 137 | 79 |
| 1965 | 191 | 106 |
| 1970 | 233 | 114 |
| 1975 | 272 | 127 |
| 1977 | 281 | 149 |
| 1978 | 314 | 132 |
| 1979 | 350 | 166 |

The level of consumption of the people of our country is also very low. In 1978, on the average, each person in our country had 636 jin of grain, 27 percent lower than the average 874 jin of the whole world. In the rural areas, a considerable portion of people did not have enough to eat. Although a bumper harvest was registered in 1978, yet, taking the county as a unit, 20 percent of the counties on the average distributed to each person less than 360 jin of unprocessed food grain in the north and less than 450 jin in the south. Due to insufficient grain, a phenomenon of population outflow and pauperism appeared.

The gap between the world average and the average nonstaple foods consumed by each person per year in our country is still relatively great. The situation is shown in the following table (1978):

unit: jin

| Item | Edible vegetable oil | pork | eggs | sugar |
|---|---|---|---|---|
| PRC | 3 | 15 | 4 | 7 |
| World Average | 30 | 40 | 12 | 50 |

The light industrial products which each person consumes on the average in our country are also much lower than the economically advanced nations. The statistics of 1977 showed that each person consumed over 20 meters of cotton cloth in the Soviet Union, Japan and France, and only some 10 meters in our

country; 260 KG of paper in the United States and only 4 KG in our country; 21 KG of synthetic detergents in the United States and only 0.2 in our country; and 60 KG of plastic products in the United States and only 0.7 in our country. In addition, there were only 78 bicycles for every 10,000 people in our country, while there were 2 times as many in the United States and 5 times as many in Japan.

In light of the above situation, when we readjust our economic structure, we should proceed from the present level of productive forces and level of income. The industrial structure must first consider the question of feeding nearly 1 billion people and the question of improving the standard of living of these people. The rate of accumulation must not be too high, the scale of capital construction must not be too large, and we must act according to our strength and advance steadily. We must not ask to reach the sky in one step, or more haste than speed will result.

/B. Large Population and Abundant Labor Force/

Whether the population and labor force are large or small has a direct influence on economic structure. Our country currently has almost 1 billion people, 800 million of whom are peasants. We have a labor force of 400 million, among whom 300 million are engaged in agriculture. This is a factor to which we must pay special attention in readjusting the economic structure and establishing a rational economic structure.

In the past, because we one-sidedly stressed that having a lot of people was good, we criticized the correct idea of controlling population growth in a planned manner as Malthusianism. As a result, there was blind population growth that did not correspond to material growth. In 1949, our country had 540 million people. In 1979, that increased to 970 million people. Over 600 million people were born since the liberation. This was almost equivalent to three times that of the total population of the United States and six times that of Japan. The natural rate of population growth was a high as 2 percent. In 30 years, the net growth was 430 million people, an 80 percent increase.

The failure to control population growth in our country has brought about many problems for the national economy.

Man has two hands and is a producer who is capable of creating material wealth. Man also has a mouth and is a consumer who must consume material wealth. When population growth is too rapid, it will bring about many difficulties in such aspects as employment, supply of consumer products, housing, communications and transportation, education, and health and sanitation.

Although man is the most important productive force, yet, to carry out production, man must coordinate with the means of production. Without the means of production, man alone generally will not be able to carry out realistic production activities. Because production did not develop ideally, the growth of materials and goods could not satisfy the need to rapidly equip the labor force. In particular, for a long period of time, we also

one-sidedly developed heavy industry, and the degree of material and technological equipment of heavy industry was high. On the average, each worker working in a heavy industrial sector had to be equipped with 12,000 yuan of fixed assets. Under the situation where the state was implementing "centralized contracting and distribution" toward the urban and town labor force, the incompatibility between economic growth and growth of material strength and resources, on the one hand, and the growth of the labor force, on the other, was naturally intensified day after day. By the seventies, there were many unemployed. Despite the fact that employment was arranged for over 20 million people in the last 3 years, there are still considerable numbers unemployed. Furthermore, before 1985, there will be 3 million new people in the urban and town labor force that will be awaiting employment every year. Thus, the problem of solving labor employment is still an important event which the people throughout the country fix their eyes on.

Because of the overly rapid population growth, our country's average per capita land, cultivated land, forest land and grassland are much lower than the world average. This affects agricultural development. In readjusting the economic structure, we must proceed from the basic condition of our country in which 800 million of the 1 billion people are peasants.

Practice has proved that it will not work to simply say that it is a good thing to have a lot of people without controlling population growth in a planned manner and making population growth correspond to material growth.

However, neither must we go to the other extreme and simply say that it is a bad thing to have many people. We must recognize that there also is a good side to having many people, give prominence to the superiority of our country in having a large labor force over having many people, and must not feel helpless in the face of many people. What are the advantages of having many people? For instance, this means a large labor force, which is favorable to fully utilizing all the material means of production and natural resources that can be utilized, is favorable to running many production enterprises and service enterprises that cannot be replaced by machines, and is favorable to developing such enterprises as the electronics trade where there is labor concentration, including concentration of mental labor. Having many people and a large labor force plus a relatively low wage level are favorable to lowering product cost and strengthening the competitive capacity of our commodities on the international market. Having many people and a large labor force are also favorable to shortening work and labor time, increasing study time, and generally raising the currently very low cultural and technological level of the laboring people, and thus are favorable to the all-round development of man. We know that Japan is also a country with a large labor force. But because its economic structure suits this characteristic, it has made having many people and a large labor force an important factor in its high-speed economic development after the war. Japan's population density is two times higher than that of our country. Its unemployment rate has always been maintained at around 2 percent. An important reason for this is its adoption of a dual economic structure where there are modernized large-scale enterprises as well as a large number of medium and small enterprises. Among its total population under employment, 54 percent are working in small enterprises that

have less than 30 people. We should draw our lessons from this experience of Japan. The population density of other countries such as Singapore is also higher than ours. In developing their economy, they have also utilized the factor of a large labor force to enable the country's economy to develop relatively rapidly, raise the competitive capacity and occupy their positions in the international market.

In arranging our economic structure, we too must fully consider the factor of having many people and a large labor force in our country and try our best to turn this into a superiority that will be favorable to developing the national economy. For instance, in arranging our industrial structure, we should set up light-scale structures that require relatively little capital and equipment, develop few heavy industries that involve a concentration of capital and develop more light industries and handicraft industries that involve a concentration of labor. We must develop large-scale enterprises, and also develop a large number of medium and small enterprises. In terms of technological structure, we must engage in more intermediate technology and useful technology than just the most advanced technology that uses very little labor force. In terms of employment structure, we must make use of all kinds of factors to open up possibilities for employment. For instance, at present, we must emphasize the development of the collective ownership enterprises, restore and develop within a definite realm some individual businesses and properly solve the problem of fully employing our country's labor force, and so forth.

There are no weak soldiers under a strong general. As long as we led well, organize well and have appropriate policies and measures, we will be able to amplify our strong points and avoid our weaknesses, and, while vigorously controlling population growth, give play to the present superiority of having many people and a large labor force so as to enhance the socialist modernization.

/C. Our land is large, we do have an abundant absolute volume of natural resources but not an abundant relative volume./

The natural factors, in particular the natural resources, also have an important influence on the economic structure of a country. Many countries in the world have, to varying degrees, established economic structures that correspond to the country's natural resources. For instance, Australia emphasizes the development of agriculture and animal husbandry, Sweden emphasizes the development of forest land and the processing industry. The Arab nations in the Middle East are developing the petroleum and petrochemical industry. Generally they have attained fine economic results and have the ability to compete in the international market.

Our country's land is vast. We have 9.6 million sq KM of land and some 18,000 KM of coastline. Also, we are situated in the climatically suitable temperate and subtropical zones, and we have many surface and underground resources. In addition, our country is developing rather late, and many resources are still dormant. Compared to many economically advanced countries, this is a very big favorable factor.

Statistics show that our country now has 1.5 billion mu of cultivated land (in actuality we may have more, and foreign estimates show that we have around 2 billion mu), 4.3 billion mu of grassland and some 100 million mu of inland water surface. We have abundant mineral resources. We have over 600 billion tons of proved coal reserves. It is estimated that we have 580 MW of hydroelectric resources (but the present rate of utiliziation is only 2.7 percent; the United States has 187 MW of hydroelectric resources with a utilization rate at 43.1 percent; and the Soviet Union has 269 MW of hydroelectric resources with a utilization rate at 11.5 percent). Our country is also very rich in iron ore and many other metallic and nonmetallic ore mines. There are over 10 established mines, including vanadium, titanium and other rare-earth metals, the proved reserves of which rank first in the world.

One obvious characteristic of our country is rich resources. This certainly is true in terms of absolute volume. But in terms of relative volume, because our country has a vast population, it is difficult to tell in terms of per capita configuration. Take energy--the material basis for industrial and agricultural production--as an example. If we calculate the proved exploitable reserves which we have on hand at present, the average amount of energy resources for each person in our country is only one-half the average amount in the world, one-tenth that of the United States and one-seventh that of the Soviet Union. The per capita iron ore resources in our country are not great, and lower than the 80 tons in the United States, the 440 tons in the Soviet Union and the 120 tons in France. In particular, most of the iron ore that has been established in our country is low-grade ore. The areas of forest cover in our country is small, the rate of coverage is only 12.7 percent, which is almost less than half the average level in the world (22 percent). The average forest area per capita is less than 2 mu, which is one-eighth the average forest area per capita in the world.

In establishing a rational economic structure, we must take into consideration the characteristics of the natural resources in our country, amplify the strong points and avoid the weaknesses, and give play to our own superiority. Only in so doing can we attain fine economic results. Nevertheless, for 30 years, particularly since the proposal to "take steel as the key" in developing industry in the late fifties, we had used a large amount of capital and materials to emphasize the development of the steel industry where the natural resources were at a disadvantage. Even the provinces and municipalities where there were no coal and iron resources were vigorously engaged in the steel industry, getting half the result with twice the effort. They abandoned their strong points to accommodate their weaknesses, and vigorously waged a battle of consumption, and wasted--one does not know how much--the capital and materials that had been painstakingly accumulated by the laboring people. Directly related to the above-described method of work was the decrease, by a large margin, of our country's results in accumulation and results in investment since the beginning of the Second 5-Year Plan.

Furthermore, it was obviously established that our country was not rich in petroleum resources and that we are richer in coal resources. Still, a few years ago, some people got excited and issued the wrong orders, causing many enterprises to change from using coal to using oil, and spent several hundred

million yuan on transforming the furnaces. Now, due to the poor prospect of a large-scale increase of crude oil in the near future and the tight supply, these enterprises are required to change from using oil back to using coal. For this, several billion yuan of investment are needed to transform the facilities. Thus we can see how great the losses are if we do not arrange production and consumption in line with the factor of natural resources!

It appears that, in line with the factor of our country's natural resources, we should develop more light and textile industries that consume less energy and raw material and dismiss the method of developing heavy industry in a one-sided manner. According to the news reported in the 12 August 1980 issue of RENMIN RIBAO, in our country, to produce a product of the same value, the energy consumed by light and textile industries was four-fifths less than that by heavy industry. Furthermore, in light of the actual situation in which our country has rich hydroelectric and coal resources and established insufficient petroleum resources, beside vigorously developing the hydroelectric resources, we should vigorously increase the production of coal as the primary energy resource, and emphasize the use of crude oil in developing the petroleum industry. From the aspect of the metallurgical industry, it seems that we can take into consideration the characteristic of the relatively rich resources in certain metallic ores in our country (some products such as vanadium and titanium, if properly launched, can occupy important positions in the world market), further develop the nonferrous metal industry, and must absolutely not be blindly engaged in "taking steel as the key."

From the aspect of agricultural production, the agricultural economic structure in the old China was very irrational. It did not take into consideration our country's land resources and climatic factors, and had all along taken agriculture as the key and agriculture had all along taken grain as the key. In the early days after the Liberation, the speed of development in forestry, animal husbandry, sideline occupation and fishery was relatively fast and the proportion of their output value in the gross value of agricultural output was raised by varying degrees. In cultivation, the speed of development in such industrial crops as cotton, edible oil, hemp and sugar was faster than that of grain and the proportion of their sown area was also increased. But the irrational economic structure before the Liberation was not changed. In the late fifties, the principle of "taking grain as the key" was implemented in a one-sided manner, which seriously obstructed the rationalization of the strength in agricultural production.

We know that without the large-scale development of forestry and animal husbandry, it is impossible to develop agriculture on a large scale. But the proportion of forestry and animal husbandry in our country is very small, and the limited natural resources are still undermined. Since the founding of the nation, we have reclaimed over 100 million mu of grassland, of which 48 million mu should be withdrawn from cultivation and returned for livestock rearing. The indiscriminate reclamation of land had caused the grassland to turn into desert. For instance, the 6 million mu of grassland in Yikezhao League in Nei Monggol became desert land and caused an additional 12 million mu of grassland to turn into desert land. The indiscriminate reclamation of grassland had brought about the extension of desert land southward. According

to an aerial survey, our country's desert has increased from 1.6 billion mu formerly to 1.9 billion mu. The world conference on deserts has included Beijing as a desert region. The northwest loess plateau should develop forestry and animal husbandry and integrate agriculture, forestry and animal husbandry. However, the indiscriminate reclamation of land for grain cultivation brought about soil erosion. As a result, the loss outweighed the gain. On sandy soil, we can produce 200 to 300 jin per mu of peanuts, but only some 100 jin of grain. Nevertheless, due to the implementation of the principle of "taking grain as the key" in a one-sided manner, we squeezed out peanuts and many groups other than grain, and failed to give play to the economic superiority of the various localities in line with local conditions.

The irrational agricultural structure has resulted in poor results in our economic activity. Under the situation when population growth was too fast, for many years, we were unable to be self-sufficient in grain, cotton, edible oil and sugar, and needed to import a portion of them.

To change the agricultural economic structure of stressing cultivation and stressing grain and establish a rational ecological system, we must readjust our arrangement in agricultural production in accordance with the characteristics of our natural resources. For instance, we should reclaim and utilize in a planned manner the barren hills and green hills that are suitable for animal husbandry and forestry, nurture trees and build forests, develop industrial forests, build grasslands and develop livestock that graze on grass. Then, under the prerequisite of increasing the total grain output, withdraw from cultivation in a planned, step-by-step manner a portion of land that is not suitable for cultivation and return it for forestry and livestock rearing. Also, in light of our conditions, we must redistribute a portion of grain or capital in order to render support in a planned manner to some key areas in readjusting the distribution of agricultural crops and the development of agriculture, forestry, animal husbandry, sideline occupations and fishery. Here, the key is to solve the problem of grain. Before 1985, it will help solve this task if we continue to import a definite amount of grain every year. Some people estimate that if the problem of 1 billion jin of grain every year is solved, the two prefectures of Nantong and Yancheng in Jiangsu Province will increase the production of cotton to 4 million dan each year by the beginning of 1985. If Shandong can be exempted from the task of delivering to the state some 300 million jin of grain, it can expand its sown areas of peanuts and can increase the sales of edible oil to the state by some 150 million jin each year.

/D. The Commodity Economy Is Backward./

Our country was a feudal society for a long period of time. For several thousand years, the natural economy occupied the ruling position. Since the Liberation, the situation has changed. Large-scale social production has developed, and the proportion of modern industry in the national economy has conspicuously increased. However, with regard to the entire country, the commodity economy is still backward. In particular, over 80 percent of the population of the entire country are peasants, who are still leading lives that are only half self-sufficient, and the commodity rate of agricultural

production is very low. For instance, in grain, the quantity of net procurement of grain by the state (this refers to the figure of the volume of procurement after sales in the rural areas) occupies less than 20 percent of the total grain output. Since the seventies, there has even been a trend of downward movement. The situation is shown in the following table:

| Year/item | Quantity of net procurement of grain by the commercial sectors (in 100 million yuan) | proportion (in %) of total grain output |
|---|---|---|
| 1949 | 339.6 | 15 |
| 1952 | 563.8 | 17.2 |
| 1957 | 677.4 | 17.4 |
| 1965 | 671.9 | 17.3 |
| 1970 | 840.4 | 17.5 |
| 1975 | 878.9 | 15.4 |
| 1977 | 751.2 | 13.3 |
| 1978 | 820.7 | 13.25 |

The commodity rate of agricultural products as a whole was not high either. This can be seen from the small proportion of agricultural products procured by the commercial sectors in the gross value of agricultural products.

| Year/item | Quantity of agricultural products procured by the sommercial sectors (in 100 million yuan) | proportion (in %) of the total value of agricultural products |
|---|---|---|
| 1952 | 90.1 | 18.6 |
| 1957 | 176.5 | 29.2 |
| 1965 | 274.2 | 46.5 |
| 1970 | 314.0 | 43.8 |
| 1975 | 414.6 | 32.2 |
| 1977 | 413.3 | 30.8 |
| 1978 | 459.9 | 31.5 |

Marx once said that some countries "suffer from the development of capitalist production as well as suffer from the lack of development of capitalist production. Besides the modern calamity, there are many calamities that have come down from the past that are oppressing us. The occurrence of these calamities is due to the wornout and old mode of production and the accompanying obsolete social relations and political relations that are lingering on in a steadily worsening condition."[5] We are suffering precisely from the

5 "Collected Works of Marx and Engels, Vol 23, pp 8-11.

backward capitalist production and commodity economy. The existence of a natural economy and its influence to a great extent were also suppressing us and seriously obstructing socialist modernization in our country. In 1978, each agricultural worker in our country could only produce around 70 yuan of agricultural products as commodity each year. In 1979, it was still only a little over 80 yuan. Such a backward condition has affected the development of industry and the national economy as well as the raising of the standard of living of the people.

In terms of guiding thought, for many years, we also failed to attach importance to developing the commodity economy and emphasized self-sufficiency and the formation of our own system. In 1958, we proposed the establishment of economic systems in large regions, and the provinces that had the conditions to do so had to establish independent provincial economic systems. After 1970, we proposed to set up industrial provinces and emphasized self-sufficiency of the provinces and autonomous regions. This resulted in the involvement in systems of organizations both vertically and horizontally, thereby affecting the development of the commodity economy and cooperation between specializations, and presenting an obstacle to giving play to the superiority of the various localities.

In agricultural production, many places failed to properly utilize their local superior conditions and develop production that is economically favorable, and simply pursued self-sufficiency in grain. First we asked that a province become self-sufficient in grain. Gradually, a district, a county, a commune and even a production team must be self-sufficient in grain. As a result, we destroyed the forests in order to build farmland, encircled the lakes in order to build farmland, and encircled the sea in order to build farmland. Guangdong and Fujian even chopped down sugarcane and fruit trees in order to grow grain. The suburbs of large cities chopped down vegetables in order to grow grain. Even the forestry regions, fishery regions and animal husbandry regions engaged in self-sufficiency in grain. We also required self-sufficiency in other agricultural products. For instance, some people suggested that Jiangsu Province develop a sugarcane production in order to become self-sufficient in sugar.

In industrial production, the degree of socialization was not high either. Some people liked to become engaged in "large but comprehensive" and "small but comprehensive" factories. Every factory had its own machine repair workshop. Everyone strove not to ask for help from others in all matters. This hindered cooperation between specializations.

In commodity circulation, we were engaged in regional boycotts and firm land demarcation. We did not allow locally produced products to be sold in other places and did not allow the import of products from other places. We were engaged in that feudal separationist stuff. Toward foreign countries, we were a closed-door nation.

The greatest harm in a backward commodity economy was the obstruction to raising economic results. Commodity relations is an important form of developing the productive forces. The commodity economy asks that production

be geared toward the needs of society. Commodity production exists and develops in the midst of competition. Competition forces the commodity producers to work hard to make their products good and inexpensive. Thus, it is necessary to continue to renovate technology, raise labor productivity, lower cost and strive for results. Otherwise, in the midst of competition, one will be put in an unfavorable position and may even go bankrupt. Furthermore, because the commodity economy was backward, such common practices as lacking a concept of value, not figuring out labor cost, not striving for results, not being responsible economically, eating out of the same big pot, having goods that were unsuitable and producing for the warehouses prevailed. This was an important obstacle to the rationalization of the economic structure.

In readjusting the economic structure, we must shatter all the traditions and influences of the natural economy. Whether it is in terms of a country or in terms of a region, in order to give play to our own superiority, we must shatter such tendencies as self-sufficiency, becoming a closed-door nation, regional boycotts, forming our own systems of organization, setting up "large but comprehensive" and "small but comprehensive" factories, vigorously develop commodity production and commodity circulation, enable production to become highly socialized and at the same time make use of the advantage of the international division of labor to raise labor productivity and raise the results of economic activities.

/E. The Condition of a Proportional Disharmony in the National Economy Has Still Not Been Entirely Overcome./

Because of the many problems that had accumulated over the years, even with the readjustment since 1979, the condition of proportional disharmony still exists today, which apparently can be entirely overcome over a period of time.

The proportional disharmony in the national economy is primarily manifested in the following:

1. Because we have given prominence to heavy industry in an isolated manner, agriculture and light industry are backward and are unable to meet the needs of the development of the national economy.

Since the Liberation, industrial and agricultural production in our country have developed on a large scale. But the gap between the speed of development in agriculture, light industry and heavy industry is too wide. The situation is shown in the table which follows.

In heavy industry, particular stress was laid on the development of the steel industry and the machinery industry. Nevertheless, in terms of the steel industry, because there were many low-grade ores, the price of smelting was too great and the economic results were poor; the steel rolling capacity was backward and the standards and quality of the variety of steel products were unable to meet the needs at home. In the machinery industry, because of backward models, inferior quality, high price and unsuitable goods, we brought about a large amount of stockpiling of machine tools. Furthermore, the key, precise and most advanced products which the state needed were either low in

in output or presented a gap. Agricultural machinery products were also inferior in quality and high in price.

| Item/year | 1949 (1952 constant prices) | 1978 (1970 constant prices) | The multiple of increase, 1978 compared to 1949 (comparable prices) |
|---|---|---|---|
| Value of agricultural output in 100 million yuan) | 326 | 1,454 | 2.4 |
| Value of light industrial output (in 100 million yuan) | 103 | 1,805 | 19.8 |
| Value of heavy industrial output (in 100 million yuan) | 37 | 2,425 | 90.6 |

Not only was heavy industry overstressed, it was also basically a self-serving type and could not serve agriculture and light industry very well.

The proportion within heavy industry itself was not in harmony either. This was primarily manifested in the backwardness in the excavation industry and the excessive inflation of the processing industry. The development of fuel, electrical industry and communications and transportation lagged far behind the needs.

Agriculture is the foundation of the national economy. But this foundation is not firm in our country. The per capita grain output in 1978 was 636 jin which was lower than the 660 jin level in 1936 before the Liberation. As a vast agricultural nation with a population of nearly 1 billion, 80 percent of whom are peasants, for many years, it was necessary to import a portion of our grain, cotton, edible oil and sugar in order to satisfy the needs of consumption. At the same time, the level of production of industrial crops as well as in forestry, animal husbandry and fishery was also very low. This shows our extreme backwardness in agricultural production.

Light industry also could not satisfy the demands of the rising urban and rural people's standard of living. For 30 years, light industrial products have constantly failed to overcome the contradiction of supply not meeting demand. For many years, the difference in the available volume of supply and the purchasing power of our country's market commodities has steadily been several

billion yuan. In the last 1 to 2 years, it has been as high as 10 billion yuan. Yet, light industrial products have accounted for around one-half of the total volume of market commodities.

2. The scale of capital construction was too large and the frontline was too long.

The general survey at the end of 1978 showed that there were 65,000 projects that were being launched throughout the country. Among them, 1,723 were large and medium projects that required a total investment of 280 billion yuan, 160 billion yuan of which had been completed and 120 billion yuan of which had not yet been completed. If 15 billion yuan of investment were made each year on these large and medium projects, then it would take 8 years to complete the projects. If 12 billion yuan of investment were made each year on these large and medium projects, then it would take 10 years to complete the projects. Obviously, such a large output for capital construction did not correspond to our country's strength. At the same time, it helped to lower the results of investment. Since 1970, almost every year, there have been "gaps" in the distribution of materials. Over a long period of time, we have disrupted the proportional relationships and allowed capital construction to squeeze out production and production to squeeze out repairs. While the scale of construction was lengthened, the cost was raised and the proportion of the newly increased fixed assets in the investment in capital construction came down. In short, when capital construction was abnormal, production was also abnormal; while we could not properly realize the expansion of reproduction, we often also obstructed simple reproduction.

While the frontline for capital construction was too long, the proportion between "productive investment" and "nonproductive investment" was also in disharmony.

3. There is proportional disharmony between accumulation and consumption and the rate of accumulation is too high.

That the rate of accumulation is way too high has been a problem that has existed over a long period of time since the late fifties. Compared to 1978, in 1952, the amount of utilization of the national income (without deducting the factor of price changes, and with the same amount of accumulation and consumption) increase 3.8 times. While the amount of accumulation increased 7.3 times, the amount of consumption only increased 2.9 times. Since 1970, the rate of accumulation has steadily been above 30 percent. Between 1970 and 1976, the average was 33 percent. In 1978 it was as high as 36 percent. When accumulation was excessively high, it inevitably would squeeze out consumption. Compared to 1952, in 1978, the all-member labor productivity of the enterprises under the ownership of all people was raised 1.7 times. Yet, the average wage of the workers only increased 44 percent. After deducting the factor of price changes, which included the employment of workers outside the plan, the actual wage increase was only 23 percent. Furthermore, from 1970 to 1976, the actual wages of the workers and the actual income of the peasants not only did not increase but sometimes even decreased, and there were many households that lived in straitened circumstances.

When the rate of accumulation was excessively high, it inevitably brought about large-scale capital construction and a long frontline and inevitably was used primarily in developing heavy industry. That the rate of accumulation remained excessively high for a long period of time was related to the isolated development and overemphasis of heavy industry. Because the rate of accumulation remained excessively high for a long period of time, we could realize the accumulation of funds only through giving prominence to heavy industry and developing the production of the means of production.

In light of the above situation, a top priority task is to readjust the economic structure and overcome the proportional disharmony in the national economy. Only in so doing can we establish a solid and reliable foundation for the steady development of socialist modernization.

/F. In Such Aspects as Production, Construction and Circulation, a Serious Phenomenon of Waste Exists, the Economic Results Are Poor and the Quota of Many Important Economic Results Have Not Yet Reached the Highest Level in History./

The first is the aspect of capital construction.

The rate of availability for use of fixed assets is falling. The total amount of investment in the capital construction projects throughout the country from 1950 to 1979 was 651.7 billion yuan, the newly increased fixed assets were 454.1 billion yuan, giving a rate of availability for use of 70 percent. During the period of the First 5-Year Plan, it was 83.7 percent. During the period of the Second 5-Year Plan, it was 71.4 percent. During the Third 5-Year Plan and the Fourth 5-Year Plan, it fell to around 60 percent. Between 1976 and 1979, it went back up to 73 percent.

The projects under construction are using too much capital without repayment. For 30 years, the proportion of funds for the projects under construction in the amount of investment in the same year continually rose. During the period of the First 5-Year Plan, it was 63 percent. During the period of the Second 5-Year Plan it was 96 percent. During the period of the 3 years of readjustment, it was 170 percent. During the period of the Third 5-Year Plan, it was 175 percent. During the period of the Fourth 5-Year Plan, it was 166 percent, and between 1976 and 1979, it was 180 percent.

The construction cycle is long. The construction cycle of a large or medium project during the period of the First 5-Year Plan was, on the averag, 6.5 years. Since the period of the Fourth 5-Year Plan, it has been extended to over 11 years. Calculating on the basis of the scale of capital construction and the number of workers involved in capital construction in our country, when the project is delayed 1 year, the item of wages alone will require 5 billion yuan more in expenditure.

The cost of construction is high. The newly increased capacity of the investment of every 100 million yuan has dropped a great deal. For instance, the steelmaking capacity during the period of the First 5-Year Plan was, on the average, 74,900 tons. Between 1976 and 1979, it was 37,900 tons. The coal exploitation capacity was 1.78 million tons during the period of the

First 5-Year Plan and 470,000 tons between 1976 and 1979. Cotton yarn splindling was 146,000 spindles during the period of the First 5-Year Plan and 112,000 spindles between 1976 and 1979.

The condition of the falling of accumulation and the results of investment is represented in the following table.

| Period/item | The national income increased from the accumulation of every 100 yuan (in yuan) | The national income increased from the investment of every 100 yuan of fixed assets (in yuan) | The profits and taxes increased from the investment of every 100 yuan of fixed assets (in yuan) |
|---|---|---|---|
| The average during the First 5-Year Plan | 35 | 52 | 20 |
| The average during the Second 5-Year Plan | 1 | 1 | 3 |
| The average from 1963 to 1965 | 57 | 92 | 29 |
| The average during the Third 5-Year Plan | 26 | 43 | 22 |
| The average during the Fourth 5-Year Plan | 16 | 25 | 4 |
| The average from 1976 to 1979 | 23 | 34 | 15 |

(Note: Besides the investment in fixed assets, "accumulation" also included the accumulation of the rural people's communes and collectives; the "investment in fixed assets" included the investment in capital construction, the investment in capital construction from the defense budget, and the investment in tapping potentials and replacing and transforming facilities, but did not include investment in the system of collective ownership.)

The second is the aspect of production.

The rate of utilization of fixed assets and equipment is low. By the end of 1979, the fixed assets of state-run industry were 346.7 billion yuan, which was 9 times more than in 1957. During the same period, the gross value of industrial output only increased 6.7 times. The value of industrial output realized by every 100 yuan of fixed assets was only 103 yuan in 1979, which was 25 percent lower than the 138 yuan in 1957. Among the 34 projects of the heavy industrial enterprises throughout the country in 1979, 23 projects have not yet reached the highest level in history in their quota for the rate of utilization of equipment. The rate of utilization of machine tools throughout the country has dropped year after year since 1970, and by 1979, it was only 52 percent. The system under the First Ministry of Machine-Building Industry has 35 sets of hydraulic presses that are over 1,000 tons (more than the volume possessed by the EEC), and yet the rate of utilization was only 30 percent.

Material consumption is high. It is estimated that in society's general products, the proportion of material consumption during the period of the First 5-Year Plan was 44.3 percent. Since the period of the Second 5-Year Plan, it continued to rise, and was 55.8 percent between 1976 and 1979. The material consumption of the industrial sectors between 1976 and 1979 was 65.9 percent, which was 3.2 percent higher than the 62.7 percent in 1966, a record year. In 1979, among the 71 items of the consumption index of the priority industrial enterprises throughout the country, 48 of them have not yet reached the record. In the gross value of agricultural output, the proportion of material consumption between 1976 and 1979 was 30 percent on the average, which was 4 to 5 percent higher on the average than any previous periods. In the distribtuion of agricultural profits, the proportion of the agricultural production cost in total income was 32 percent between 1976 and 1979, which was 10 percent higher than the 22 percent in 1956, and 7 percent higher than the 25 percent in 1965.

The product quality is poor. In 1979 the 57 items of the product quality index of the key industrial enterprises thorughout the country, 27 have not reached the best level in history. Among the products that have recovered their best level in history, many are still far inferior compared to the standards of similar products abroad. In the agricultural machinery products kept in stock, there is a total of 700 million yuan of products that have to be discarded because their quality is not up to standard.

Product cost is high. The comparable product cost of the state-run enterprises throughout the country was lowered each year by 6.5 percent on the average during the period of the First 5-Year Plan, 9 percent between 1963 and 1965, and yet only 0.3 percent in 1979 compared to the preceding year (the total amount of comparable product cost for the industrial enterprises in 1979 was 188.6 billion yuan). With regard to the per-unit cost of the major products of the large and medium enterprises, among the 47 items of per-unit product cost index, 38 were higher than the levels of those of 1965 or 1966. Pig iron, steel ingot, cement, thermal power and cotton cloth were all 20 to 30 percent higher than in 1965.

The profit taxes have decreased and the amount of loss has increased. The total capital of the state-run enterprises in 1979 (including the net value of the fixed assets and the circulatory capital) was 640.3 billion yuan, which was 19 times higher than that of 1952. However, the profit taxes in the same period only increased 13 times. The average profit taxes brought about by the First 5-Year Plan, 19 yuan during the Third 5-Year Plan and the Fourth 5-Year Plan, and only 17.5 yuan in 1979. Among them, the profit taxes realized by every 100 yuan of capital of the state-run industrial enterprises was 24.8 yuan in 1979, 9.9 yuan less than the 34.7 yuan in 1957. The profit rate of the capital of the industrial enterprises in our country in 1979 was 16.1 percent, which was lower than that of the economically advanced nations in the world, such as that of the Soviet Union, which was 17.7 percent in 1974.

One important reason for the decrease in profit was the increase of the amount of deficit of those enterprises suffering deficit. In 1979, the number of state-run enterprises throughout the country that suffered over 10 billion yuan of deficits (among them the greatest being the amount of deficit in grain) increased 3.8 times over that of 1966. Among the total amount of deficit in 1979, after deducting the deficits not prescribed by policy such as the price subsidies in grain, edible oil, meat and agricultural machinery, over one-half of the total amount of deficits were business deficits. In 1979, the extent of deficit of the industrial enterprises was 23.5 percent and the amount of deficit reached 430 million yuan.

The period of recovery of investment is lengthened. Calculating from the investment in fixed assets together with the newly increased profit taxes, it was 5 years during the period of the First 5-Year Plan, 34 years during the Second 5-Year Plan, 4.5 years during the Third 5-Year Plan, 25 years during the Fourth 5-Year Plan, and 7 years between 1976 and 1979. In the 27 years from 1953 to 1979, the total amount of investment in fixed assets was 855 billion yuan, and the newly increased profit taxes were 103.6 billion yuan. The period of recovery of investment was 8.3 years, while the period of recovery of investment for Japan, the United States and the Soviet Union was shorter.

The third is the slow turnover of the circulatory capital.

By the end of 1979, the state-run enterprises throughout the country had used without repayment 303.8 billion yuan of circulatory capital, equivalent to 90 percent of the national income of that same year, and 17 times higher than in 1952, and the speed was faster than the increase by 3.9 times of the national income and the increase by 13 times of the profit taxes during the corresponding period of time. The industrial enterprises had used without repayment 110.9 billion yuan of circulatory capital, with an average use without reapyment of 31 yuan of circulatory capital in every 100 yuan of output value. This use without repayment was 14 yuan higher than the 17 yuan in 1956, a record year. In 1979, the commercial units used without repayment 49 yuan of circulatory funds in every 100 yuan of income from sales, 12 yuan more than the 37.1 yuan in 1956, the best level in history.

An important reason why the turnover of circulatory capital is slow is because there is too much stockpiling. By the end of 1979, there was 64 billion yuan of electromechanical equipment in reserve throughout the country, over 12 billion yuan more than the reserve quota, 20 percent of which might have to be discarded. In 1979, there were 18.93 million tons of steel material kept in stock and 19.80 million tons by the first half of 1980. If every ton costs 750 yuan, then the total amount will cost 14.85 billion yuan, 9 billion yuan more than the reserve quota. These two items alone have used without repayment 20 billion yuan, which constitutes 7 percent of the entire circulatory capital. Among the circulatory capital that is used without repayment by the commercial sectors, unmarketable commodities and commodities of inferior quality and high price constitute billions of yuan, and even deficient, damaged and deteriorated commodities constitute several hundred million yuan. Only a little more than one-half of the commodities in stock of the agricultural machinery companies are marketable.

Despite the fact that there are many factors at present which we cannot compare with the period of the First 5-Year Plan or the period of readjustment during the sixties, the poor economic results and the decline of these results are facts that show that our economic structure is loosely organized and disharmonious and that our system of management is problematic. At the same time, they show also that there is very great potential for increasing production and practicing economy. In order to tap the tremendous potentials that exist in the national economy and raise the results of economic activities, we must not only do a good job of rectifying enterprises, but, most important of all, must readjust the economic structure and reform the economic system of organization, enable the development of the socialist enterprises to embrace a strong intrinsic mechanism, act in accordance with socialist economic laws and the law of value, and realize the development of the national economy in a proportional manner.

The above described six aspects represent our country's situation, and are our points of departure in considering the readjustment of the economic structure and the establishment of a rational economic structure in our country.

In light of the above reality, in establishing a rational economic structure in our country, we ask the following:

1. Proceeding from the characteristics of a large population and a weak basis in our country at the present stage, it is suitable to establish a light-type structure. At present, in making a transition from a heavy-type to a light-type structure, we can first of all go through a period in which a heavy-type economic structure is combined with a light one. After the establishment of a light structure and a period of development, with the changes in our conditions, it is also possible to make a transition back to combining the light-type with the heavy-type structures. But that is a matter of the future. We must develop agriculture and light industry more extensively and develop heavy industry appropriately on the basis of developing agriculture and light industry. At the same time, heavy industry must serve agriculture and light industry in a proper manner. At present, we must first of all

vigorously strengthen agriculture, light industry, energy and communications where there are shortages, control the development of capital construction and suffer long-term deficits. We must change the situation in which the raw materials and fuel-generated power which we have at present are unable to bring into full play the production capacity of the 370,000 industrial enterprises, and in which very poor economic results are brought about because "there is not enough to go around." We must ensure harmony in the proportional relationships in the national economy and raise economic results.

2. In line with the characteristics of abundant labor force and insufficient capital and the lack of ample energy resources and raw materials, we must develop more extensively those undertakings and products that involve a concentration of labor, such as the light and textile industries and handicraft industry. Correspondingly, with regard to technological structure, while adopting advanced technologies, we must adopt intermediate technologies, namely, applicable technologies, that require little capital and provide more employment opportunities, and maintain and develop handicraft technology that embodies a fine tradition. With regard to the enterprise scale, we must not only have modern, large enterprises, but must also have many medium and small enterprises.

3. Implement cooperation between specializations on a broad scale, develop commodity production and circulation, and develop foreign trade, so that the country and the various regions can truly give play to their economic superiorities, develop their strong points and avoid their weaknesses, and strive for better results in our economic activities.

4. Develop energy, communications and transportation, posts and telecommunications, construction commerce and other urban public works, so as to establish a fine foundation and structure for the development of the national economy. Geological survey should precede production and construction.

5. Develop the scientific cause and enable science to truly become a great lever in promoting modernization. Develop culture and education and foster adequate and qualified individuals with skill for the country's modernization.

Here, I need to discuss my personal view on why it is necessary to go for a light-type structure in our country.

What is meant by a heavy-type or light-type structure? Some articles say that the so-called "light-type production structure refers to agriculture and light industry as one group, which constitutes over 60 percent, and heavy industry, as another group, which constitutes less than 40 percent, of the gross value of industrial and agricultural output. A heavy-type production structure refers to a structure in which heavy industry constitutes over 40 percent and agriculture and light industry together constitute less than 60 percent of the gross value of industrial and agricultural output."[6] I feel that this criterion is enlightening. But this criterion sets primarily

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6 See article by Liao Jili [1675 1323 4539] and Gao Yisheng [7559 5030 3932]: "Readjust Our Country's Heavy-Duty Production Structure Into a Light-Duty Production Structure." HONGOI, 1980, Issue No 16.

quantitative limits and lacks qualitative stipulations. Generally speaking, a heavy-type structure takes heavy industry as the major pillar of the social economy. The development of the social economy relies primarily on the development of heavy industry. The proportion of heavy industry in the gross value of industrial and agricultural output not only manifests an upward independent from the development of the country's agriculture and light industry. A light-type structure takes agriculture and light industry as the mainstay of the social economy. The majority of the social labor is distributed to the agricultural and light industrial sectors, and heavy industry primarily serves agriculture and light industry and develops in line with the demands of agricultural and light industrial development.

Since the nation's founding, guided by the principle of giving priority to developing heavy industry, our country's economic structure has developed along the direction of a heavy-type structure. In 1949, the proportion of the value of heavy industrial output was only 7.9 percent of the total value of industrial and agricultural output. By 1957, it rose to 25.5 percent. After 1970, it was above 40 percent (with the exception of 1971 and 1974 when it was slightly below 40 percent). In 1975 it was 40.6 percent; in 1976 40.1 percent; in 1977 41.4 percent; in 1978 42.5 percent; and in 1979 it was 42.3 percent. After 1958, heavy industry became divorced from agriculture and light industry and expanded by itself. Its proportion in the gross value of industrial and agricultural output rose rapidly in an inappropriate manner, once again bringing about proportional disharmony in the national economy. Practice has proved that such an economic structure is not proper and its results are not satisfactory, and that the main reason behind this is that we failed to proceed properly from our country's situation and violated the objective laws of the development of the productive forces.

The peasants of our country constitute over 80 percent of the population throughout the country. In agricultural labor, manual labor is the key and labor productivity is very low. In such a large agricultural nation, if we go for a heavy-type structure or develop toward a heavy-type structure, we inevitably have to collect funds primarily from the peasants. But low productivity and little surplus labor in agriculture inevitably make accumulation difficult inside the agricultural sphere, making the expansion of reproduction impossible and hence violating the interests of the peasants. Because agriculture develops slowly and the peasants' income increases slowly, light industry also cannot develop rapidly. When there is proportional disharmony among agriculture, light industry and heavy industry, then it is impossible to improve the people's standard of living. The result is, more haste, less speed. This has dampened the enthusiam of the laboring people, and has failed to being into full play the superiority of the socialist system.

In such a large agricultural nation as our country, the isolated development of a heavy industry that is divorced from agriculture is not in accordance with the objective demand of the development of the social economy but is propped up in an artificial and arbitrary manner. Many countries in the world which have developed from an agricultural nation to an industrial nation have generally developed agriculture initially and, on this basis, developed a light industry that primarily takes agricultural products as the raw materials.

Then, on the basis of the development of agriculture and light industry, because heavy industry is required to provide more means of production for agriculture and light industry, they carry out technological transformation and hence develop heavy industry step by step. This is the objective law of the development of the productive forces and is the natural historical course in the development of the social economy. If we violate this objective law, we will butt our head against a wall of hard facts and pay an extremely high price.

The reason why we must go back to a light-type structure is mainly that we must proceed from our country's situation and acknowledge the objective law of economic development, which includes the basic economic laws of socialism and the above-mentioned objective law of the development of the productive forces. We must not carry out production just for the sake of production nor carry out production based on our subjective imagination of the speed of production development, but must guarantee the arrangement of an economic structure that will satisfy to the greatest extent the daily growing needs of the laboring people. At the same time, since the peasants constitute over 80 percent of the total population, we must first of all mobilize their enthusiasm and rely on the laboring masses that constitute the largest portion of the population to develop the socialist economy. For this, we must not drain the pond to get all the fish and completely take away the surplus labor from the peasants, depriving them of the ability to expand their reproduction, but must continue to raise the level of the peasants' income and consumption with the development of production. Furthermore, we must develop light industry (including handicrafts industry) in line with agricultural development, and develop heavy industry on the basis of the development of agriculture and light industry and in accordance with the needs of the development of agriculture and light industry.

At present, because our country has already had a suitable foundation in heavy industry, we must, on the basis of a unified understanding, clarify our orientation and put our major strength and attention in the various aspects of speeding up the development of agriculture and light industry. Heavy industry must serve with its greatest effort the development of agriculture and light industry, so as to enable our country's economic structure to develop in the direction of a light-type structure that is in line with our country's situation and the objective laws.

After we have vigorously developed agriculture and light industry and require heavy industry to better equip agriculture and light industry with advanced technologies, the swift development of heavy industry will become the objective demand of the development of the social economy. We will have a solid basis for the development of heavy industry, and hence will also be able to direct the economic structure step by step toward a heavy-type structure. But that will be a matter of the future and will develop naturally on the basis of a light-type structure. It will not be like that which we went in for subjectively and recklessly to a considerable extent some 20 years ago. Thus, under the general circumstance, the development of the social economy should follow the path of agriculture-light industry-heavy industry. In terms of economic structure, we must first establish a light-type structure. Then, after the

social productive forces have been developed to a considerable extent, we can, on the basis of a light-type structure, further establish a heavy-type structure or the economy of a heavy-type structure. At present, our country has a relatively low level of productive forces and is at a stage when we need to set up a light-type structure. Thus, it appears that a more accurate choice is to readjust the social economy at the present stage in the direction of a light-type structure.

III. How Can We Make a Transition Over to a Rational Economic Structure?

Under the present circumstances when the national economy is still in serious disharmony, in order to make a transition over to a rational economic structure, we must first of all readjust the major proportional relationships in the national economy and further promote in a planned manner the rationalization of the economic structure once the proportional relationships in the national economy have become basically suitable.

Because the present proportional disharmony is primarily due to the excessive prominence given to heavy industry, the development of agriculture and light industry is unable to meet the needs of the development of the national economy. In addition, in view of the period in the future in which a rational economic structure will have to be a light-type economic structure, the readjustment of the disharmony in the proportional relationships is basically in line with the establishment of a rational economic structure. Of course, in accordance with the need to rationalize the economic structure, the readjustment of the disharmony in the proportional relationships not only is limited to making agriculture and light industry meet the needs of the development in the national economy, but must proceed further to establishing an economic structure that emphasizes the development of agriculture and light industry, while the development of heavy industry must meet the needs of the development of agriculture and light industry and truly serve agriculture and light industry.

After smashing the gang of four, in particular, since the Third Plenary Session of the 11th Party Central Committee, under the party leadership, we have implemented the principle of readjustment, restructuring, consolidation and improvement and have decided to take readjustment as the key. In over a year's time, we have attained achievements that are obvious to all.

In agriculture, we formulated two documents in developing agriculture, acknowledged and respected the autonomy of the production team, curbed blind command and high quotas and let the peasants truly develop production in line with local conditions. In 1979, we raised the procurement prices of agricultural products by a wide margin. We implemented the various economic policies of the party, including private plots, trade fairs, integration of output with remuneration and the various systems of responsibility. We relaxed the system of ownership, which included allowing the fixing of farm output quotas for each household in areas where the development of the collective economy encountered difficulties and the income level of the commune members was low. We acknowledged and utilized unbalanced development to let some peasants attain some wealth first. We ascertained a definite amount of grain to be imported each year in the next 10 years, readjusted or stabilized the tasks

of grain procurement, and allowed the peasants a period of rest. Having adopted the above measures, we scored obvious results and agriculture and the rural situation swiftly changed for the better. The gross value of agricultural output in 1978 increased 8.9 percent over that of 1977. Grain output increased from 565.5 billion jin to 609.5 billion jin, an increase of 7.8 percent. The gross value of agricultural output in 1979 again increased by 8.6 percent over that of 1978. Grain increased to 664.2 billion jin, an increase of 9 percent. The gross value of agriultural output in 1980 again increased 2.7 percent over that of 1979.

In light industry, more and more people have recognized the importance of developing light industry and have adopted corresponding measures. Since 1979, we have implemented several priority principles in developing light industry. We have not only adopted special measures in terms of investment and credit, but have given priority consideration to light industry in such aspects as raw materials, fuel, power supply, communications and transportation, and the import of facilities and goods and materials. These measures have displayed preliminary results. In 1978, the speed of increase of light industry caught up with that of heavy industry, which was a 13.5 percent increase. In 1979, the speed of increase of light industry, which was at 9.6 percent, surpassed that of heavy industry, which was at 7.7 percent. In 1980, the situation was even better. It appears that, in order to basically change the long-term situation of backwardness of light industry, it will be necessary to maintain a speed of development of light industry over that of heavy industry through the eighties.

In capital construction, in 1979, we began to reduce the amount of investment within our budget, stopped or slowed down the construction of some capital construction projects outside the plan that should have been stopped or slowed down. We also sorted out the projects under construction that were planned and put a definite brake on the inflationary tendency toward stretching out the frontline continuously. At the same time, we readjusted the proportional relationship between "productive investment" and "nonproductive investment." The proportion of the investment in nonproductive construction in the total amount of investment in capital construction was 17.4 percent in 1978, which was raised to 27 percent in 1979, and was further raised to 33.7 percent in 1980. In 1980, the units under the system of ownership by all the people completed 88.30 million $M^2$ of housing quarters, the largest area since the nation's founding.

Heavy industry also has made fresh efforts in serving agriculture and light industry. Since the Liberation, the composition of raw materials for our country's light industry had always taken agricultural products as the key. The proportion of industrial products as raw materials increased very slowly (in 1978, only 31.6 percent of the gross value of light industrial output was light industrial products that used industrial products as raw materials). This put a very heavy burden on agriculture. Currently, the heavy industrial sectors are working hard to provide more raw materials for light industry. At the same time, under the stipulation in the state plan, many heavy industrial enterprises are producing some consumer products (primarily durable consumer products) to satisfy the needs of the people's standard of

living. In addition, more and more war industrial enterprises have begun to produce consumer products. The facilities and technological factors of the war industrial enterprises are superior to the average industrial enterprises. Using these facilities and technologies to produce technologically similar products, we do not have to add facilities or only have to make slight improvements in order to produce a large amount of consumer products that are urgently needed by the people, supply the domestic market and even have some for export. Now, many war industrial enterprises are hungry to produce consumer products for the market, which is a good way to give play to their own potentials and to improve business management. In 1980, production by the production sectors outside the light and textile industrial sectors already constituted 31 percent of the value of light industrial output.

In light of the need to rationalize the economic structure, overcome the situation of proportional disharmony in the national economy and further rationalize our country's economic structure, what aspects should we master?

/A. Define a Rational Rate of Accumulation./

Experience over the last 30 years tells us that whether or not the rate of accumulation was appropriate is extremely important in relation to whether or not the proportional relationships in the national economy are in harmony. In the past, we experienced two occasions of major proportional disharmony during which heavy industry was overemphasized and agriculture and light industry were relatively backward. One important factor was the excessively high rate of accumulation, which did not correspond with the level of development of the national economy. An excessively high rate of accumulation is a guarantee for the realization of the isolated emphasis on heavy industry. Thus, to readjust the proportional relationships and overcome the proportional disharmony, we must first of all lower the excessively high rate of accumulation.

In light of our country's former experiences, at the present stage, the rational rate of accumulation is 25 percent. This means that 25 percent of the national income is used in accumulation every year. This is a conclusion drawn from experience. During the period of the First 5-Year Plan and the period between 1963 and 1965, the rate of accumulation was 24.2 percent and 22.7 percent respectively. The national economy developed in a healthy manner in proportional harmony, and the people's standard of living was raised quite rapidly. In contrast, during the periods when the rate of accumulation exceeded 25 or 30 percent, economic development was abnormal and a situation of serious proportional disharmony occurred. That the rate of accumulation should not be too high is primarily determined by the low level of economic development in our country. We know that at present, every agricultural labor force can only produce around 2,000 jin of grain in 1 year. After deducting grain rations, seed, feed and other items of consumption, only a very small portion is left for use as accumulation. Furthermore, the peasants constitute over 80 percent of our country's population. In a country that is established on such an agricultural productivity, the rate of accumulation obviously cannot be too high. A rate of accumulation at 25 percent is already high enough. From 1950 to 1969, the rate of accumulation in the Soviet Union

fluctuated between 24 and 28 percent. During that period, the level of their economic development was much higher than ours. Thus, I feel that, in our country, a rate of accumulation at 25 percent is considered a high, not a low one. If we generally master this level, we can enhance the development of the national economy in a healthy manner. If we far exceed the scope of 25 percent, we will inevitably exceed the quantity of surplus labor which the laboring people can provide, and may even infringe upon their necessary labor. For many years, our country was engaged in an excessively high rate of accumultion. The people's practical living standards were not only not raised properly, but were at times lowered. These facts explained this point.

We should emphasize that a correct policy in readjusting the proportional relationships in the national economy is to lower the rate of accumulation to around 25 percent. This is also a basic factor for improving the mode of the speed of growth of our country's economy and for raising the economic results in an all-round manner, and is entirely in accord with our country's reality. But there are two ways to lower the rate of accumulation. One is to brake immediately, and the other is to effect a period of transition (3 to 4 years) in order to gradually lower the rate of accumulation to an ideal level. Both of them implement the spirit of lowering the rate of accumulation, but will bring about very different economic results. In light of the present situation, if we lower the rate of accumulation suddenly but cannot abandon all the large-scale projects which we have introduced, we will inevitably halt or slow down many medium-sized and small construction projects and a group of projects which we are winding up. Also, we will not be able to make arrangements for some necessary projects in the existing industries which urgently need to be filled up. Steel, chemical industry and other heavy industries will also encounter great difficulties in capital when they urgently need to adopt technological measures to increase product variety and raise quality. When the raw materials provided by industry are reduced and when the renovation of facilities encounters difficulties, the light and textile industries will also be put in a position of difficulty. It will also be difficult to provide the agricultural machinery, chemical fertilizer and farm pesticides required in developing agriculture. This way, we cannot attain the goal of promoting agriculture and light industry. At the same time, while we urgently need to vigorously develop the construction projects in energy, communications and transportation, culture, education, and health and sanitation, we will encounter even greater difficulties in capital. When investment drops in large amounts suddenly, the demand for facilities will decrease and the stockpiling of products will increase. When the surplus workers of the capital construction teams and enterprises that have stopped operation continue to draw wages, an imbalance in the market commodity supply and purchasing power may be intensified, and it will be more difficult to check inflation. This way, an economic setback and an unhealthy cycle will appear.

If we adopt the method of making progress gradually, we can first lower the rate of accumulation to 30 percent, then gradually lower that to 25 percent, and at the same time adopt the necessary measures, such as not allowing the small projects to squeeze out the large ones, vigorously reducing and appropriately slowing down the construction of some large-scale projects which we have introduced, appropriately safeguarding the needs of capital in

in such aspects as energy, communications and transportation, agriculture, light industry and the people's standard of living, and using more money in developing the construction business, thereby bringing about development in the construction materials industry and furniture industry. This may be more favorable to bringing about a benign cycle in the entire social economy and to raising the economic results.

/B. Define an Appropriate Scale of Investment and a Correct Direction of Investment./

Whether the scale of capital construction is large or small is closely related to the arrangement in production at present. In the past, Comrade Chen Yun put forth a very clear principle: Carry out production first, then capital construction. However, for a long period of time, we carried out capital construction first and then production. Capital construction had crowded out production. Also, we often indulged in the following stupidity: While the existing enterprises are hungry for work and are operating under capacity, we built more similar enterprises. Also, we dared not hand over many newly built enterprises which were obviously completed to be checked and accepted. For a long period of time, these enterprises drew money from the capital construction fund to maintain all kinds of expenses. This was because after these projects were completed, they were unable to enter production because they either did not have the resources or the guarantee of raw materials, fuel and power, or they had products that nobody wanted.

Thus, we can see that, to readjust the proportional relationships and strengthen agriculture and light industry, we must reduce the scale of capital construction, define a rational scale of capital construction, and must not carry out construction blindly or waste our efforts in matters of no avail. The primary manifestation in readjusting the national economy and lowering the excessively high rate of accumulation is the reduction of the scale of capital construction. In 1978, the investment in capital construction arranged by the state was 39.5 billion yuan, which was to have been reduced to 36.0 billion yuan in 1979 (but was actually still 39.5 biilion yuan) [as published]. The state budget estimate for 1980 was to lower that to 28.1 billion yuan. It appears that, during the period of readjustment, it is more appropriate to keep the country's investment in capital construction below the levels of the above-mentioned years.

We can adopt several methods simultaneously in reducing the scale and the frontline of capital construction. One method is reducing the projects, another is reducing the investment of that year, and still another is reducing the total investment in capital construction (the investment in any project from beginning to completion). The key is the last method. It is difficult to get the desired result by adopting only the first two methods. For instance, by the end of September 1980, through sorting out and halting or slowing down the construction of a group of projects, there were 958 large and medium proejcts under construction throughout the country, 229 fewer than the 1,187 projects by the end of the preceding year. Among these projects, 126 were halted or slowed down, while 25 were newly launched into construction. But the 126 projects that were halted or slowed down were all small projects

with an average investment of 21 million yuan each. Therefore, we were only able to reduce a total of 2.7 billion yuan of investment. The 25 projects that were newly launched into construction, however, were all large projects, with an average investment of 440 million yuan each, requiring a total of 11 billion yuan. Not only did we fail to reduce the total scale of investment, but actually expanded it in this case. By the end of September 1980, the investment that was still required to complete the 958 large and medium projects under construction was 7 billion yuan more than that by the end of 1979. Thus, we did not attain the goal of reducing the capital construction frontline.

In reducing the scale of capital construction, not only must we reduce the state investment in capital construction, which is the investment within the budget, but must also control the investment outside the budget, which includes self-raised investment and foreign loans. At the same time, we must control the extra-large projects that require over 10 billion yuan of investment. In each 5-year plan period, we can only launch one project of this type.

In readjusting the economic structure, besides defining the scale of capital construction and the total amount of investment, we must also pay special attention to choosing a correct direction of investment.

First of all, we must readjust the proportion of investment of the different sectors in the national economy.

In order to overcome the proportional disharmony in the national economy and establish a light-type economic structure, and speed up the development of light industry, we must readjust the proportion of investment, and raise the proportion of investment in light industry in investments for industry as a whole. Also, it is not enough to simply reach the level of the period of the First 5-Year Plan (investment in light industry constitutes 11.2 percent of the total investment in industry). The reasons are:

1. The proportion of investment in light industry during the period of the First 5-Year Plan was determined by the situation in which light industry still had a definite foundation while heavy industry was extremely weak. The present situation, however, is that heavy industry is overemphasized while light industry fails to catch up with the needs of development of the national economy. Thus, investment in light industry should be higher than the level of the First 5-Year Plan.

2. With the development of production, in particular the development of the chemical industry, the composition of the investment in our country's light industry has undergone a very great change. The proportion of investment in producing the raw materials for light industry in the investment in light industry has increased very rapidly. This portion of investment was less than 1 percent during the period of the First 5-Year Plan. That is to say, over 99 percent of the investment was in the processing industry for consumer products. During the period of the Third 5-Year Plan, this portion of investment increased to 5 percent. During the period of the Fourth 5-Year Plan, due to the insufficient supply of agricultural raw materials, the light

industrial sectors vigorously developed synthetic fiber, plastic materials and resin. The proportion of this portion of investment again increased to 43 percent. Between 1976 and 1978, it further increased to 55 percent. This is an important reason why the proportion of investment in light industry should increase on a relatively large scale.

3. In light of the situation abroad, there is a growth trend in the proportion of investment in light industry in the Soviet Union and other Eastern European nations. From 1965 to 1975, the investment in light industry in the total investment in industry in the Soviet Union was raised from 10.8 percent to 14.1 percent, in Romania, from 13.1 percent to 15 percent. In Hungary, from 1958 to 1974, it was raised to 20 percent. In Yugoslavia, from 1956 to 1971, it was raised to 21.4 percent. Considering the fact that our country is going to establish a light-type economic structure, it appears that the proportion of investment in light industry should surpass the Soviet Union, Romania and other countries.

We also must restudy investment in agriculture.

At present, we primarily rely on policy and scientific cultivation in developing agricultural production. Relying on policy means to correct the "leftist" mistakes and readjust the relations in production and system of management in accordance with the level of the productive forces and its criteria of development. We must not only correct such mistakes as "making do in poverty" and "cutting off the tail of capitalism," but must also correct the drastic methods used in the past in the course of organizing cooperatives and communes. Under the condition when the socialist system of public ownership is occupying a position of superiority, we should adopt the various economic forms and business means to develop production and circulation.

In order to speed up development in agriculture, we must study whether or not the state should make appropriate increase in its investment in agriculture.

From the nation's founding to 1978, the average investment in agricultural capital construction constituted less than 12 percent in the total yearly investment in capital construction within the state plan. Along the same lines, investment in agriculture in the Soviet Union has for many years constituted 18 percent, while investment in agricultural capital construction in the various Eastern European nations was much higher than our country's.

It appears that, in order to overcome the proportional disharmony and speed up development in agriculture, we must, while gradually reducing the proportion of investment in heavy industry, appropriately increase the proportion in the investment in agriculture, for instance, increase it to 18 percent. The capital invested in agriculture is primarily used in establishing the base for marketable grain and other agricultural commodity products.

In heavy industry investment, besides increasing the investment in energy exploitation and communications, we must also consider increasing the proportion of investment in the sectors that serve light industry (the sectors that provide raw materials for light industry) and the sectors that serve

agriculture (such as the sector that produces chemical fertilizer). In investment in agriculture, we must increase the proportion of investment in the forestry, animal husbandry and fishery sectors. In investment in light industry, we must gradually increase the proportion of investment in producing the raw materials for light industry. In investment in capital construction as a whole, we must readjust the proportion between "productive investment" and "nonproductive investment" and repay the debt which we have incurred for many years in construction of a nonproductive nature (the average investment in construction of a nonproductive nature for the last 30 years is 15.2 percent in our country, over 30 percent generally in Soviet Union and even higher in the capitalist countries). In particular, we must increase the proportion of investment in housing construction (it was only 5.8 percent from 1952 to 1978 in our country, while the proportion of investment in housing construction in the Soviet Union and the United States since 1970 has been over 15 percent, and in West Germany and France, over 20 percent). In addition, we must properly study and effect an appropriate increase in the proportion of investment in such sectors as transportation, posts and telecommunications, commerce, science, culture and education, and health and sanitation.

Next is the question of distribution of investment in capital construction in building new or transforming existing enterprises (usually referring to tapping potentials, innovation and transformation).

In the future period, we must gradually use most of the investment in tapping potentials and carrying out innovation and transformation. This method uses little money, produces fast effect and brings obvious economic results. Our industrial enterprises (as well as the enterprises of other sectors) are already of a considerably large scale. We can rely primarily on tapping the potentials of, and innovating and transforming, existing enterprises to develop production and establish a rational economic structure. In 1957, our country had a total of 170,000 industrial enterprises. By 1978, it increased to 350,000. Most production sectors already had a definite number of enterprises. At the same time, the industrial fixed assets (original value) also increased from 33.66 billion yuan to 319.34 billion yuan. For a relatively long period of time, many enterprises were operating under capacity and failed to fully utilize their production capacity. At the same time, many existing enterprises had old facilities and backward technologies that were in urgent need of transformation. For instance, the old workshops and old facilities of light and textile industrial enterprises, for a long time, failed to undergo innovation and transformation. A survey in Shanghai showed that many of the technologies and facilities in the existing enterprises were old. Some of them even belonged to the thirties and forties. Since the Liberation, the Chongqing Woolen Textile Factory has produced over 500 million yuan of wealth for the state and provided over 200 million yuan in profits and taxes. But the state only invested some 4 million yuan on it. Heretofore, its facilities have been extremely backward, and the factory is still using self-actor mules and wooden looms of the 1898's. Nearly half of the factory building are hazardous buildings.

In accordance with the estimate by the concerned departments, the tapping of potentials and the innovation and transformation of old enterprises generally require only two-thirds of the investment, 60 percent of the facilities and

materials and much less time than building new enterprises that have the same production capacity. Such examples abound. The 26 May 1980 issue of RENMIN RIBAO reported on the Dongfanghong Aluminum Factory which, when it was newly built with an investment of 15 million yuan, had a production capacity of 2,300 tons. Later it underwent the tapping of potentials and transformation, and increased its production capacity to 4,300 tons with only an investment of 4.87 million yuan. A plate glass factory in Lanzhou was newly built with an investment of 18 million yuan and had a production capacity of 750,000 standard boxes, with an average investment of 240,000 yuan in the production of every 10,000 standard boxes. Later, through tapping potentials and undergoing transformation, its production capacity was expanded to 1 million standard boxes with an investment of 1.27 million yuan, giving an average investment of only 50,000 yuan in the production of every 10,000 standard boxes. Relying on tapping potentials, the Lanzhou Chemical Industrial Company increased its production capacity by 100,000 tons of synthetic ammonia with only 56 million yuan of capital, while the newly built Liujiaxia Chemical Fertilizer Plant only achieved a production capacity of 50,000 tons of synthetic ammonia, also with an investment of 56 million yuan.

We can also combine the import of technology and equipment with the reform of old factories. In tapping potentials and carrying out transformation, the Shanghai Toothpaste Factory imported the necessary advanced technology. For 12 years, it used a total of 4.66 million yuan in the replacement and transformation of facilities, and brought about some 130 million yuan in profits and taxes for the state.

In the past, in the direction of use of the investment in capital construction, we stressed building new projects and slighted tapping potentials and carrying out innovation and transformation. Statistics show that, in the total amount of investment in capital construction thoughout the country, the proportion of investment in new projects was 55.2 percent in 1973, 56.9 percent in 1976 and 57.6 percent in 1977 and 1978. The proportion of investment in transformation and expansion projects was 39.8 percent in 1973, 37.8 percent in 1976 and 37.5 percent in 1978. In the total amount of investment in capital construction in the industrial sectors, the proportion of new projects was 58.2 percent in 1973, 61.5 percent in 1976, 61.6 percent in 1977 and 58.8 percent in 1978. The proportion of transformation and expansion projects was 39.8 percent in 1973, 37.6 percent in 1976, 33.3 percent in 1977 and 39.5 percent in 1978. In addition, the greater part of the new investment from abroad was used in the transformation and expansion of existing enterprises (in some cases, it was 70 percent), and only a small part was used in building new enterprises.

After we redirect the use of the greater part of investment from building new projects to transforming and expanding projects, the economic results of investment will be raised and the economic structure will become more rationalized.

/C. Make Use of Such Economic Levers as Prices, Taxes and Interest To Serve the Establishment of a Rational Economic Structure./

The socialist economy is still a commodity economy and the law of value still plays a regulatory role. To enable the economic structure to make its transition toward rationalization, we must not only have a correct macro-economic policy and planned regularization, but must be very good at respecting the law of value and at acting in accordance with the law of value.

The regulatory role of the law of value is realized through prices. Prices not only regulate production, but also regulate exchange, distribution and consumption. A rational system of prices is the prerequisite and tremendous force in establishing a rational economic structure and a consumption structure. Thus, to readjust and establish a rational economic structure, we must establish a rational price system and give proper play to the regulatory role of prices to society's economic life.

First of all, we must fix the rational price ratios between industrial and agricultural products.

To speed up development in agriculture, we must enable agricultural departments and agricultural laborers to feel that it is beneficial to develop agricultural production and enable them to embrace an intrinsic economic mechanism.

In the past, the development of agricultural production in our country was slow and agriculture was unable to meet the needs of the development of the national economy. An important reason is that our price policy not only did not enhance but obstructed the development of agriculture. The prices of agricultural products were too low and the price scissors between industrial and agricultural products were very wide. In 1978, calculating from the present prices, the national income created by an industrial laborer was 6.7 times higher than that created by an agricultural laborer. This obviously is irrational. As a result, the peasant's income level was very low, and the peasant's actual consumption level was less than half of that of the worker's.

Under the prerequisite of a generally low price level of agricultural products, the price of grain--the most important agricultural product--was even lower. We have indeed come to such an absurd stage. There was a period of time when the more we asked for the production of more grain, the lower was the price of grain. In growing grain, the peasants not only did not obtain any profit but actually suffered losses. Finally, we had to criticize the peasants for making money the deciding factor in order to mobilize them to grow grain. Is this not a joke on the objective economic laws? The survey materials by concerned departments on 1,296 production teams of 22 provinces show that, compared to 1962, in 1976, the average per-mu output of the six grains increased 16.61 yuan, while the production cost (including money used in paying the work force) increased 20.33 yuan, and taxes increased 0.39 yuan. As a result, net profit was reduced 4.11 yuan. The products of these irrational prices are the "high-output poor teams" and "high-yield poor counties" that increased production but not income.

In light of the serious influence on the development of agricultural production by the prices of agricultural products that were too low, the Third Plenary Session of the 11th Party Central Committee decided that, as of 1979, the

procurement prices of such agricultural products as grain be raised. With the raised prices, the peasants' total income that year was raised to 7.8 billion yuan, with an average of 10 yuan per person. The raising of prices this time has attained fine results, and has played an important role in promoting agricultural production.

In the future, with the development of the national economy and the increase of the state's financial revenue, we must continue to readjust the price ratios between industrial and agricultural products, continue to narrow the price scissors and, on the basis of material interest, mobilize the enthusiasm of the peasants in developing production. At least, we must not again widen the existing price scissors. That is to say, the scope of price readjustment for agricultural products should at least correspond to the difference between the increased rate of agricultural labor productivity and the increased rate of industrial labor productivity. For instance, in 5 years, if agricultural labor productivity is only raised 10 percent while the industrial labor productivity is raised 30 percent, then, we ask that the prices of agricultural products be readjusted upward 20 percent so as to correspond to the different range of decrease in the values of the industrial and agricultural products, thereby not bringing about a new phenomenon of loss by agricultural products in the exchange between them and industrial products. Furthermore, in establishing a rational economic structure and speeding up agricultural development, we also ask that we do not widen but gradually narrow the price scissors between industrial and agricultural products. This also is an important factor in narrowing the differences between industry and agriculture and between the city and the countryside.

Inside industry itself, in order to overcome the proportional disharmony and establish a rational economic structure, we must readjust the price ratios between industrial products as raw materials and the products of the processing industry. In the past, the processing industry developed blindly. There was a large volume of stockpiling of steel products and electromechanical products. These were definitely related to the fact that the prices of these products were fixed on the high side. For instance, in the steel industry, the profits for mining, iron smelting and steel smelting were low while the profit for steel rolling was high. In 1979, after the price of every ton of raw coal was raised to 5 yuan, the profit rate was still 2.09 percent, which was lower than the average level in society for the electricity and petroleum industries.

In the future, in order to make a transition over to a rational economic structure and speed up the development of agriculture and light industry, we must make use of the system of prices to enable the development of these sectors to be beneficial economically, not only for the production sectors but for the enterprises and their workers as well. This stimulating role of prices on production is often more effective than political mobilization and planned arrangement.

In the past, there was a viewpoint that held that, in developing the production of certain products, such as developing hog raising, we primarily relied on putting politics in command and on planning and not on the readjustment of prices. Facts have proven the contrary. The increase in the production of

hogs in 1957 and the development on a large scale of our country's hog-raising business in the last 2 years have proven this point. If we one-sidedly emphasize the roles of political mobilization and planning, we are manifesting the theory of subjectivism as well, which is not in accord with reality. Even if we take as an example 1957, the year in which we particularly emphasized the roles of political mobilization and planning, it was primarily through readjusting prices and not through political mobilization and planning that we increased the output of hogs for that year. It is not in accord with reality to deny the regulatory role of the law of value on hog production.[7]

The basis of a rational socialist system of prices is the price of production. This is because, in a socialist commodity economy, with the development of social production and scientific and technological progress, the role of capital (the primary material manifestation of which is the degree of quality of material and technological equipment) becomes more important day by day in developing social production and raising labor productivity. This requires that we pay special attention to the results of the use of capital and to raising the results of investment. This further requires that those enterprises that use advanced technological equipment in production, and those who use a greater amount of committed capital come up with more surplus products. That is to say, the amount of profit in the composition of product prices is determined by the amount, large or small, of the committed capital multiplied by the average social profit rate. Such a price system can encourage the various sectors and enterprises (and companies) to adopt advanced technology and can enable the sectors with different degrees of material and technological equipment to embrace the same capacity for expanding reproduction under generally similar economic factors and under normal production and business circumstances, including the ability to establish equal development funds which are comparable to their scales. At the same time, we should reform the system of capital management, that is, to change the system of using committed capital to a system with repayment, such as the change from the system of financial appropriation in capital construction investment to the system of bank loans, and implement a system in which we levy payments in the use of fixed assets and circulatory funds. If we do not ascertain the amount of profit in product prices according to the ratio of committed capital use, large or small, but according to the expenses in active labor or the cost, then those production sectors and enterpises that use more committed capital will suffer loss and score little profit because there, the organic composition of capital was high and the expenses in active labor were low. It is also even possible that because their committed use of fixed assets and circulatory funds was so much more than others that they could not afford to pay taxes and interest, thereby bringing about a state of deficit. In contrast, those production sectors and trades that use a small amount of committed capital are at an advantage because the organic composition of their capital was low and their expenses in active labor were high. As a result, they can retain more profit after taxation because their use of the committed

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[7] See article by Chen Jingzhi [7115 7234 0037]: "From Hog Production, Look At the Role of the Law of Value," in JINGJI YANJIU [ECONOMIC RESEARCH], 1959, Issue No 3.

fund for fixed assets and circulatory funds was so much less than others. Under this circumstance, we obviously cannot let profit and its level reflect the level of production and business management, in other words, the extent of subjective effort of the collective of laborers, namely the workers of different trades and different sectors. In fact, in striving for the results of the use of capital, in implementing market regulation and the terms of competition, we inevitably will convert value into production price. In fixing prices, we must abide by this objective criterion.

In short, we must attach special importance to the role of prices. Through readjusting prices, establish a rational system of prices and further readjust and establish a rational economic structure. This is an extremely effective method of using the economic method to manage the economy and is a concrete manifestation of acting in accordance with the objective economic laws, in particular, acting in accordance with the law of value.

The second point is in regards to taxation.

Taxation is an effective tool in regulating the economic interests of different sectors, regions and enterprises and their workers. The lever of taxation can be used with the lever of prices to serve the readjustment of the economic structure and the establishment of a rational economic structure.

A rational economic structure asks that we vigorously develop commodity production and circulation and develop professional cooperation. However, in the past, because we implemented the system of product tax, which imposed tax on a product when it was sold, we encouraged the enterprises to become engaged in "large but comprehensive" and "small but comprehensive" production (since taxes were not imposed on the production of parts and accessories inside the factory). This was unfavorable to developing cooperation between specializations. Now, the concerned sectors are considering changing to imposing incremental tax. When a product is sold, a definite tax rate is imposed on the amount of increment of the enterprise's product. Obviously, this change will be favorable to the rationalization of the economic structure and favorable to developing commodity production and exchange.

Taxation is also a tool for regulating the income and profit levels of the various sectors, regions and enterprises. For instance, in imposing the differential tax on resources, we can place the enterprises that embrace different degrees of natural resources (such as poor mines and rich mines) under generally similar economic conditions. Or, for instance, if the system of prices takes production price as the basis, the amount of profit in the composition of the product price is determined by the amount of committed capital times society's average profit rate. This will enable those enterprises and sectors that have a higher degree of material and technological equipment and that use more committed capital to obtain more profit. As everyone knows, the property of the enterprises owned by all the people belongs to all people. The enterprises owned by all the people and their workers generally should not have more income than other enterprises because they have better material and technological equipment and more capital. Here, we need to consider using taxation as a means of regulation. That is to say, the

above-mentioned enterprises in which more income and profit are earned as a result of having more committed capital to use per capita will pay less income tax. This is favorable to the development of agriculture and light industry where less committed capital is used. Consequently, this will aid the establishment of a light-type structure.

The third point is related to credit and interest.

Credit and interest are also important levers that affect production and other economic activities. Many countries, including the advanced capitalist nations, are broadly using the levers of credit and interest in an effort to regulate the economic activities of private enterprises and engage in planned regulation to a certain extent. We must have and indeed do have the factors to utilize these economic levers as credit and interest to regulate our economic activities and enhance the rationalization of the economic structure.

For instance, in order to speed up the development of agriculture, an important factor is to increase agricultural loans. Our country has many agricultural loans, over 10 billion yuan a year, which have contributed to supporting and developing agriculture. But they are still insufficient, especially when we compare ourselves to foreign countries. In the Soviet Union, in 1974, there were 25.3 billion rubles of long- and short-term agricultural loans, which constitute 21 percent of the gross value of agricultural output. Calculating on this basis, our country's agricultural loans should reach 30 billion yuan.

Using the levers of loans and interest, we can also effectively promote the development of light industry. In particular, during the present period of readjustment, when the state does not have sufficient capital and indeed has difficulty in increasing investment in light industry by a large amount. But it can adopt such methods as offering loans or offering loans with favorable terms to light industrial sectors (including lower interest rates) to enhance development in light industrial production. At present, the concerned sectors are doing precisely this.

In order to overcome the proportional disharmony in the national economy and establish a rational economic structure, we must also make use of other economic levers, such as wages and bonuses. It is necessary to go into detail with each here.

In addition, to establish a rational economic structure, we must also reform the present economic management system. This is because the present irrational economic structure in our country is intrinsically related to the defects of the present economic management system. The problems in this respect will be discussed as a special topic by itself and will not be discussed here.

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## CHAPTER III

## THE STRUCTURE OF AGRICULTURE AND LIGHT AND HEAVY INDUSTRY

By Yang Jianbai [2799 1017 4101] and Li Xuezeng [2621 1331 2582]; original text pp 99-136; portions within slantlines in boldface in original text.

[Text] Before discussing the structure of agriculture and light and heavy industry, we should first like to offer an explanation of the distinction between heavy industry and light industry. This classification is a customary formulation and is not precise. The marks of distinction should be that industries that produce the means of production are heavy industries and industries that produce means of subsistence are light industries. Otherwise, we could not agree on which are heavy and which are light. However, actual production sectors, regardless of whether they are in heavy industry, light industry or even agriculture produce materials of production and also produce means of subsistence. Now, can it be said in a general way that agricultural production and light industrial production primarily provide means of subsistence for the people of the nation as a whole and that heavy industrial production primarily provides the means of production for agriculture, light industry and other sectors of the national economy? We believe that this is the case. In this article, we shall discuss the structure of agriculture, light industry and heavy industry on the basis of this understanding.

The structures of agriculture, light industry and heavy industry are major components of the national economic structure and are its principal parts. The net output value of the three sectors of agriculture and light and heavy industry in our nation has consistently accounted for about 75 percent of the gross national income. From 1962, it rose to over 80 percent, reaching 84.7 percent in 1979. Therefore, agricultural and light and heavy industrial production exert a controlling effect on the national economy. It is obvious that rationalization of the structures of agriculture and of light and heavy industry is a major basis for effecting rationalization of the national economic structure. If we do a good job of readjusting the structures of agriculture and of light and heavy industry and also maintain a suitable ratio between other sectors and agriculture and light and heavy industry, this will promote making the national economy as a whole thriving and prosperous. The state of the national economic structure can be investigated from the standpoint of the product components produced by the sectors and

it can also be investigated from the standpoint of the labor components of the sectors. In the materials production sectors, it can also be investigated from the standpoint of the components of fixed capital. Investigations can also be made in which the sectors of organic capital components are compared.

## I. Changes in the Structures of Agriculture and Light and Heavy Industry and Formation of Unbalanced Structure

Before the liberation, ours was a backward agricultural nation.

The entire economy of the old China was controlled by imperialism. The land system was highly irrational and the feudal landlords brutally exploited the peasants. Bureaucrat monopoly capital colluded with imperialism and the domestic landlord class and expanded rapidly, monopolizing the economic lifelines of the entire nation. Economically, these three big mountains, just like the three big political mountains, not only severely oppressed and exploited the broad masses of peasants but they also severely impeded the development of industrial and agricultural production with the result that our national economy fell into an extreme state of backwardness. This together with the over 10 years of continuous warfare launched against the Chinese people by imperialism and domestic reactionary factions resulted in our national economy suffering even more severe destruction.

According to statistics, before the War of Resistance Against Japan, modern industries accounted for a little more than 10 percent of the total output value of industry and agriculture.[1] In 1936, the output value of heavy industry was only about 23 percent of the output value of industrial production.[2] Steel output in that same year amounted to over 400,000 tons. However, of this amount, 364,000 tons was produced in northeastern China, which was under Japanese occupation.[3] At the time of the Liberation after many years of warfare and destruction, some major factories, mines and machinery and equipment were completely destroyed and some were torn up and incomplete. According to rough statistics, the output value for heavy industry in 1949 was about 70 percent lower than that before the war, whereas the output value for light industry was about 30 percent lower. There was also a very great decrease in agricultural productive forces. In addition to a massive decrease in the number of persons in the agricultural labor force, there was a loss of farm tools of 30 percent and there was a decrease in livestock of 16 percent.[4] Grain yield (including soybeans) was about 150 million tons

1, 3. This was calculated on the basis of 1936 prices. This is about 14 percent when calculated on the basis of constant prices for 1952. See Yang Jianbai [2799 1017 4101], WO GUO BA NIAN LAI DE JINGJI JIANSHE [ECONOMIC RECONSTRUCTION IN OUR NATION OVER THE PAST EIGHT YEARS], 1958 edition, p 10, Renmin Chubanshe.

2. Ibid., p 13.

4. See Guo Ruichu [6753 3843 2806], HUIFU SHIQI DE ZHONGGUO JINGJI [CHINA'S ECONOMY IN THE RECOVERY PERIOD], p 60, Shenghuo, Dushu, Xinzhi Sanlian Shudian, 1953.

before the war. There was a severe decrease during the period of the War of Resistance Against Japan, with a decrease to 113.2 million tons in 1949, a decrease of 24.5 percent before the war. Yields of such economic crops as cotton, cured tobacco and peanuts decreased by about half as compared to before the war.[5] This was the general state of agricultural and light and heavy industrial production in our nation before the Liberation and was also the legacy of a backward agricultural nation that had been severely damaged by war that had been left to us by the old China.

It must be pointed out that, during the 10-year period of civil war, the period of the War of Resistance Against Japan and the period of the War of Liberation, our revolutionary bases (liberated areas) implemented policies of developing production under the leadership of the CPC. However, the central task at that time in the war and rural environment was to assure victory in the war and it was not possible to proceed with establishing regular production. For this reason, all that could be done was to assure the basic living needs of the masses of the people. It is no exaggeration to say that if policies of development of production had not been implemented in the rural bases at that time, there would have been even greater decreases in industrial and agricultural production than indicated in the figures in the foregoing text.

After the Liberation, the people of our nation began to restore and reconstruct the national economy on the basis of the extremely backward state of industry and agriculture and of the severe damage inflicted on them by warfare as described in the foregoing text. After 30 years of bitter struggle, gross national income reached 337 billion yuan[6], with the net output value for agriculture reaching 129.5 billion yuan and the net output value for industry reaching 152.6 billion yuan. Of the latter, the net output value for medium and light industry was 58.4 billion yuan and the net output value for heavy industry was 94.2 billion yuan.

Calculated on the basis of fixed prices, by 1979 national income had increased 7.3 times by comparison to 1949 and 3.9 times by comparison to 1952. Net agricultural output had increased 1.9 times as compared to 1949 and 0.9 times as compared to 1952. Net industrial output value increased 42 times as compared to 1949 and 16.5 times as compared to 1952, the net output value of light industry increased about 22 times as compared to 1949 and about 10 times as compared to 1952 and the net output value for heavy industry increased about 88 times as compared to 1949 and about 24 times as compared to 1952. The average annual rates of increase from 1953 to 1979 were about 6 percent for national income, about 2.5 percent for agriculture, about

5. Ibid., p 47.
6. This has been revised to 335 billion yuan. See the 1981 NIAN GUOMIN JINGJI JIHUA ZHIXING JIEGUO GONGBAO [BULLETIN ON THE RESULTS OF IMPLEMENTATION OF THE 1981 NATIONAL ECONOMIC PLAN] published on 29 April 1981 by the State Statistical Bureau.

10 percent for industry, about 9 percent for light industry and 13 percent for heavy industry.[7]

As can be seen from the output of major products, there was also very great progress in our nation's agriculture, light industry and heavy industry. Table 1 shows their situations.

Statistical Table of Output of Major Industrial and Agricultural Products

| Output of major products | Unit | 1949 | 1952 | 1979 | 1979 as multiple of 1949 | 1979 as multiple of 1952 |
|---|---|---|---|---|---|---|
| Grain (including soybeans) | 100 million jin | 2,264 | 3,278 | 6,642 | 2.93 | 2.02 |
| Cotton | 10,000 dan | 889 | 2,607 | 4,414 | 4.96 | 1.69 |
| Oil crops | 10,000 dan | 4,655 | 7,457 | 11,283 | 2.42 | 1.51 |
| Live pigs | 10,000 | 5,775 | 8,977 | 31,971 | 5.53 | 3.56 |
| Cotton cloth | 100 million mtr | 18.9 | 38.3 | 121.5 | 6.43 | 3.17 |
| Mach. md. paper and cardboard | 10,000 tons | 11.0 | 37.0 | 493 | 44.81 | 13.32 |
| Coal | 100 million tons | 0.32 | 0.66 | 6.35 | 19.84 | 9.62 |
| Electric energy production | 100 million kwh | 43 | 73 | 2,820 | 65.58 | 38.63 |
| Crude oil | 10,000 tons | 12 | 44 | 10,615 | 884.58 | 241.25 |
| Steel | 10,000 tons | 15.8 | 135 | 3,448 | 218.23 | 25.54 |
| Agricultural fertilizers (100%) | 10,000 tons | 0.6 | 3.9 | 1,065.4 | 1,775.66 | 273.18 |
| Tractors (not including hand-tractors) | 10,000 | | 0.1* | 12.56 | | 125.6** |
| Metal cutting machine tools | 10,000 | 0.16 | 1.37 | 13.96 | 87.25 | 10.19 |

* 1958 output

** Multiple compared to 1958

mtr = meters

In summary of the aforementioned situation, it can be said that our nation has made immense accomplishments in developing the national economy and in industrial and agricultural production. In spite of the fact that we have taken a tortuous course with two major ups and downs over the past 30 years, our growth rate is still impressive. Although it has not been a high rate, it still cannot be considered low by comparison to those of other nations. However, it has been somewhat slower than that of Japan during its period of rapid economic growth (1955-1973).

7. The rates of increase in net output values for light and heavy industry were calculated on the basis of proportions and are only approximate figures. In 1949, production was severely damaged by warfare, for which reason the rates of growth were comparatively rapid during the recovery period. In order to eliminate the recovery factor, we used 1952 as the base period in calculating average growth rates.

As socialist industrialization advanced in our nation, marked changes occurred in the structure of industry and agriculture and in the structure of agriculture and light and heavy industry because of differing degrees of increase in productive forces in light industry and heavy industry. It can also be said that changes in quantity brought about changes in quality (see Table 2).

Table 2. Changes in the Structure of Industry and Agriculture and Changes in the Structure of Agriculture and Light and Heavy Industry

(Totals for industry and agriculture were set at 100 using net output calculated on the basis of the year in question)

Unit: 100 million yuan

| | Agriculture | | Industry | | Light industry | | Heavy industry | |
|---|---|---|---|---|---|---|---|---|
| | Output | % | Output | % | Output | % | Output | % |
| 1949 | 245 | 84.5 | 45 | 15.5 | 32 | 11.0 | 13 | 4.5 |
| 1952 | 340 | 74.7 | 115 | 25.3 | 66 | 14.5 | 49 | 10.8 |
| 1957 | 425 | 62.3 | 257 | 37.7 | 127 | 18.6 | 130 | 19.1 |
| 1962 | 444 | 59.5 | 303 | 40.5 | 131 | 17.5 | 172 | 23.0 |
| 1965 | 641 | 55.9 | 505 | 44.1 | 251 | 21.9 | 254 | 22.2 |
| 1970 | 795 | 50.7 | 772 | 49.3 | 345 | 22.0 | 427 | 27.3 |
| 1975 | 987 | 47.0 | 1,113 | 53.0 | 480 | 22.9 | 633 | 30.1 |
| 1979 | 1,295 | 45.9 | 1,526 | 54.1 | 584 | 20.7 | 942 | 33.4 |

* In order to avoid the drawback of repetition of calculation of gross output, the proportions for agriculture, light industry and heavy industry in this article were calculated on the basis of net output.

This is to say that over the course of 30 years of bitter struggle the level of modernization of the productive forces of our nation's society has continuously increased and industry is already of a considerable scale. There has also been a very great expansion of agriculture. Thus, we have already undergone a transformation from a backward agricultural nation to an agricultural and industrial nation at a definite level of modernization. The overall goal is change of the structures of agriculture and industry. From the 1970's, the net output of our nation's industries began to exceed the net output of agriculture. In 1970, the two were close to each other. From that point, there was a gradual increase to 51.4 percent in 1971. By 1975, there had been an increase to 53.0 percent, and, by 1979, there had been an increase to 54.1 percent. Even though the actual strength of our nation's industry is not yet sufficiently great, the output value of industry calculated on the basis of population averages is very low, and the level of modernized technology is still several years behind that of the advanced nations, all in all, we have established a comparatively integrated industrial system and our industrial departments are also quite fully equipped.

In this sense, it can be said that this has been a leap in the history of the development of our national economy.

From the standpoint of the structure of agriculture and of light and heavy industry, over the past 30 years there has been a slow increase in agricultural production, there has been a sharp and rapid elevation in heavy industry production and the growth in light industry production has been more rapid than that in agriculture but slower than that in heavy industry. As a result, the structure of agriculture and light and heavy industry has been manifested in terms of product structure as a gradual decrease in the agricultural ratio, with a decrease from 84.5 percent in 1949 to 45.9 percent in 1979, as a gradual elevation in light industry, with an increase from 11.0 percent in 1949 to 20.7 percent in 1979, and as an even sharper increase in heavy industry, with a steep increase from 4.5 percent in 1949 to 33.4 percent in 1979. In terms of the ratio between heavy industry and light industry, in 1957 the proportion accounted for by heavy industry (19.1 percent) already exceeded that accounted for by light industry (18.9 percent). This was the result of a reconstruction plan centering on 156 projects during the period of the First 5-Year Plan. From that time on, the severely backward state of heavy industry in our nation before the Liberation was changed. Even though by 1979 various sectors of heavy industry were still uneven in quality and there were still weak links in it so that the demands for serving agriculture and light industry could not be met, in the final analysis, a material and technological foundation was laid for spurring on development of various sectors of the national economy. These are the general circumstances of the changes in the structure of agriculture and light and heavy industry in our nation over the past 30 years.

These changes in the structure of agriculture and light and heavy industry are also reflected in changes in worker structure. Table 3 shows the conditions.

The trends of changes in worker structure and of changes in product output value structure are consistent. However, the amplitude of change in worker structure is clearly much less. The principal reason for this is that the productive force required for expanding industry has come to a large extent from the productive forces that have recently matured in the cities rather than our having relied on transferring agricultural productive forces to industry. There was a decrease in the number of agricultural workers in our nation in the 3-year period of 1954, 1955 and 1956 during the First 5-Year Plan as compared to 1953. In 1958, there was also a decrease of an abnormally large magnitude. With these exceptions, the number of workers increased from year to year. This indicates that the surplus agricultural productive force was allocated locally in the countryside in developing various types of businesses and in expanding commune brigade enterprises rather than being poured blindly into the cities to serve as an industrial reserve force. It also indicates that there actually existed to a definite degree a latent surplus labor force in our rural areas.

In summary, there have been qualitative changes in the structure of agriculture and of light and heavy industry in our nation both from the standpoint

Table 3. Changes in Worker Structure in Agriculture, and Light and Heavy Industry

(The proportions are based on total number of agricultural and industrial works as 100)

Unit: 10,000 persons

| | Agricultural workers | | Industrial workers | | Light industry workers | | Heavy industry workers | |
|---|---|---|---|---|---|---|---|---|
| | No of persons | % | No of persons | % | No of persons | % | No of persons | % |
| 1952 | 17,317 | 93.3 | 1,246 | 6.7 | 874 | 4.7 | 372 | 2.0 |
| 1957 | 19,310 | 93.2 | 1,401 | 6.8 | 844 | 4.1 | 557 | 2.7 |
| 1962 | 21,278 | 92.6 | 1,705 | 7.4 | 785 | 3.4 | 920 | 4.0 |
| 1965 | 23,398 | 92.8 | 1,828 | 7.2 | 866 | 3.4 | 962 | 3.8 |
| 1970 | 27,814 | 90.8 | 2,809 | 9.2 | 1,149 | 3.8 | 1,660 | 5.4 |
| 1975 | 29,459 | 87.3 | 4,292 | 12.7 | 1,652 | 4.9 | 2,640 | 7.8 |
| 1978 | 29,429 | 85.5 | 5,008 | 14.5 | 1,825 | 5.3 | 3,183 | 9.2 |
| 1979 | 29,934 | 84.9 | 5,340 | 15.1 | — | — | — | — |

of product structure and from the standpoint of the structure of labor employment. However, further analysis will be required to ascertain whether these structural changes and the existing structures that have been formed are rational.

We believe that the question of whether or not the structures of agriculture and of light and heavy industry are rational cannot be judged simply on the basis of the individual rates of growth of the three elements of agriculture and light and heavy industry or of increases in the proportions of industry and agriculture and of the proportions of heavy and light industry. Because industry developed faster than agriculture and because heavy industry developed faster than light industry, there was an increase in the proportion of industry and a decrease in the proportion of agriculture. The phenomenon of the proportion of heavy industry increasing more rapidly than the proportion of light industry is a general trend that is manifested in the process of industrialization. In particular, the processes of decrease in the proportion of agriculture and of increase in the proportion of industry are ones that will continue in our nation in the future. It is common knowledge that independent and autonomous socialist industrialization cannot be realized and that the so-called four modernizations will come to nothing unless there is rapid development of industry and of heavy industry in particular. Agriculture is the foundation of the national economy and we should without

doubt see to its rapid development. However, because of the limitations of biological factors and natural conditions and from the viewpoint of long-term trends, its development cannot be more rapid than that of industry. The development of light industry will be restricted by heavy industry and agriculture, and, leaving aside extraneous factors, it will not be able to develop rapidly without agriculture to provide it with raw materials and without heavy industry to provide it with raw materials and technical equipment. Therefore, if we are to conduct concrete analyses of the structure of our national economy, we cannot because deviations have arisen which display a psychological state of "being afraid of the well rope for 3 years after having been bitten by a snake one morning" nor can we in our ideological method go from one extreme to another.

We believe that we can investigate whether or not the structures of agriculture and of light and heavy industry are rational on the basis of three levels of indications that are mutually linked with each other.

The first level of indication is whether the three major sectors of agriculture and of light and heavy industry can maintain themselves individually on an enduring basis, whether they are growing in a stable way and whether they can coordinate their activities and grow together.

The second level of indication is whether national income can be maintained on an enduring basis and grow stably under the conditions of the first level.

The third level of indication is whether consumption by the people can be continually increased under the conditions of the two previous levels.

We shall now make a brief study and analysis of the structures of agriculture and of light and heavy industry in our nation taking these three indications as our criteria. (See Table 4.)

Table 4. Net Output Values of Agriculture and Light and Heavy Industry and Average Annual Growth Rates of National Income (%)

| | Agriculture | Light industry | National income | National income |
|---|---|---|---|---|
| Period of First 5-Year Plan | 3.8 | 16 | 24 | 8.9 |
| Period of Second 5-Year Plan | —5.9 | — 2 | 3 | —3.1 |
| 1963-1965 | 11.5 | 27 | 17 | 14.5 |
| Period of Third 5-Year Plan | 3.0 | 10 | 14 | 8.4 |
| Period of Fourth 5-Year Plan | 3.5 | 7.5 | 9 | 5.6 |
| 1976-1979 | 3.3 | 4 | 10 | 6.7 |
| 1953-1979 | 2.5 | 9.5 | 13 | 6.0 |

Having studied the periods of the several 5-year plans that we have experienced on the basis of these indications, it can be said that only the First 5-Year Plan more or less met the demands of the aforementioned three levels of indications. The readjustment that was implemented in 1963-1965 included

recovery factors and the comparatively rapid growth during this period can be regarded as an exception. As for the other periods, negative figures occurred during the Second 5-Year Plan, while during the Third 5-Year Plan, the Fourth 5-Year Plan and the periods of recovery and readjustment over the past few years, the growth rates in the three major sectors of agriculture and of light and heavy industry and in national income were comparatively slow, for which reason there is no need to discuss coordination and growth. As a result, we can arrive at the conclusion that there were two major turning points in the structure of agriculture and of light and heavy industry. The first turning point occurred at the conclusion of the First 5-Year Plan, i.e., there was a change from the very backward foundation of industry and agriculture in old China to a level of production that was not high but in which the structures of agriculture and of light and heavy industry were comparatively well coordinated in each sector. The second turning point began in 1958, with a one-sided preferential development of heavy industry being carried out for 20 years. As a result, a structure of agriculture and of light and heavy industry developed in which there was a lack of coordination among the three.

During the First 5-Year Plan, net output of agriculture increased at an annual average of 3.8 percent, while the rate of population growth during the same period was 2.4 percent. The rate of growth of grain and cotton among the agricultural products also exceeded population growth. As a result, the expansion of agriculture was basically able to guarantee the requirements of the people for grain and of light industry for raw materials. The net output value for light industry increased at an annual average of 16 percent, far more rapidly than population growth, thereby guaranteeing the requirements of the people for light industrial consumer goods (under the conditions of the level of consumption and of the composition of consumption at that time). In 1952, the average amount of consumption per person for the nation as a whole was 76 yuan. By 1957, this figure reached 102 yuan, an average annual growth of about 6 percent. This is calculated on the basis of prices for those years. At those times, commodity prices were comparatively stable and their influence was not very great. In 1956 and 1957, such basic consumer goods as grain, cotton cloth and vegetable oil actually consumed as averages per person were at their best or better levels during this 30-year period. At this time, the average annual rate of growth for heavy industry amounted to 24 percent, with the initial foundations being established for socialist industry in our nation. The expansion of heavy industry basically assured the demands of production, reconstruction and strengthening national defense. Because at that time we devoted our attention to production, reconstruction, the people's standard of living and the overall equilibrium of the national economy as a whole as well as to the complementary function of national capital and the supplementary function of foreign funds, the scale of development of heavy industry did not exceed the supportive capacity of agriculture and light industry. The comparatively rapid expansion of agriculture and light industry also provided funds, materials and manpower for building heavy industry. For this reason, we can say that the structure of agriculture and of light and heavy industry that was formed during the period of the First 5-Year Plan was basically coordinated and rational.

To be sure, the level of productive forces during the period of the First 5-Year Plan was very low and agricultural and light industrial production were very unstable. In planning for the expansion of heavy industrial production, insufficient attention was given to serving agriculture and light industry. This had detrimental effects on subsequent transformation of agricultural technology and expansion of light industrial production.

Beginning with the period of the Second 5-Year Plan, we violated the principle of being practical and realistic, with "massive steelmaking" and the great leap forward coming on the scene. For close to the next 20 years, there was a one-sided understanding and implementation of a policy of preferential development of heavy industry, with heavy industry undergoing prominent development. Because the condition for this was putting a squeeze on agriculture and light industry, agriculture and light industry did not undergo proper development. Thus, the principal characteristic of the uncoordinated structure that has been formed at present among agriculture and light and heavy industry is that it is an abnormal structure in which too much emphasis is placed on heavy industry, too little emphasis is placed on light industry and in which the agricultural foundation is abnormally weak. The internal structure of heavy industry is a structure having the steel industry and the machine industry as its core and which primarily involves serving heavy industry itself. This type of structure cannot adequately satisfy the requirements for the transformation of agricultural technology nor can it adequately satisfy the requirements for active expansion of light industry and to provide the equipment for advanced technology and the components for changing the raw materials of light industry. The scale of heavy industry is obviously somewhat greater than the supportive capacity of agriculture and light industry. However, it must also be pointed out that the slow development of agriculture and light industry is also attributable to causes within agriculture and light industry themselves as well as to other causes and is not entirely attributable to the excessively rapid expansion of heavy industry. At the same time, heavy industry, which has been expanding for many years, has to a greater or lesser degree continuously equipped agriculture, light industries and various sectors of the national economy with new material technology so that the material and technological foundation that has now been established for heavy industry will be able to play an even greater role through readjustment.

Because the structure of agriculture and of light and heavy industry has been abnormal and because of the influence of the additional political factor of the 10-year period of disorder, the average increases in national income during the Third 5-Year Plan, the Fourth 5-Year Plan and through the 4-year period following the gang of four were not up to the level achieved during the First 5-Year Plan. Moreover, rates from year to year were very unstable. For example, the rates of growth of national income in 1967, 1978 and 1976 were negative, whereas national income in 1972 and 1974 increased 2.9 percent and 0.9 percent, respectively. The rates of growth of agriculture and industry were also negative for several years. And before 1979 there were actually no increases in the standard of living of the people. For example, in 1965, the average amount of consumption per person was 125 yuan. In 1970, it was 140 yuan, and, in 1975, it was 158 yuan. Thus, there was an increase

of 12 percent in the former 5-year period and an increase of about 12 percent in the latter 5-year period. Moreover, these figures were calculated on the basis of the prices of the years in question, there having been inflation in commodity prices during those years. The amount of material consumption of these means of livelihood was not up to the level of the First 5-Year Plan. No wonder the masses call the First 5-Year Plan a golden age. This is a consequence of the abnormal structure of agriculture and light and heavy industry and it is here where the necessity for implementing readjustment and restructuring lies.

## II. Causes of the Development of the Abnormal Structure of Heavy and Light Industry and Agriculture

The principal factors in the formation of the structure of agriculture and of light and heavy industry in our nation and of the national economy as a whole are the highly concentrated type of economic system and macroeconomic policy decisions. Additional specialized studies are needed in regard to the system. In this article, we shall consider macroeconomic policy decisions to some extent.

### /A. The Ideology of Policy Decision and of Planning and Allocation in Which One-sided Precedence Was Given to Developing Heavy Industry./

For 30 years, our nation has implemented a type of planned economy with a high degree of concentration. The structure of agriculture and of light and heavy industry and the structure of the national economy as a whole was formed under the guidance of national planning. Thus, macroeconomic policy decisions of the state had a decisive effect on the development of the economy. Economic policy decisions and state planning are embodiments of the subjective will of the people. They have a stimulating effect on the development of the national economy but they also have destructive effects. It must be seen whether they accurately or comparatively accurately reflect the requirements of objective economic laws. The formation of the abnormal structure of our nation's agriculture and light and heavy industry has been the result of the fact that macroeconomic decisionmaking and state planning and allocation have for many years not accurately reflected the requirements of objective economic laws.

The selection of a certain policy decision is always inseparable from the people's understanding of objective economic laws. The heart of the matter is that a one-sided view of giving precedence to the development of heavy industry was prevalent among the economic leaders of our nation. This incorrect viewpoint has already assumed the force of habit. Even now we must settle accounts if we are to implement the policy of readjusting the national economy smoothly. We believe that we must first clarify this theoretical question before we can analyze the faults of macroeconomic decisionmaking in a more satisfactory way.

Since our nation considered, prepared for and set itself to implementing socialist industrialization, people have often said: Giving precedence to developing heavy industry is the way of socialist industrialization while giving precedence to developing light industry is the way of capitalist industrialization. Some even went so far as to say that whether or not precedence was given to developing heavy industry was the key to success or failure in building socialism.

This thesis on the way of industrialization itself deserves analysis. Giving precedence to the development of heavy industry was the method of industrialization applied in the Soviet Union in the thirties and they used this method to realize industrialization of the nation. It is a historical fact that realizing industrialization by developing light industry was the process of capitalist industrialization. Giving precedence to developing heavy industry was proposed on the basis of the law of preferential growth of production of the means of production. That is to say, the rate of development of heavy industry should exceed that of other undertakings. Giving precedence to the development of light industry refers to the early phase of capitalist industrialization during which light industry was developed first, after which heavy industry caught up with it. This is an acknowledgment of the historical fact of the smooth development of light and heavy industry. To make a rigid antithetic distinction between the two and to say that one is the way of socialist industrialization and the other is the way of capitalist industrialization is a truly forced interpretation.

The fact that capitalist industrialization began with light industry was the result of production and technological conditions of that time. In fact, the great expansion of capitalist industry did not occur until after the invention of the steam engine and of mechanized spinning and weaving machines, improvement in iron-smelting techniques and the beginning of the industrial revolution in which machines were used to make machines. It did not occur before this. As is well known, giving precedence to increasing the means of production as proposed by Lenin is not a definite construction policy for socialist industrialization but is rather a law of expansion of reproduction summarized from the historical processes of the development and technological progress of capitalist production.[8] Lenin used it to expose the intrinsic nature of the mode of production of the capitalist class and to expose the contradictions between the two major categories of capitalist production: "It is in the nature of capitalism, on the one hand, to seek to expand production consumption to an unlimited extent to expand accumulation and production to an unlimited extent and, on the other hand, to cause the masses to acquire proletarian qualities and to limit individual consumption to an extremely narrow range."[9] If we take a one-sided understanding of the meaning of giving precedence to the development of heavy industry as being heavy industry for the benefit of heavy industry so that light industry cannot attain its proper development, this will impede an increase in the level of

8. See "On the So-Called Market Problem." "Complete Works of Lenin," Vol 1.
9. "Complete Works of Lenin," Vol 4, p 44.

consumption by the people. This is a repetition of the malpractice of capitalist production. How can we then talk about the socialist road!

It should be pointed out that opposing the one-sided approach of giving precedence to developing heavy industry definitely does not mean that we should take another type of one-sided approach--total denial of the existence of the objective law of giving precedence to development of the means of production. As can be seen from the stages of technological development of our nation, the considerable period from the start of implementation of socialist industrialization to the point in the future at which a socialist modernized powerful nation has been achieved falls within the stage of machine labor replacing manual labor. Thus, not only was our past-determined policy of giving precedence to developing heavy industry not in error, but, moreover, we should still continue to implement this policy in a thoroughgoing way. The problem lies in the fact that we cannot give one-sided precedence to developing heavy industry. Heavy industry cannot work solely for the benefit of heavy industry with the result that light industry and agriculture cannot attain their proper development. We must always consider what our final objectives are in giving precedence to the development of heavy industry. Are we to emphasize industry in order to serve heavy industry? Or are we to develop agriculture and light industry and to raise the level of the people's material and cultural life? Lenin said: "In the final analysis, manufacture of the means of production must be linked to the manufacture of consumer goods. This is because manufacture of the means of production is not carried out for the means of production themselves but because of the continually increasing demand for means of production by the industrial sectors that manufacture consumer goods."[10] To accelerate the development of light industry to some extent and to do a somewhat better job in agriculture at a time when our nation is in a period of comprehensive readjustment of the national economy is indeed to "repay an outstanding account" in order to facilitate putting the ratio of agriculture and of light and heavy industry onto a coordinated course and gradually change the abnormal structure of agriculture and light and heavy industry. However, this is not a negation of the law of giving precedence to the development of the means of production.

For many years, our nation has made a series of mistakes in macroeconomic policy decisions and planning and allocation, the ideological source of which has been a one-sided understanding of the problem of giving precedence to the development of heavy industry.

/B. The Excessively Large Scale of Accumulation, the Abnormal Distribution of State Investment and Heavy Industry Put a Squeeze on Agriculture and Light Industry./

One-sided understanding and implementation of the policy of "giving precedence to the development of heavy industry" inevitably resulted in setting targets

10. "Collected Works of Lenin," Vol 4, p 143. Lenin restates a point in "Das Kapital." See the "Collected Works of Marx and Engels," Vol 25, p 341.

for the development of heavy industry too high and planning for an excessively great scale of building of heavy industry. However, the period of building heavy industry is comparatively long, large quantities of manpower and materiel are required and long-term massive investment must be created. This cannot be produced in a short time. This forced the state to continuously increase the accumulation ratio, expand the scale of accumulation and to invest a large amount of the nation's funds in building heavy industry. As a result, a squeeze was put on the manpower, material resources and financial resources required by agriculture and light industry. This was the state of the development of our national economy for many years.

In view of the fact that our industrial foundation was extremely weak before the Liberation, during the First 5-Year Plan the goal was to lay the preliminary foundations for socialist industrialization, with the stress being put on giving precedence to developing heavy industry and with emphasis being placed on equipping industry itself. At the same time, agriculture and light industry were developed in corresponding degrees. From our present standpoint, this policy still appears to have been correct and essential. However, in the course of industrialization, the development of heavy industry is a continually growing process. If, in establishing project allocation at that time, we had decreased our allocations for projects for equipping heavy industry itself to some appropriate extent and had allocated more heavy industry projects for equipping agriculture and light industry, this might have been more advantageous for the rationalization of our national economic structure. In fact, during the course of implementing the First 5-Year Plan, a shortage of food and light industrial products began to appear. In order to alleviate this contradiction, state purchase by requisition, state monopoly purchase and assigned purchase of major agricultural products was instituted. In addition, supply quotas for food, cotton cloth and cooking oil were instituted in the cities. It was precisely under these conditions that the party, at the first meeting of the Eighth NPC, proposed making suitable decreases in the rate of heavy industry and increase in the rate of agriculture during the period of the Second 5-Year Plan, with accumulation being limited to a level of 25 percent (the average having been 24 percent during the First 5-Year Plan). This would seem to have been a very good proposal.

What is regrettable is that once the Second 5-Year Plan started, people proposed without any grounds that steel production in 1958 be doubled (doubled from the 5.35 million tons of 1957) and demanded that it reach 18 million tons in 1959.

As is well known, large quantities of steel products, lumber, cement, machinery and equipment must be used to build a steelworks, and, after it has been built and has gone into operation, coal, electric power and transportation are required. For this reason, high quotas for steel of necessity compel high quotas for heavy industry. High quotas for production of necessity compel high quotas for investment. High quotas for investment of necessity lead to a use of large quantities and to a high degree of consumption of materiel and labor in capital construction and heavy industrial production. As a result, a squeeze is put on the conditions of expansion and reproduction of agriculture and light industry (to the extent that a squeeze is sometimes

put on simple reproduction). In addition, the accumulation ratio is forced up to a great extent and consumption is forcibly lowered. Economically, this is an objective necessity and is something that cannot be changed by the subjective will of the people. Consider actual conditions over the past several years: (See Table 5).

Table 5.

| | 1957 | 1958 | 1959 | 1960 |
|---|---|---|---|---|
| Steel output (10,000 tons) | 535 | 1,070* (800)** | 1,800* (1,387)** | 2,400* (1,866)** |
| Increase compared to previous year (%) | 19.6 | 100.0 (49.5) | 68.2 (73.3) | 33.3 (34.5) |
| Investment in metallurgical industry (100 million yuan) | 16.1 | 47.2 | 55.6 | 50.55 |
| Increase compared to previous year (%) | 7.5 | 193.1 | 17.8 | —9 |
| Investment in heavy industry (100 million yuan) | 71.3 | 152.3 | 195.3 | 212.3 |
| Increase compared to previous year (%) | 0.1 | 113.6 | 28.2 | 8.7 |
| Heavy industry output value (100 million yuan) | 330 | 590 | 874 | 1,100 |
| Increase compared to previous year (%) | 18.4 | 78.4 | 48.1 | 25.9 |
| Ratio of accumulation in national income (%) | 24.9 | 33.9 | 43.8 | 39.6 |
| National income (100 million yuan) | 908 | 1,118 | 1,222 | 1,220 |
| Increase compared to previous year (%) | 4.5 | 23.1 | 8.2 | −1.4 |
| Investment in capital construction (100 million yuan) | 138.29 | 266.96 | 344.65 | 384.07 |
| Increase compared to previous year (%) | −6.6 | 93.7 | 29.1 | 11.4 |

*Includes estimated figures for locally produced steel.
**Statistical figures for locally produced steel are deducted.

These statistical figures very clearly indicate the aforementioned chain reaction. This type of high accumulation, high investment and one-sided concentration of state funds in investment in heavy industry helped to bring about the abnormal structure of agriculture and of light and heavy industry. This was manifested in a pronounced way in the net output values for industry and agriculture, with the heavy industry proportion rising sharply to a great extent and with that of agriculture falling sharply to a great extent. (See Table 6.)

The reason that we say this was an abnormal structure is that this one-sided preferential growth of heavy industry did not lead to any evident increase in technological progress and labor productivity in agriculture and light industry or to a rise in the national economy as a whole. When we look at the Second 5-Year Plan in a comprehensive way, we can see that the cause

Table 6.

| Year | Net output value of agriculture | Net output value of industry | Net output value of light industry | Net output value of heavy industry |
|---|---|---|---|---|
| 1957 | 62.3 | 37.7 | 18.6 | 19.1 |
| 1958 | 52.3 | 47.7 | 20.0 | 27.7 |
| 1959 | 41.6 | 58.4 | 22.1 | 36.3 |
| 1960 | 37.0 | 63.0 | 20.2 | 42.8 |

of our socialist economy not only did not advance, but rather stagnated or even retrogressed. National income decreased by an average of 3 percent each year, with decreases of 5.9 percent in agriculture and with an increase of only 1.8 percent in industry. Thus this was a practice in which there were high quotas, high accumulation, high investment, a long battle front and poor results and was a concrete reflection of the development of an abnormal structure among agriculture and light and heavy industry.

When the Third 5-Year Plan (1966-1970) was being drawn up, two plans were proposed. The first plan was to set the accumulation ratio at about 25 percent and to have the steel output plan for 1970 be 18 million tons. The second plan was to set the accumulation ratio at about 30 percent and to have the steel output plan for 1970 be 20 million tons. The second plan was finally adopted. The period during which the plan was being implemented was the time when Lin Biao and the gang of four were on their rampage. The enthusiasm of the masses for expanding production was severely damaged and there were continual decreases in the output of light and heavy industry in 1967 and 1968. In 1970, the planned quotas were not fulfilled and steel output of 18 million tons was not attained, with steel output reaching only 17.79 million tons. Stagnation in agriculture began in 1967. Calculations of net output value indicated an increase of only 1.7 percent in 1967. In 1968, there was a decrease of 1.9 percent (with a decrease in grain production of 4 percent). In 1969, there was an increase of only 0.4 percent. It was not until 1970 that increases began to occur. On the whole, the state of industrial and agricultural production during this 5-year period was far from good. However, the average accumulation ratio during this period reached 26.3 percent.

During the Fourth 5-Year Plan (1971-1975), there was continued implementation of a plan in which prominence was given to steel and in which emphasis was placed on heavy industry. The reason for this was that there was a comparatively great expansion of industrial and agricultural production in 1970. According to calculations of net output value, there were increases of 7.7 percent in agricultural production and 37.3 percent in industrial production and revenues increased by 13.61 billion yuan to 66.29 billion yuan. The people incorrectly interpreted this phenomenon of recovery on the undermined foundations of the previous 3 years as the arrival of a "period

of a new leap forward." In an atmosphere of criticism of the so-called "negative equilibrium theory," a draft of the program of the Fourth 5-Year Plan was proposed calling for steel output in 1975 of 35 million to 40 million tons (steel output in 1969 having been only somewhat over 13 million tons). In fact, allocations for investment in capital construction for 1970 had already been begun for the purpose of fulfilling this plan in which "steel was the key link." That is, in 1970, investment for capital construction reached 29.499 billion yuan, an increase over the previous year of 10.934 billion yuan. Of this, investment in heavy industry amounted to 17.962 billion yuan, an increase of 7.1 billion yuan over the previous year. Within the investment in heavy industry, the investment in the metallurgical industry amounted to 4.69 billion yuan, more than double the amount of 2.27 billion yuan in 1969! Investment in capital construction in 1971 increased to 32.145 billion yuan from 2.65 billion yuan the previous year. Of this amount, investment in heavy industry amounted to 19.777 billion yuan, with an investment in the metallurgical industry of 4.267 billion yuan. In 1972, the level of investment in capital construction was maintained at over 30 billion yuan, with investment in heavy industry of 17.642 billion yuan and investment in the metallurgical industry of 3.707 billion yuan. Because the overall scale was far higher than the level of 2.323 billion yuan in 1966 when the Third 5-Year Plan was begun, it was not possible to avoid the consequences of shortages in economic life and of further abnormalizing of the structure of agriculture and of light and heavy industry inevitably brought about by high investment. In the 3-year period of 1970-1972, there was an increase of 12.75 million workers. In 1972, the total number of workers amounted to 56.1 million and total wages amounted to 7.7 billion yuan. The volume of grain sales increased 9.5 billion jin, with the "three breakthroughs" occurring. At the same time, the proportion of the net output value of heavy industry in the net output value of industry and agriculture increased abruptly from 22.9 percent in 1969 to 30.5 percent in 1972. This was essentially a reenactment of the historical mistake of 1958-1960!

The 30-year history of changes in the proportions and structural development of agriculture and light and heavy industry in our nation proves that Marx's law concerning the proportional distribution of social labor cannot be violated. Specifically, the labor time used in each sector and in the production of each type of product in any type of social production under the condition in which the total labor time in the society is fixed can only account for a fixed proportion. Only the necessary labor time can be used for each product, and, moreover, only the necessary proportion of the total labor time of a society can be used for different types of products.[11] If a plan is made to concentrate efforts in a one-sided and abnormal way on a particular product or a particular sector (for example, steel or metallurgy), the result will inevitably be to destroy the proportional development of the national economy and to lead to abnormalizing the structure of the national economy. Once an abnormal structure has been formed, there will be severe setbacks if changes are made in the composition of fixed assets and the composition of labor that have become established.

11. See "Collected Works of Marx and Engels," Vol 25, p 716, Vol 32, p 541 and Vol 46 (Part 1), p 120.

/C. There Was Excessive Dependence on Extensive Expansion and Neglect of Intensive Growth in Developing Heavy Industry. The Overall Scale of Development of Heavy Industry Exceeded the Capacity of Agriculture and Light Industry To Bear It./

If production of any material (heavy industry being no exception) is to be expanded, it can be done through the means of extensive expanded reproduction of increasing the labor force (with corresponding increases in technological equipment) and it can also be accomplished through the means of intensive expanded reproduction of raising labor productivity (through technological innovation, technological transformation and increasing the skill level of the workers). Or both factors can be brought into play. This is the usual state of affairs. Generally speaking, in the initial stage of industrialization in any nation, extensive expansion of heavy industry is unavoidable for establishing a new material and technological foundation for the national economy as a whole. Moreover, some degree of extensive expansion is always necessary before a strong heavy industrial system can be established. However, sufficient attention must be paid to intensive growth of production regardless of the stage of industrialization in order to increase socioeconomic effects. It can be presumed that intensive expanded reproduction will assume a more and more important place after industrialization and modernization of a nation have reached a comparatively high level.

Heavy industry, which is the dominant sector in industrialization, is different from light industry and agriculture, in which production of the means of subsistence is the dominant factor. A large amount of investment is required in the process of establishing it. Thus large amounts of manpower and material resources are used. Under conditions of a fixed level of productive forces, the portion used in heavy industry increases and the portion used in society and other areas is decreased. For this reason, we must strictly control the overall scale of development of heavy industry and we must see to it that this development is suited to the demands for material raised by agriculture and light industry and to the quantity of material that agriculture and light industry can provide for the use of heavy industry (corresponding product composition). Otherwise, the scale of development of heavy industry will be set too high and will thus exceed the capacities of agriculture and light industry to support it. This will create an imbalance in the proportions of agriculture and light and heavy industry that will lead the structure of agriculture and light and heavy industry to develop in an even more abnormal direction. In this, intensive expansion of heavy industry is clearly a moderating factor. If the intensive factors in the development of heavy industry are strengthened, then it is possible to avoid increasing the demands made on agriculture and light industry for the development of heavy industry. However, for many years we relied primarily on the factor of extensive expansion in the development of heavy industry, neglecting the factor of intensive expansion. As a result, the development of heavy industry exceeded the capacities of agriculture and light industry to support it. This situation was demonstrated very clearly at times when the development of our national economy suffered setbacks.

First, let us consider the heavier burden that was laid on agriculture and light industry because of the blind increase in the number of workers in heavy industry. If heavy industrial production is to expand, one of the essential conditions is enlargement of the labor force. However, the extent to which the number of workers in heavy industry can increase is determined by how much of the means of subsistence agriculture and light industry can provide. The repeated blind and steep increases in the number of industrial workers and of workers in heavy industry in particular over the past 30 years have had very deleterious effects on the cause of our nation's economy. The severe setbacks during the first 3 years of the Second 5-Year Plan and the state of shortages created by the "three breakthroughs" of 1970-1972 indicate that the overall scale of development of heavy industry exceed the capacity of agriculture and light industry to support it. Corrections to the two successive great "exceedings" of 1958 and 1970 were not made until there had been a subsequent large decrease in production in heavy industry and the battle lines had been reduced.

Next, let us consider the losses inflicted on agriculture by the flow of the agricultural labor force into industry. The source of workers for heavy industry and for industry as a whole was primarily transfer of the agricultural labor force. The quantity of this transfer must suit raising labor productivity in agriculture, and, in grain production in particular. Otherwise, heavy industry and industry as a whole draws its labor force in excessive quantity and too rapidly from agriculture, thereby directly weakening the agricultural labor force. During the period of our nation's First 5-Year Plan, the rate of decrease in the rural labor force was comparatively slow and fluctuations in agricultural production were primarily the effects of natural conditions rather than the effects of decrease in the labor force. By contrast to this, during the first 3 years of the Second 5-Year Plan, the rural labor force shifted in large numbers from agriculture to industry (including large-scale steelmaking in rural areas), with a rapid increase occurring particularly in workers in heavy industry coming from the agricultural labor force. According to statistics, the total decrease in the labor force of the rural people's communes in 1958 was more than 40 million persons, with the level in 1960 approximating that in 1957. In industrial enterprises under the ownership of the people, there was a rapid increase in heavy industrial workers from 4.5 million in 1957 to 17.5 million in 1958, with a figure of 15.72 million still being found for 1960. At the same time, the area of land under cultivation for which each member of the labor force in the rural areas was responsible increased greatly while there was a sharp decrease in the number of farm animals. Even though there was an increase of many times in the means of production supplied to agriculture by industry during this period, there were little substantial results, for which reason the increases did not compensate for the losses in agricultural production caused by the decrease in the labor force. To be sure, there were numerous causes for the decrease in agricultural production during this period. However, under conditions in which manual labor was the primary factor in agricultural production, this concentrated and massive transfer of the agricultural labor force undoubtedly constituted one of the major causes of the sharp decrease in agricultural production.

After the Third 5-Year Plan, the proportion of light industry workers among industrial workers decreased from 47.4 percent in 1965, a figure achieved through readjustment, to 37.5 percent in 1972 as a result of the great increase in the number of heavy industry workers. The number of light industry workers for each heavy industry worker was not the 1.5 persons of 1957 nor the close to 1 person of 1965 but rather only slightly in excess of 0.6 persons. Under the conditions at that time in which industrial labor productivity had not been greatly increased, it was inevitable that a shortage should arise in the supply of light industrial consumer goods. It was only because inventories were drawn on to a massive extent at that time that this contradiction was fully revealed. Although there was no decrease in the number of agricultural laborers during this period, there was a decrease rather than any increase in labor productivity in grain production during this same period. The amount of grain (jin/person) produced by each agricultural worker was 1,746.6 in 1970 and 1,700.5 in 1972.

In addition, for a long period we seriously neglected exploiting latent potential, innovation and transformation in existing enterprises. As soon as we speak of expanding, we demand more people, more facilities, more investment and even transfer funds for "exploitation, innovation, and transformation" in capital construction. This is an even more pronounced manifestation of neglecting intensive growth.

Our nation's large population and its abundant labor force resources are highly advantageous to extensive expansion of heavy industry. Generally speaking, this is correct. However, at present agricultural labor productivity and commodity ratios are very low. It is a considerable strain for each year's agricultural products to support the people of the nation as a whole. If industry absorbs a member of the labor force from the rural areas, not only does the rural area lose one producer of agricultural products and the population of the city increase by one person who eats commodity foods and enjoys the use of the standard of supply of consumer goods among the residents of the city, but there are also corresponding expansions in sectors related to industrial expansion, such as municipal construction, commerce, service trades and culture and education. As a result, increasing the industrial labor force involves a corresponding increase in the population of the city which in actuality increases the burden on agriculture and also increases the burden on the light industrial market. In light of the 30 years' experience of our nation, the proportions between industry and agriculture were comparatively well in line whenever intensive expanded reproduction in the form of labor productivity was relied on for industrial development, whereas the proportion between industry and agriculture was apt to be out of balance whenever extensive expansion was relied on in a one-sided and excessive way. Please consider the changes in the average annual rate (percent) of increase in labor productivity for all employees (on the basis of fixed prices for 1970) for different periods in industrial enterprises owned by all of the people. (See Table 7.)

It should be pointed out here that in stressing intensive (intensive mode) development of heavy industry we are not negating extensive expansion. From a long-term standpoint and from the standpoint of historical fact, there

Table 7.

| Recovery period | First 5-Year Plan | Second 5-Year Plan | 1963-65 | Third 5-Year Plan | Fourth 5-Year Plan | 1966-79 | 1950-79 |
|---|---|---|---|---|---|---|---|
| 11.5 | 8.7 | -5.4 | 23.1 | 2.5 | -0.3 | 2.0 | 4.7 |

will have to be a necessary increase in the labor force in the process of expansion of heavy industry. As labor productivity in agriculture increases, transfer of the labor force from agriculture to industry is also unavoidable.

In short, if we are to adapt the scale of development of heavy industry to the capacity for agriculture and light industry to support it under current conditions in our nation, in addition to distributing products and the labor force in a proportional way, we must give full attention to a course of intensive expanded reproduction in which exploitation of potential, innovation and transformation are the principal elements. We must adopt an attitude of caution and more rigorous control toward extensive expansion and we must be sure not to set out from the concept that "work goes better the more people there are" and rashly increase the labor force. Economic effects must also be considered even in labor-intensive industries.

/D. The Self-Equipping Structure of Heavy Industrial Products./

We can consider the structure of heavy industry itself from different angles. We can analyze heavy industry in relation to its various types of industry and we can analyze it in terms of the directions of use of heavy industrial products. The phenomenon of imbalance that has been in existence in our country among the types of industries within the sphere of heavy industry has been pronounced for a long time. For example, there have been very severe imbalances in fuel, power, raw materials and other sectors. However, the task of this paper is to consider the structure of agriculture and light and heavy industry. For this reason, we are confining our study here to the structure of distribution and use of heavy industrial products among the three major sectors of agriculture and light and heavy industry.

If heavy industry can serve agriculture, can serve light industry and can serve heavy industry itself, then the relationships among the three can be correctly reflected in the structure of heavy industry.

Let us consider heavy industry from the aspect of service to agriculture.

Under conditions of an extremely weak heavy industrial foundation, it is imperative that the emphasis in developing industry in the initial stage of industrialization be placed on establishing and developing basic industries and primarily heavy industry. The problem lies in the fact that heavy industry is a process of continuous development. It can equip agriculture

at different levels at different times and it cannot wait to serve agriculture until after it has been completely equipped. For this reason, we say that the lack of fit between the structure of heavy industry and the technological transformation of agriculture is inseparable from inappropriate investment and allocation over many years. For example, during the period of the First 5-Year Plan, the amount of heavy industrial development in agricultural machinery, chemical fertilizer and agricultural chemicals directly serving agriculture was only 2.9 percent of heavy industrial investment. Of "the 156 key projects," there was only 1 tractor plant and 3 chemical fertilizer plants. This type of allocation naturally did not serve as an active support of agriculture.

After the First 5-Year Plan, the question of the roads of simultaneous development of industry and agriculture and of the industrialization of China raised by Comrade Mao Zedong was not thoroughly implemented for many years. However, beginning with the period of the Second 5-Year Plan, the state increased the financial resources and power used in agriculture. Please refer to Table 8.

Table 8. Absolute amounts and proportions of heavy industrial investment used for agricultural machinery, agricultural chemicals and chemical fertilizer

| | Amount of investment in heavy industry (100 million yuan) | Of this: used in agricultural machinery, chemical fertilizer, agricultural chemicals | |
|---|---|---|---|
| | | Amount of investment (100 million yuan) | Proportion (%) |
| First 5-Year Plan | 255.99 | 7.58 | 2.9 |
| Second 5-Year Plan | 666.27 | 38.27 | 5.7 |
| 1963-1965 | 201.26 | 19.68 | 9.7 |
| Third 5-Year Plan | 524.77 | 47.73 | 8.0 |
| Fourth 5-Year Plan | 920.58 | 93.38 | 10.1 |
| 1976-1979 | 909.26 | 89.61 | 9.9 |
| 1952-1979 | 3,493.74 | 296.38 | 8.5 |

Note: These amounts of heavy industrial investment are based on the management sector portions.

In terms of material resources used in agriculture, output of chemical fertilizer (content, 100 percent), which was 39,000 tons in 1952, increased to 10,654,000 tons in 1979. Tractor production increased from 1,000 in 1958 to over 125,000 in 1979. The amount of steel supplied by the state for use in agriculture and repair of agricultural machinery increased from 80,000 tons in 1953 to 3.12 million tons in 1979 and coal for use in rural areas was increased from 7.85 million tons in 1953 to 42.26 million in 1979.

Electricity for agricultural use was increased from 4 million kWh in 1952 to 32.49 billion kWh in 1979.

It can be seen that in the trend of its development the structure of heavy industry develops in a direction that is beneficial to agricultural production and the technological transformation of agriculture. However, this development is still far from sufficient to meet the needs of agriculture for the means of production that must be supplied to it by heavy industry. To speak of fixed assets, which furnish a comprehensive reflection of this situation, according to national statistics from 25 provinces, cities and regions (except for Guangdong, Gansu, Qinghai and Xizang), the three grades of fixed assets of the rural people's communes at present amount to only 84.9 billion yuan, with the average for each member of the agricultural labor force being only 310 yuan, whereas the average for each member of the light industrial labor force is about 5,000 yuan and that for heavy industry is about 12,000 yuan (the average of industry being about 10,000 yuan). From this it can be seen just how low the level of technological equipping of agriculture is!

As for chemical fertilizer, in 1979, 14.6 jin was used per mu in our nation. This is truly a pitiably low amount.

In addition, the amounts of fuel, power, steel, pig iron, cement and lumber that are supplied to agriculture are very low.

Therefore, our nation's heavy industry must still do a great deal of work in the cause of serving the technological transformation and the modernization of agriculture. This is an important task in restructuring the structure of heavy industry.

We can also look at heavy industry in terms of its service to light industry.

Our nation is essentially an industrially backward agricultural nation. Originally, it had only light industries of which agricultural products were the primary raw materials. They were severely constrained by the level of agricultural production. At the same time, as the economy developed and as the standard of living rose, there were continual increases in the demand for daily use industrial products of which industrial products were the raw materials.

In countries that are comparatively backward economically, the development of light industry makes use primarily of agricultural products as raw materials. This is the situation in our country. Since the Liberation, there have not been very great changes in the makeup of light industrial raw materials in our nation. Table 9 shows conditions in various key years.

This is to say that there has not been any great change over the past 20 years in the situation in which agricultural products have been the principal raw materials of light industry, accounting for a preponderant majority (70 percent). Let us take chemical fibers, which are urgently needed by the textile industry as a further example. Although there have been very great

Table 9. Proportions of light industries in which agricultural products are the raw materials and of light industries in which industrial products are the raw materials to total output values of light industry

| Year | 1952 | 1957 | 1965 | 1970 | 1975 | 1979 |
|---|---|---|---|---|---|---|
| Agricultural products as raw materials | 87.5 | 81.6 | 71.7 | 70 | 70.1 | 69.3 |
| Light industrial products as raw materials | 12.5 | 18.4 | 28.3 | 30 | 29.9 | 30.7 |

advances since 1957, to date the need has been far from satisfied. The proportion of chemical fibers in the total quantity of textile fibers in our nation is still very low. In foreign countries, however, the proportion has reached about 50 percent. In 1979, 10.43 million dan of cotton was imported in order to assure that the textile industry would operate at full capacity.

At present, machinery and equipment for producing chemical fibers, plastics and durable consumer goods in our country cannot be manufactured and supplied in sufficient quantity and we must rely on importing them. This is something that urgently awaits solution.

Moreover, one important way in which heavy industry serves light industry is to provide fuel and power for the light and textile industries. For many years, the coal, electricity and oil supplied to light industry has not been up to the demand. For example, heavy industry uses 80 to 90 percent of the electricity used in industry. Of this amount, the two sectors of metallurgy and the chemical industry regularly use one-third, whereas the light and textile industries generally use about 10 percent. The fuel and power that is required by the light and textile industries are usually "yielded" to heavy industry and work is stopped and plants are closed.

In summary, up to the present the structure of our nation's heavy industry can still not meet the demands for acceleration of the development of agriculture and light industry. We believe that our nation's heavy industry, regardless of whether it is machinery, petroleum, coal or electric power, has made considerable contributions to the national economy, including agriculture and light industry. However, there is another aspect to the matter. The present structure of our nation's heavy industry is primarily of the self-equipping type. Moreover, a considerably large portion of it serves national defense. National defense is necessary in order to protect the proletarian dictatorship state and to assure that all of the people of the nation can live and work in peace and contentment and serious consideration should of course be given to it. However, it cannot in the final analysis directly satisfy the demands of the people for a better standard of living. For this reason, there exists the problem of how to correctly

handle the proportional relationship between the national defense industry and economic reconstruction. Precisely because heavy industry must energetically serve the national defense industry and is primarily self-equipping, it is inevitable that many national defense industry products and large quantities of intermediate products for satisfying the demands of heavy industry itself are produced. Intermediate products are essential means for producing final products and are similarly required for social reproduction. However, when there are too many intermediate products for satisfying other demands, there are corresponding decreases in the means of production for satisfying the demands of agriculture and light industry. This is the present state of the structure of heavy industry in our nation. As far as the national economy as a whole is concerned, the structure is one in which heavy industry is out of line with agriculture and light industry.

/E. The Price System Is Irrational./

Under conditions of the existence of a socialist commodity economy, prices are scales for measuring value and are also a means for redistributing national income. As a result, they have a regulatory effect on the proportional structure of the national economy (including, agriculture and light and heavy industry). A rational price system can promote rationalization of structure. If the price system is being mismanaged, this can bring about or aggravate proportional imbalance and abnormalizing of structure.

The aspects in which the irrationality of our price system directly affects structure formation is primarily a problem of the parity of industrial and agricultural products and of the internal parity of industrial products.

The scissors differential of prices of industrial and agricultural products is a problem left to us by history. In the old semifeudal and semicolonial China, the imperialists and the capitalist class, through exchange, sold industrial goods to the peasants at prices far higher than their value. At the same time, they purchased the peasants' agricultural products at prices far lower than their value. The contrast between the two created a severe "scissors differential."

After the Liberation, the party and the government very early proposed and repeatedly reaffirmed the policy of reducing the price scissors differential between industrial and agricultural products. However, because we adopted a one-sided understanding and implementation of the policy of giving precedence to the development of heavy industry and because we obtained the funds for industrialization from agriculture and the peasants through the mode of high grain requisitions at low prices, this in fact exceeded the supportive capacity of agriculture. Therefore, the overall trend of the scissors differential was not reduced to any great extent before 1979.

If we look at the matter from the standpoint solely of the parity of such fixed industrial and agricultural products as unhulled rice, wheat, cotton, live pigs, chicken eggs and kerosene, edible salt, white sugar, white cloth and matches, we find that the scissors differential has indeed been reduced. Taking 1950 as the base period for the commodity price index, by 1978 the

purchase price for agricultural products had risen 107.3 percent, whereas retail prices for industrial products had risen only 9.8 percent, with the scissors differential having been reduced 47 percent. Nevertheless, there are very great limitations to the representative character of this type of fixed industrial and agricultural products. Moreover, there are several counteractive factors that cannot be ignored.

The first is that this price parity does not include the prices of the means of production provided to agriculture by the industrial sectors, whereas the prices of agricultural machinery, agricultural chemicals and chemical fertilizer in our nation are comparatively higher than those in the international market. For example, on the international market, 1 jin of grain can be exchanged for 2 jin of chemical fertilizer, whereas, in our country, it cannot be exchanged for as much as 1 jin. In Japan, 11,000 jin of unhulled rice can be exchanged for one 20-horsepower rider-controlled tractor, whereas in our country 71,000 jin of unhulled rice are required for one 28-horsepower Dongfanghong [East is Red] tractor. This is because the prices of the means of production used in agriculture are high. Therefore, the costs of agricultural products continually rise, while the purchasing prices of agricultural products do not vary over long periods of time. Even if there are slight increases, they are not enough to compensate for the rise in costs. According to data from Heilongjiang Province, the cost for each ton of urea produced at the Wohu village chemical fertilizer plant at Daqing is 150 yuan. To this is added the industry profit of 200 yuan so that its price when it leaves the plant is 350 yuan. The commercial link then adds a circulation charge of 100 yuan, so that the selling price is 450 yuan. Thus, 3 to 3.5 jin of corn must be exchanged for 1 jin of chemical fertilizer. Calculating on the basis that 1 jin of chemical fertilizers increased corn production by 4 jin, the purchase of 10 jin of chemical fertilizer for use on 1 mu of land can increase output by 40 jin. When the cost of the chemical fertilizer is subtracted, this is equivalent to increasing production by 5 to 10 jin of grain.[12] Clearly, the price of the industrial product (chemical fertilizer) is on the high side.

The second is the counteraction of the labor productivity of industry and agriculture. For many years, the extent of increases in industrial labor productivity in our nation have been far greater than the extent of increases in agricultural labor productivity. According to statistics, from 1957 to 1978 industrial labor productivity increased about 75 percent, whereas agricultural labor productivity increased only 15 percent. Thus, the degree of decrease in the prices of industrial products was far greater than the degree of decrease in the prices of agricultural products. In summary, it can hardly be said that the scissors differential in industrial and agricultural prices was reduced before 1979. This tendency was naturally not advantageous for the rational integration of agriculture, light industry and heavy industry.

12. Tong Dalin and Bao Tong: "Some Views on the Modernization of Agriculture." RENMIN RIBAO, 8 December 1978.

In a socialist country, it is also difficult during the earlier stages of industrialization to avoid using the scissors differential between industrial and agricultural prices to levy some special contributions from the peasants as funds for industrialization. However, as industry develops, industrial labor productivity rises and the capacity for accumulation by industry itself increases, the scissors differential should gradually be reduced, and, when conditions permit, the scissors differential should be eliminated. In particular, the prices of agricultural products should sensitively reflect agricultural abundance or shortages. Moreover, there should be a certain range of flexibility in relation to abundance. This is advantageous to the rehabilitation of agriculture.

In the text that follows, we shall again discuss the problem of internal parity of industry.

For many years, the internal parity of industry in our nation has been irrational. According to statistics of relevant sectors for 1977, the average cost-profit ratio for the state-managed industrial enterprises of the nation as a whole was 20 percent. Industries with high profit ratios were the petroleum industry, with 75 percent, the electric power industry, with 72 percent, and the civilian machine industry, with 45 percent. Those with low profit rates were the ferrous metallurgical industry, with 4.7 percent, and the coal industry, with a loss of 3 percent. In 1979, in order to solve the problem of long-term losses in coal, the state added 5 yuan to the price of each ton of coal. However, about one-third of the coal mines still suffered losses. On the other hand, there were high prices and high profits for some products (machine and electrical equipment in particular) of the processing industry. This led to blind expansion, with massive overstocking being created.

In summary, in terms of parity of industrial and agricultural products, the prices of agricultural products are on the low side and the prices of industrial products are on the high side. This created "short supplies" of materials urgently needed by the state such as agricultural products, mineral products and various types of raw materials for which the economic conditions for thorough development cannot be obtained for a long time. On the other hand, "long line" products which are at present severely overstocked, such as various types of machinery and electrical equipment which did not meet needs or were of defective quality, will be overstocked for a long time. If these conditions continue to exist, we will certainly not be able to overcome the imbalance in the proportions of agriculture and of light and heavy industry and the severe abnormality in their structure. In addition, they may also contribute to their pernicious development. The time has now come when we must resolutely and gradually restructure our nation's price system in a planned way.

## III. The Course of Restructuring the Structure of Our Nation's Agriculture and Light and Heavy Industry

Although the agricultural and light and heavy industrial structure is the main component of the structure of our national economy, it is, nevertheless, not the whole situation. Neither the development of the severely abnormal structure of agriculture and light and heavy industry in the past nor restructuring in the future could have taken place or will take place in isolation from the effects of the national economic structure as a whole.

The structure of our national economy should accord with the conditions of China and should have a form characteristic of China. But what sort of form does it have? At present, there is still no unified understanding of it. In our view, what our country needs to do is to establish a national economic system that has as its final objective satisfying the consumption needs of the people, that is independent and that takes initiative upon itself, in which there is a rational combination of cooperative development of agriculture, light industry and heavy industry, in which there is close coordination, mutual support and joint development between the various sectors in productive spheres and nonproductive spheres and which can sensitively reflect and satisfactorily absorb advanced things in the spheres of international science and technology and management science. When we consider restructuring the structure of agriculture and of light and heavy industry, we cannot disregard this major premise. This is something to which particular attention should be paid.

The present abnormal state of the structure of agriculture and of light and heavy industry in our nation is the result of 30 years of development following the Liberation. To make adjustments in it and change it is not something that can be done in a day. We must make a prompt decision to set out and proceed from reality. We must think deeply and plan carefully, take a broad and long-term view and adopt comprehensive measures. Here, we shall discuss three measures in the area of macroeconomic policy decision.

/A. Change the Direction or Use and Proportion of Distribution of Accumulation (Investment)./

Generally speaking, a procedure that can be taken to bring about a direct change in the structure of agriculture and light and heavy industry is to readjust current production in agricultural and light and heavy industrial enterprises. If a change is made in the number and variety of products, the effect can be seen the same year, with disequilibrium being resolved temporarily in a small range. Another means is to change the direction of use of accumulation, i.e., change the proportions of distribution of investment. This will result in basic changes occurring in the future in the structure of agriculture and light and heavy industry. Because changes have occurred in the structure of the fixed assets of agriculture and light and heavy industry and in the structure of employment in them, changes also occur in productive capacity and corresponding changes also occur in the quantity and varieties of products. Therefore, if we are to change the original abnormal

structure of agriculture and light and heavy industry, we must primarily start with determining the direction of the use of accumulation.

In the actual economic activity of our nation, accumulations are primarily realized through investment in capital construction and the direction of use of accumulation can be reflected through the distribution of investment in capital construction. When the direction of investment is being determined, we must in the beginning set out from reality and allocate the proportions of distribution of funds in a suitable way in relation to the problems existent in the proportions and structure of agriculture and light and heavy industry. Next, we must look both ahead and behind in order to create conditions for the smooth realization of expanded reproduction in society in the future. Because the distribution of investment has been improper for many years and because of additional factors, an abnormal agricultural and light and heavy industrial structure has been formed. If we are to change this structure, we believe that we must give attention to the following points:

First, a great effort must be made to increase the funds for expanded reproduction in agriculture. From a macroeconomic angle, several methods can be taken. One is to reduce the price scissors differential between industrial and agricultural products. This primarily involves raising the purchasing prices of agricultural products, and, supplementarily, to lower the prices of the means of production for agricultural use in order to reduce the amount of state accumulation for which agriculture is responsible. From a superficial standpoint, we know that for many years agricultural taxes have accounted for only one-tenth of the financial income of the state and has even been much lower than this to a point at which the burden does not appear to have been heavy. In fact, because of the existence of the scissors differential, the proportion of state accumulation actually borne by agriculture has to be several times higher than agricultural taxes. According to estimates by the Ministry of Agriculture, retail turnover in the rural areas in 1978 amounted to 81 billion yuan, with prices being 15 to 20 percent higher than value. Purchases of agricultural products amounted to 46 billion yuan, with prices being 25 to 30 percent lower than value. When the two items are totaled, we can see that the peasants provided fund accumulations of 20 to 30 billion yuan to the state.[13] When the agricultural taxes of more than 3 billion yuan are added to this, the total far exceeds the amount that the state has used in agricultural investment. For the past 25 years, capital construction investment in agriculture by the state has accounted for an average of about 12 percent of the proportion of the investment in capital construction for the nation as a whole and has been no more than 3 to 5 billion yuan. In addition, loans for use in collective agriculture have amounted to only 10 billion yuan each year. In 1979, the prices of agricultural products were raised 22.2 percent. This resulted in the peasants' recovering 10 billion yuan. This obviously had a very great effect in reducing the

13. There are objections in the academic world concerning the scientific character of the method that we have used here for calculating the scissors differential. Nevertheless, the general tendencies that it reflects are generally acknowledged.

scissors differential and in stimulating the expansion of agricultural production. Although this is looking at the matter after the fact, the amplitude of this increase in prices could have been a little greater and the pace could have been a little faster. However, it was in the final analysis a good method of stopping draining of the pond to get all of the fish and of lightening the excessively heavy burden on the peasants so that the peasants could rest and build up their strength and so that the expansion of agriculture could be accelerated. In the future, we should move ahead according to the situation, continuing to reduce the scissors differential and to strive at the historical task of eliminating the scissors differential. Another good method is to increase investment in agriculture. At present, the capital construction investment that the state directs toward agriculture is limited to agriculture owned by all the people, while the funds used for the collectives are agricultural loans. The total for the two categories is only 20 billion yuan. However, excessively large increases in investment in agriculture will not be possible to any extent for a considerably long time into the future under conditions of very short supplies of funds by the state. However, we must guard against holding our hands out to agriculture through various channels and again placing the burden of "exorbitant taxes and levies" on it. In addition, from a long-term standpoint, developing an alliance among agriculture, industry and commerce and developing commune and brigade industries and commercial enterprises also have a very great effect on accumulation of funds by agriculture itself. We shall discuss this point further in the text that follows.

Next, we must put strict controls on investment for reconstruction of heavy industry. In the face of the agricultural and light and heavy industrial structure in which the proportion of heavy industry is abnormally great, we must not again blindly expand the scale of heavy industry and thereby make the imbalance in proportions in the national economy more severe. Rather, we must be firm about reducing the scale of capital construction in heavy industry so that it can be brought in line with the capacity of agriculture, light industry and the national economy as a whole to support it. In the distribution of investment in the future, we must set out on the basis of the overall situation and, taking a long-term view, resolve to change the direction of the structure of heavy industry toward serving agriculture and light industry. In addition, we must proceed to develop a new heavy industrial structure in keeping with the requirements of development of agriculture and light industry.

Speaking of the requirements of developing agriculture, the modernization of agriculture must have heavy industry as its sole material and technological basis. Marx said, "All production--as long as it does not involve pure seizure and occupation--is reproduction. As a result, it requires 'products manufactured before it as raw materials.' Everything that becomes a result of production is at the same time its prerequisite. As large-scale agriculture becomes more and more developed, it buys more and more 'products produced before it' and sells more and more of its own products."[14] In the

14. "Collected Works of Marx and Engels," Vol 26, Book 2, p 56.

process of the modernization of agriculture, these "products produced before it" are farm implements, electric power equipment, chemical fertilizers and agricultural chemicals. Our nation has over 1.5 billion mu of cultivated land, over 4 billion mu of grasslands and a great deal of undeveloped land that could be cultivated. An extremely great amount of means of production is required for agricultural cultivation and development and for bringing about modernization. Therefore, the huge domestic market that forms the means of production required to accelerate the intensification of agriculture does not weaken heavy industry but rather serves as a powerful motive force for the rapid development of heavy industry itself.

The same holds true for the development of light industry. The magnitude of demand for light industrial products of a huge market for consumer goods constituted by a population of close to 1 billion can well be imagined. The various types of articles of everyday use related to food, clothing, shelter and transportation, from low-quality to high-quality goods, include furniture, watches and clocks, bicycles, sewing machines, radios, tape recorders, television sets, washing machines and electric refrigerators. Once these products have become popularized, the quantities will not be reckoned in the millions but in the tens and hundreds of millions. The more the volume of production increases, the more sales earnings increase and the more profit increases. There is also a corresponding increase in the amount of accumulation. This will not only stimulate the expansion of light industry but it will also require heavy industry to provide more and more production equipment and industrial raw materials for light industry. This will even further stimulate the acceleration of expansion of heavy industry and will result in preference to the development of heavy industry genuinely being linked to acceleration in the development of light industry.

One aspect of readjusting the internal structure of heavy industry is to speed up the expansion of agriculture and light industry service sectors. Another aspect is to strengthen the weak links of heavy industry itself such as the excavation industry, the energy industries and the building materials industry. We must also manufacture various types of equipment to strengthen the communications and transportation industries.

Further, in order to change the long-term backward state of light industry, it will be necessary to make suitable increases in the proportion of investment in light industry in national economic investment. However, we cannot give our attention solely to increasing new productive capacity. We should also conduct painstaking research to an even greater extent on such problems as how to increase the use effect of limited funds and of how to make rational distribution of funds. We must strive on a foundation of using less funds and increasing efficiency to strengthen the potential of enterprises, to make innovations, to make transformations, to expand production of urgently needed goods that are in short supply and to increase product quality. We must intensify building raw materials bases. We must expand labor-intensive enterprises and we must introduce various new light industrial sectors required by the nation.

In short, when we are determining the direction of use of accumulation and the proportions of distribution of investment, we must first meet the needs of agriculture for expanded reproduction in order to assure that the supply of major agricultural products (including such daily necessities as food and such basic light industrial raw materials as cotton) is not lower than the average level per person for the preceding year. This is the minimum limiting requirement. If it is lower than this, it can affect the standard of living of the people of the nation as a whole and production in the basic sectors of light industry. Next, we must satisfy the requirements of light industry for expanded reproduction. The reasons for this is that most light industrial products are directly used to satisfy the material needs of daily life of the people. Third, there must be a corresponding satisfaction of the requirements for development of heavy industry. These requirements are also based on rationally allocated production within heavy industry of the three aspects of service to agriculture, light industry and heavy industry. This is to say that we should allocate investment to agriculture, light industry and heavy industry in that order.

The principle reason that we are stressing allocation of investment to agriculture, light industry and heavy industry in that order is that coordinated expansion of the proportional relationships among agriculture and light and heavy industry is the basic condition for coordinated expansion of the national economy as a whole. However, from the standpoint of overall social reproduction, we must also place agriculture, light industry and heavy industry within the total context of social reproduction and set out to achieve a comprehensive equilibrium on the basis of the overall state of the national economy. A better or optimum plan for investment in the national economy can only be worked out through repeated calculation of various quotas and comparative analyses of various plans. Coordinated development of agriculture, light industry and heavy industry and development of a rational structure of agriculture and light and heavy industry can only be obtained within this overall context.

/B. Control the Scale of Accumulation and Readjust the Scale of Industry and of Heavy Industry in Particular on the Basis of the Support Capacity of Agriculture and Light Industry./

Within a given period, there is an objective limit that the amount of accumulation used in social expanded reproduction cannot exceed. Just as Marx said, "If we want accumulation, then we must convert some excess products to capital. However, unless a miracle occurs, what can be converted to capital are goods that are used in the process of labor, i.e., means of production, and goods that workers use for their own maintenance, i.e., means of livelihood."[15] This is to say, it is only when the scale of accumulation (the principal component of the amount of investment in capital construction) is suited to the overall level of social production that accumulation can be realized for the actual expansion of reproduction. Therefore, the demands for the means of production and labor force (the corresponding means of

15. "Collected Works of Marx and Engels," Vol 23, p 637.

livelihood) brought about by carrying out basic reconstruction in various sectors of agriculture and light and heavy industry should be in equilibrium with the material resources and manpower that society can provide for use in accumulation. If the scale of accumulation is excessively great, then capital construction will inevitably have an effect on current production and the standard of living of the people. If the scale of accumulation is excessively small, then this can create overstocking of material and waste of manpower. It has been the former deviation which for a long time has been perplexing us. Therefore, when we are allocating investment, we certainly must link the proportions of agriculture and light and heavy industry with the proportions of consumption and accumulation. At the same time, we must give further consideration in order to facilitate turning the structure of agriculture and light and heavy industry to conform with the objectives of socialist production and changing the direction of rationalization of coordinated expansion of the proportions of the national economy.

Related to the high accumulations, the scale of development of and allocations for the development of industry in our country and of heavy industry in particular have been too great and for a long period have exceeded the supportive capacity of agriculture. This was a cause contributing to the abnormality of the structure of agriculture and of light and heavy industry and is also a significant manifestation of it.

Under such a condition in our nation of a weak industrial foundation and an even more backward state of agriculture, the supportive capacity of agriculture must be the first thing taken into consideration in expanding industry. Agricultural labor productivity exceeding that required by individual laborers is the foundation of all society. If we are to expand industry, we must first expand agriculture so that agriculture will have sufficient productivity. We cannot blindly transfer the labor force before agriculture has increased its labor productivity. This is the first limit for assuring expansion of agricultural production. The second limit is that transfer out of agricultural products must never weaken the conditions for reproduction of agriculture itself. If we leave aside foreign trade, how many workers and how much of a nonagricultural population a nation can support in order to assure expansion of industry is determined by how much food and other means of subsistence agriculture can provide for society after it has satisfied its own requirements. Excess transfer out of agricultural products inevitably destroys agricultural reproduction. The expansion of light industries in which agricultural products serve as raw materials is determined by the volume of supply of agricultural raw materials. Thus, agriculture also conditions the expansion of light industry. The third limit is that within a given historical period there cannot be a shortage of funds for industrialization of the nation, a portion of which are accumulated from agriculture. However, the amount should not be so great that agriculture loses money in its operations. Only a portion of the net income of agriculture can be taken under the prerequisite that the financial needs of agriculture for expanded reproduction are assured. In short, the realization of industrialization and increasing labor productivity in industry and agriculture are gradual developmental processes and it is only by seeing to it that the two processes are coordinated and that they proceed together that

a rational structure of agriculture and of light and heavy industry can be formed.

The foundation making possible the development of heavy industry includes not only agriculture but also light industry, which produces goods for industrial consumption.

In consideration of the history of the early-stage development of society and economy, the sector that provides material goods for mankind is agriculture in a broad sense. Industrial labor for the production of consumer goods was in the past naturally linked with agricultural labor. Later, as a result of social division of labor, it took on an independent form. However, it was still an essential supplement to pure agricultural labor. The development of independent heavy industry for production of the means of production on a large scale is a modern event.[16] Therefore, speaking from the standpoint of the reciprocal relationship between the two major categories of social production, it can be said that light industry and agriculture together condition the expansion of heavy industry. When the scale of expansion of heavy industry is being planned, it is not only dangerous to neglect agriculture but it is also impermissible to neglect light industry. To speak from actual conditions in our nation, light industrial products have accounted for 30 to 50 percent of the total amount of retail sales of social goods. In addition, on the basis of typical surveys of urban and rural residents, they account for 20 to 30 percent of the total amount of consumption by these residents. In view of the processes of development in the past and of future developmental trends, there is a trend toward expansion in the proportion of light industrial goods. At the same time, it should be noted that there is a tendency toward expansion of that portion of agricultural products which is transferred to the hands of consumers after having undergone processing by light industry. In short, light industry is one of the sectors that produces social consumption goods and is one that is assuming a greater and greater role in stimulating and restricting expansion of production of the means of production.

For this reason, when we are planning for the rate and scale of expansion of heavy industry, we must not only strictly observe the objective limits that are set on this type of expansion by agriculture that we have discussed previously but we must also strictly observe the objective limits set on this type of expansion by light industry. In brief, these limits are as follows. Under the prerequisite that the manpower (including the quantity and its technological level), the material resources (including means of production and means of subsistence) and financial resources are constant, the quantities of manpower, financial resources and material resources used for the expansion of heavy industry cannot be at the expense of those required for expanding light industry. What we refer to as the quantities required for the expansion of light industry indicate the manpower, material resources and financial resources allocated to light industry to assure that the development of light industry will be able to maintain the original level of

16. See Marx, "Das Kapital," Vol 3, p 743 in the edition translated by Guo Wang. "Collected Works of Marx and Engels," Vol 25, pp 713-714.

consumption of industrial products by the residents of the entire nation (including the newly increased population). This is the minimum limit. Under normal conditions, we should exceed this limit in order to facilitate progressive improvement in the people's standard of living.

/C. Extending the Alliance of Agriculture, Industry and Commerce in Agriculture, Putting Emphasis on Intensive Labor Type Products in Light Industry and Strengthening Intensive Businesses in Heavy Industry./

We believe that these three conditions are important measures for promoting rationalization of the structure of agriculture and light and heavy industry.

First, we shall discuss the alliance of agriculture, industry and commerce.

Unification of agriculture, industry and commerce is still a newly emerging thing in our nation. Some of the present pilot schemes have their origin in commune and brigade enterprises and some of them were converted from agricultural product processing sectors under the jurisdiction of state-managed farms. An alliance of agriculture, industry and commerce is a product of productive forces having developed to a comparatively high level. In our country, we can only develop in a planned and step-by-step way. At present, we still do not have the conditions for large expansion. Generally speaking, the production teams in our people's communes rely on the force of a single team and are still not endowed with the conditions for realizing unification of agriculture, industry and commerce. Its course of future development could involve the whole people or it could involve the collectives. It could also be under individual team management or it could be under joint commune-production team management or joint management by the collective and the whole people. Whatever form it takes, it should be an industrialized organization that assumes responsibility for both profit and loss. It can only make a profit and cannot sustain losses. Moreover, it cannot rely on the state to make up for losses.

At present, there are different views in our nation concerning the development of unified enterprises involving agriculture, industry and commerce. We believe that the development of this type of economic organization is an inevitable trend, whether from the standpoint of the internal relations of agriculture and industry or from the angle of integration of urban and rural areas and of the alliance between workers and peasants. In the light of preliminary experiences in its practice, it is capable of absorbing the excess labor force in the rural villages, expanding the volume of employment and raising the utilization ratio of labor time in the rural villages, preventing the excess labor force in the rural villages from drifting blindly into the cities, striking at the equilibrium relationships of agriculture and light and heavy industry and changing the proportions of the distribution of population in the urban and rural areas. On-the-spot integration of agriculture with industry and commerce and on-the-spot manufacture of small means of production for use in agriculture and local provision of technical services can raise the labor productivity of overall socialist agriculture (agriculture, forestry, animal husbandry, fisheries, industry and commerce) in our nation. At the same time, integration of agricultural

industries and commerce into single entities in the rural areas facilitates direct linking of the rural economy with social markets, aids in increasing the marketability of agricultural products, increases the money income and accumulation of funds in the rural villages and causes a great increase in purchasing power, in terms of capacity to pay, of our nation's agriculture for industrial goods (means of production for use in agriculture and consumption goods needed by the peasants). This is of very great significance for changing the natural economic structure of our nation's rural areas (in which at present the self-sufficient portion accounts for about 75 percent and the commodity portion accounts for 25 percent). From a long-term standpoint, this will also be of very great significance for the modernization of our nation's agriculture.

The range of activities of unified enterprises involving agriculture, industry and commerce is unusually wide. They can also be of diverse types. We believe that even though unified enterprises involving agriculture, industry and commerce will consist of agriculture, industry and commerce joined in a single entity, industry and commerce will center around activities associated with expanding agriculture, with the industries preferably consisting primarily of processing industries for agricultural products. In addition to the specifically stated stipulations by the state, these processing industries should gradually expand their spheres of operation. For processing and manufacture of some secondary agricultural products, plants can be set up in villages and towns and those that have been established in cities can, taking circumstances into consideration, gradually be transferred to villages and towns. Here, we have been speaking of development in the future. The law of development of social production is that it develops from small-scale production to socialized large-scale production. The whole can never be broken up into its parts, with socialized large-scale production being transformed to small-scale production. The second type is that in which outlying villages cooperate with urban factories or bring materials to them for processing. This type is advantageous to both industry and agriculture and also prevents the labor force from drifting into the cities. The third type involves running chemical fertilizer plants, "small farm implement" plants and farm tool repair and spare parts plants serving agricultural production. It can also involve running industrial and mining enterprises that do what they can to make use of local materials and to make sales locally. It is best that this type of enterprise be limited to conditional commune production teams.

The commercial enterprises among the unified enterprises involving agriculture, industry and commerce should assume the task of purchasing agricultural products and of selling products processed from them and they should also assume the task of supply and marketing of industrial products for daily use. Over a good many years, there have been several changes in the modes of purchasing agricultural products and of supply and marketing of industrial products required in the rural areas. However, the development of commercial enterprises and agricultural production in rural areas has never been very well integrated with the economic benefits of the peasants. From the viewpoint of economics, we believe that bringing commercial enterprises into the unification of agriculture, industry and commerce is even more economically rational.

When necessary, unified enterprises involving agriculture, industry and commerce can establish sales departments in cities and can set up farm machinery service and repair stations. When conditions are ripe, the range of integrated, joint management of enterprises can be expanded in order to facilitate regulation and integration of funds.

Clearly, unification of agriculture, industry and commerce is not only a powerful means of promoting rationalization of the structure of agriculture and light and heavy industry but it is also an important factor in promoting the rationalization of the structure of the national economy as a whole.

Finally, we would like to stress that in running a joint body involving agriculture, industry and commerce, as in managing any good work, things should not be done too quickly and precipitate action should be avoided. During the current period of readjustment, this is particularly true. We must see that developing joint bodies involving agriculture, industry and commerce is a long-term task. From the standpoint of international economics, we can see that unified enterprises involving agriculture, industry and commerce are results achieved after considerable development of industry, agriculture, commerce and communications and transport. At present, our nation has not yet developed to this point. Moreover, in the light of our preliminary experiences with trial projects, there are many difficulties in running joint bodies involving agriculture, industry and commerce in the areas of production, supply and sales. Under the current conditions in our nation of shortages of raw materials, fuel, power and transport capacity, blindly starting up large numbers of a type of enterprise consisting of joint bodies involving agriculture, industry and commerce will inevitably result in competition for raw materials, power and transport facilities with large enterprises that are technologically advanced, that produce products of good quality and that enjoy low costs. This would be very detrimental to raising economic results in the society as a whole. For this reason, we must have clear heads and do everything possible to avoid blindness in action in our work of running joint bodies involving agriculture, industry and commerce. At present, we must carry out our work step by step in a planned way under the prerequisite of complying with the overall situation of readjusting the proportional relationships in the national economy.[17]

Next, in light industry, special emphasis must be given to developing labor-intensive type products and enterprises.

The range of light industries is broad and they can accomplish a great deal. Thus, great effort should be made in developing light industry. Generally speaking, many methods should be used and we should not stick to one pattern. In terms of socioeconomic types, they can involve the whole people and they can also involve the collectives or they can involve individual laborers. At present, effort should be devoted especially to developing light industries under ownership of the collectives. In terms of trades and varieties

17. See RENMIN RIBAO editorial of 2 December 1980, "Comprehensively Carry Out and Steadfastly Implement the Policy of Readjustment."

of products, diversity should be allowed and all types should be allowed to compete with each other. In terms of technology, mechanized, semimechanized and handicraft industries should all be included and should serve domestic and foreign markets in an extensive way. In terms of modes of management, we cannot neglect intensive production. If we do not give serious attention to the use of new technology and new techniques, we will not be able to change the backward state of light industrial technology in our nation and our light industrial products will not be able to have any competitive capacity internationally. However, on the basis of our present financial capacity and labor employment conditions, we can consider giving serious attention to the development of labor-intensive products. It goes without saying that for a nation with a large population and a weak foundation, striving to develop labor-intensive enterprises and products is an important means for making the best of things and for improving the structure of agriculture and light and heavy industry and the structure of the national economy as a whole. Our nation's labor force resources are very abundant. Within a considerably long historical period, its allocation has been a major issue. In addition, because the material and technological foundation of our nation's economy is weak, funds for construction are limited. If we try to follow a course like that taken by certain advanced nations, and, without taking into account the special characteristics of China, blindly go ahead with capital-intensive enterprises and products, we will inevitably encounter large-scale unemployment in the working population and severe obstacles in the form of shortages of funds and technology. By developing labor-intensive enterprises and products, we can accommodate a higher level of labor employment, bring about a relative decrease in the demand for funds and technology and bring about more rapid development of industry. According to a survey made by the Ministry of Light Industry, the labor force that can be accommodated by each 1 million yuan of fixed assets in the light textile industry is 257 persons. However, in labor-intensive industries such as the four industries of arts and crafts, clothing, daily use hardware and leather, the average is 800 persons! In heavy industry, the average is only 94 persons. Next, labor-intensive industries use little energy. Similarly, in order to produce a product with a production value of 10,000 yuan, heavy industry must use 17 tons of coal and 5,500 kWh of electricity, while light industry must use 3.5 tons of coal and 1,780 kWh of electricity. Of these amounts, arts and crafts industries consume only 0.96 tons of coal, less than 6 percent of that used in heavy industry, and 540 kWh of electricity, less than 10 percent of that used by heavy industry.[18] There is one further point that should be noted here, i.e., that there are also labor-intensive enterprises and products within heavy industry such as the electronics industry.

Thus, by developing labor-intensive products and enterprises in light industry, not only will it be possible to use less funds to produce more goods, and thus strengthening the capacity of light industry to support the development of heavy industry and to improve the standard of living of the people, it will also be possible through improving the employment situation and

18. See RENMIN RIBAO, 29 July 1980, p 1.

changing the employment structure of agriculture and light and heavy industry to stimulate rationalization of the structure of agriculture and light and heavy industry and of the national economy as a whole.

Finally, let us deal with the problem of strengthening intensified management in heavy industry.

In view of the actual conditions in our country at this time, putting stress on intensive management is naturally very important for improving the structure of agriculture and light and heavy industry and for readjusting the severe imbalance of proportions in the national economy. In this area, there are two problems that are particularly worthy of attention. One is that particular stress must be laid on developing potential, innovation and transformation in heavy industry for a considerably long period in the future. The other is stress must be placed on heavy industry developing technology for saving energy, saving raw materials and saving labor force (i.e., raising labor productivity without decreasing employment).

Since the arduous task of readjusting the national economy was proposed at the Third Plenary Session of the CPC, a great deal of research has been conducted in economic and academic circles on the question of heavy industry relying more on developing potential, innovation and transformation and on cutting back on consumption of materials in its future development. We shall not discuss these studies here. What we do wish to stress here is that strengthening intensified management and relying on intensional expanded reproduction for development of economic undertaking is not only extremely important for heavy industry but is also extremely important for the national economy as a whole. Not only is it extremely important during the present period of national economic readjustment but it will also be extremely important for the long-term development of the national economy in the future. The history of the developed nations tells us that once the level of production and the level of technology of a national economy as a whole have developed to a fixed stage, intensive management will definitely be put in first place when comparatively great difficulties are encountered in extensive-type increases in certain production conditions or all production conditions. Therefore, today we should foresee this prospect.

Readjusting the structure of agriculture and light and heavy industry and the structure of the national economy, which is arduous and painstaking work, will require a comparatively long period of great effort in order for it to succeed. Fortunately, since the Third Plenary Session of the CPC, the work of restructuring the national economy has been launched in a step-by-step way. We believe that our national economy will take the path of coordinated development in the very near future.

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## CHAPTER IV

## THE STRUCTURE OF AGRICULTURE

By Liu Zhongyi [0491 0022 0001] and Liu Yaochuan [0491 1031 0278]; original text pp 137-170; portions within slantlines in boldface in original text.

[Text] Agriculture is an important material production sector by which mankind obtains the means of livelihood and certain means of production from nature. Agriculture, which in the broad sense includes cultivation, forestry, animal husbandry, sideline occupations, and fishery, is a comprehensive economic entity of multiple production activities. During different stages of historical development, men have used different organizational forms and methods of production to pursue agricultural production activities of a certain breadth and depth. Various relations which arose from this, such as relationships between various kinds of production within agriculture, the relationship between man and nature, the relationship between agriculture and various sectors of the national economy, and the relationships between producers, all interwove, forming a complex agricultural economic structure. A rational agricultural economic structure not only promotes the harmonious development of agricultural production in fully utilizing natural resources, and is important in obtaining the best economic results, but it also has an extremely great influence on the distribution of industry and communication, and on improving the standard of living of the people. Consequently, it is of major practical significance in speeding the course of China's four modernizations to analyze the present condition of China's agricultural economic structure, study its major problems and the reasons for their occurrence, and to discuss adjusting the course and measures of China's agricultural economic structure.

### I. The Present Condition of the Agricultural Structure

#### /1. The Position of Agriculture in the National Economy/

For several thousand years, agriculture has continuously been the foundation of our national economy. In the modern period, following the development of social production and the social division of labor, industry, communications and commerce rapidly developed, and important changes began to occur in our national

economy. And still the agricultural economy continued to occupy a particularly important position in the structure of the national economy. In 1949, agriculture accounted for 70 percent of the total agricultural and industrial output value, calculated at 84.5 percent of the net output value. And agriculture made up 68.4 percent of the composition of national income. But after the development of large-scale industrialized construction under the First 5-Year Plan, the proportion occupied by agriculture within the total agricultural and industrial output value and within the national income, both feel to below 50 percent. By 1979 they had fallen to 29.7 percent and 38.8 percent, respectively. What requires explanation is the fact that due to methods of calculation and pricing factors, these proportional figures cannot accurately reflect the actual position of agriculture within the national economy. Because the total value of industrial output is computed by the plant method of calculations, there are many duplicated calculation factors; but the total value of agricultural output is computed according to the product method of calculation, in which there are few duplicated calculation factors. In addition, since the price of our industrial and agricultural products exists in a price scissors, the price of agricultural products is low, while that of industrial products is high. Consequently, whether you use the total output value with constant prices, or the net output value with current prices, both are skewed a bit lower than the actual condition.

Viewed from overall developmental trends, the proportions of industry, communications and construction within the structure of the national economy will gradually become larger, and the proportion of social service industries will go up, while the proportion of agriculture will fall. This is an inevitable result of the development of social production. All the economically advanced countries in the world are like this. In the process of realizing the four modernizations, the proportion of China's agriculture will also decline. But we must realize that ours is a large nation with a tremendous population, and that the proportion of agriculture will always hold an important position within the structure of the national economy, and that it should not decline to a very small proportion as it has in some industrially advanced nations. In the process of hastening the industrialization of the nation, for one period in the past, there was a tendency to lopsidedly pursue a course of raising the proportion of industrial output value, without hesitating to cripple agriculture in order to develop industry, making us suffer great losses.

One major lesson of the great leap forward of 1958, was the destruction of the relatively harmonious economic structure of the period. At that time, we did not hesitate to transfer much of the agricultural labor force, to weaken agricultural production, to wholeheartedly "manage steel in a big way," and to squeeze agriculture in order to stress industry. In 1958, the rate of agricultural growth was 2.4 percent, down from 3.6 percent of 1957, and the rate of growth of heavy industrial had jumped from 18.4 percent in 1957, to 78.8 percent. But the foundation was quite unsteady, and later, heavy industry could not help but drop back. This destruction of the structural balance of the national economy severely injured its foundation, agriculture, set production back 10 years and had major consequences for the entire national economy, forcing China to spend a number of years revising the structure of the national economy.

Marx tells us: "The production rate of agricultural labor in excess of the needs of the individual laborer is the basis for all of society.[1] Comrade Mao Zedong, in line with Chinese practice, pointed out: agriculture is the foundation of the national economy. Thirty years of practice show that although the proportion of agricultural economy in our national economy has gradually fallen, still, up to the present, the position of agriculture as the foundation has not changed. Since the establishment of the People's Republic, agriculture has always been the primary employment arena for China's workers. The total number of workers who pursue agriculture, as a proportion of total workers in the nation, was highest in 1963 at 84.3 percent, and was 73.6 percent in 1979. Agriculture is a major supplier of materials for light industry and the textile industry, and in the total output value for light industry and the textile industry, the proportion of the output value which uses agricultural and sideline products for materials, was 87.5 percent in 1952, and was 69.3 percent in 1979. Agricultural and sideline products are a major source for our market commodities. In 1952, the purchased amount of agricultural and sideline products was 51.5 percent of the total purchased amount of agricultural and industrial products. But after this, although there was a great increase industrial products, in 1979, agricultural and sideline product still made up 29.5 percent. More than one-half of the total retail turnover of China's social consumer products is in grain, oil, meat, eggs and other agricultural and sideline products and their processed goods. Villages are the biggest market in China's economic development, and village retail commodities, as a proportion of the whole nation's social commodity retail turnover, was 60.2 percent in 1949, and 54.5 percent in 1979. Agricultural and sideline products and their processed goods are also a major mainstay of our foreign trade. As a proportion of the nation's total volume of exports, agricultural and sideline products and their processed goods made up 91 percent in 1949 and 56 percent in 1979. The agricultural economy is also a major component part of China's national income. In 1949 agricultural income accounted for 68.4 percent of the national income, and in 1979 it was 38.8 percent. These figures show how the condition of the agricultural economy can have an important influence on the entire national economy.

Turning it the other way around, the rise and fall of the agricultural economy is also intimately related to various fields such as industry, commerce, communications, science and technology. Cut off from these fields, agriculture would be unable to develop very much. Consequently, in studying the structural problems in China's agricultural economy, we must first examine the agricultural economy as an organic component of the entire national economy, and clarify the position it occupies and the role it plays in the national economic structure. Only in this way can we draw out a relatively accurate understanding and conclusion. And only then will we be able to adopt policies and methods which are suited to the needs of the entire national economy, and suited to the developmental rules of agriculture.

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1 "The Collected Works of Marx and Engels," Vol 25, p 885.

/2. The Production Structure of Agriculture, Forestry, Animal Husbandry, Sideline Occupations and Fishery/

One important element of the agricultural economic structure is the proportional relationship between the five fields of agriculture, forestry, animal husbandry, forestry, sideline occupations and fishery. This is because: a) it reflects the breadth of agricultural production. That is, the breadth of the "total development" of agricultural production. b) It reflects the level of development and utilization of our natural resources. And c), it reflects whether or not we are properly deploying the relation between agriculture, forestry, animal husbandry, sideline occupations and fishery.

In the 30 years since the establishment of the People's Republic of China, the situation in which cultivation has been the primary element in agriculture has not changed. In 1949, the structural conditions of the total output value of agriculture were as follows: cultivation was 82.5 percent, forestry 0.6 percent, animal husbandry 12.4 percent, sideline industries 4.3 percent and fishery 0.2 percent. By 1979, the proportion of cultivation was 66.9 percent, forestry 2.8 percent, animal husbandry 14 percent, sideline occupations 15.1 percent, and fishery 1.2 percent. In 30 years, the quite obvious change was the rise in proportion for sideline occupations. This was a result of the development of commune and brigade enterprises.

As we can see from the structural conditions of net income for the basic village accounting units, cultivation is the main element of China's agriculture. In 1979, income from cultivation was 74.9 percent of the total income of basic accounting units, sideline occupations were 13 percent, the total income from forestry, animal husbandry and fishery, together, was only 6.3 percent, and all other income was 5.8. That is to say, up until the present, China's 800 million people still rely on cultivation for a living.

If we analyze the internal composition of agriculture, forestry, animal husbandry, sideline occupations and fishery a bit further, then we can see the following several characteristics:

First, within cultivation, cereals occupy an extremely great proportion, and cash crops are not developed. In the past 30 years, the proportion of cultivation output value occupied by cereal production all along has been between 70 and 80 percent. And the proportion occupied by the wide variety of cash crops and other crops, has been between 20 and 30 percent, total.

Seen from the structural condition of the area sown, in 1952, China's total sown area was 2.12 billion mu. Of that, cereal crops were 1.86 billion mu, or 87.8 percent. In 1979, the total area sown was 2.27 billion mu. Of that, cereal crops were 1.79 billion mu, or 78.9 percent.

Second, hogs are the principle animal raised in animal husbandry. There are a few other livestock, such as cattle, sheep, and rabbits, or poultry, such as chicken, ducks and geese. Seen from the structural condition of animal husbandry output value, in 1979, pigs accounted for about 55 percent. And seen from the amount of meat produced, in 1979, pork was 94 percent of the total amount.

Third, a large proportion of forestry is timber forests. The proportion of economic forests and shelter forests is small. Of the 1.83 billion mu of China's forested area, economic forests, such as those fruit trees or oil, are only 120 million mu, or 6.6 percent.

Fourth, most aquatic products are marine products. In 1979, of 4.31 million tons of aquatic products, 3.19 million tons, or 74 percent, were marine products. China has a great many rivers and lakes, but fresh water aquatic products were only 1.12 million tons, or 26 percent.

To sum up the above situation, various slogans like "many kinds of enterprises," "total development," and "combine agriculture, forestry and animal husbandry" are not being handled in an ideal way. We should see that this is an important reason for the backwardness of bhina's agriculture over a long period, the idleness of village economy and the difficulties of peasant life.

/3. The Regional Structure of Agricultural Economy/

The developmental level of China's agricultural production, regionally, is very uneven. Of course, in a vast country like ours with complex natural conditions, it is impossible for agricultural production in areas with different requirements to reach a uniform level. The large nations of the world, all have imbalanced conditions in the level of agricultural production, and for a long time to come, they are likely to continue to have imbalanced conditions.

And yet in the level of China's agricultural economic development, regionally, the difference between the advanced and the backward is very great, and the forestry, animal husbandry and fishery industries are all concentrated in some areas. These two features have a very great effect on the structure of the entire national economy and industrial distribution.

Of the nation's 29 continental provinces, municipalities, and autonomous regions, the 14 provinces, municipalities and autonomous regions of the southeast have fairly developed agricultural economies. The south has only 40 percent of the nation's 1.5 billion mu cultivated land, but the south produced 58.4 percent of the nation's total agricultural output value in 1979. Of the nation's 2,000-odd counties, there are particularly large differences between the two kinds of counties. The 170 commercial grain base counties of east, south central, and northeast China and the Chengdu plain, have 10 percent of the nation's population, 13.8 percent of the cultivated land, produce 15.3 percent of the nation's cereal grain yield, have an average per capita grain yield of 916 jin, and a grain commodity rate of over 30 percent. Their marketed grains account for 23.4 percent of that of the entire nation, and they send about 1.6 billion jin of cereal grain out of their areas. The 241 low-yield, grain-deficient counties, mostly distributed in the northwest and southwest, have 9 percent of the country's population, and 11.9 percent of the cultivated land, but only 8.4 percent of the grain yield. The average grain yield for each mu sown in grain is only 240 jin, 107 jin lower than the national average. This imbalance is influenced by the quality of natural conditions, but we cannot entirely blame natural conditions. Even in the

same province, or in the same county, and even between two adjacent production units under fairly similar natural conditions, there are situations where there have been wide variations in wealth and poverty for a long time. This kind of example is found everywhere.

Most of our forests are concentrated in the northeast and southwest regions, whose forested areas are about one-half that of the entire nation's, and whose lumber reserves are about 75 percent those of the entire nation. North China and the central plains have only 3.2 percent of the nation's reserves. The four provinces of Gansu, Qinghai, Xinjiang and Ningxia, and the [Autonomous] Region of Inner Mongolia occupy 37 percent of our territory but their forested area is only 58.95 billion mu, or 3.2 percent of the nation's. Their rate of forestation is 1.1 percent, and soil erosion is a serious problem.

The most conspicuous feature in the regional distribution of China's animal husbandry industry is that livestock products are primarily raised not in pastoral areas but in agricultural areas. The output value for animal husbandry in agricultural areas in 1979 was 68.9 percent of the national output value for animal husbandry. Basically, the nation's more than 300 million hogs, and more than 800 million poultry are in agricultural areas. Of the 70 million head of cattle, well over one-half are in agricultural areas. Only a little over one-fifth are in pastoral areas. About 72 percent of the nation's 10.6 million tons of pork, beef and mutton come from agricultural areas. Pastoral areas provide only 4.1 percent.

Because ocean fishing dominates China's fishery, the vast inland provinces and [autonomous] regions, particularly those of the southwest and northwest, have practically no fishery production. Fishery production is concentrated mainly in Shejiang, Guangdong, Shandong, Liaoning, Fujian, Jiangsu, Shanghai and other coastal provinces and municipalities. In 1979, the output value for the national fishery was 1.96 billion yuan. The six provinces and one municipality mentioned above accounted for 80 percent. In 1979, the produced 3,566,000 tons of marine products, or 83 percent of the nation's total amount.

/4. The Economic Structure of Self-sufficiency/

The commodity rate of China's agriculture products is very low, and the value of the agricultural and sideline products which peasants directly provide the nation, as a proportion of the net output value for agriculture, was 26.5 percent in 1952, 41.5 percent in 1957 and 44.9 percent in 1979. That is to say, for a long time, the great majority of the products produced by China's peasants have been directly consumed by them.

The commodity rate for grain is even lower, and the total amount requisitioned by the state is just over 20 percent of the total grain output; in 1979 it was 20.8 percent. If you deduct the figure sold back to the villages, the net requisitioned rate, for many years, has been only some 10 percent; in 1979, it was 14.7 percent. If you take the province, municipality and autonomous region as the accounting unit, the grain transferred out from the province or autonomous region did not amount to 1 percent of the total national grain yield.

Of the 29 continental provinces, municipalities and autonomous regions, only 11 are able to send out a small amount of grain. Hunan sends out the most, and the amount involved is only about 3 percent of the province's total grain yield. So the grain production of all the provinces and regions is basically self-sufficient.

The commodity rate for cotton is relatively high. Cotton sold to the state by the peasants, as a proportion of the year's total cotton output, was 75 percent in 1956 and 97 percent in 1979.

The commodity rate for hogs is about 65 percent. If you take provinces, municipalities and autonomous regions as the unit, then in 1978, 12 million hogs were sent out and exported by all provinces, municipalities and autonomous regions, or only 7.5 percent of the total number of hogs removed from inventory. That is, hog production, taken by province and autonomous region is also basically self-sufficient.

/5. The Evolution of Village Ownership Structure/

For hundreds and thousands of year, feudal and semifeudal economics constantly held a controlling position in China's villages. The overwhelming majority of land was owned by landlords and rich peasants. Prior to Liberation, landlords and peasants who did not constitute even 10 percent of the village population held between 70 and 80 percent of the cultivated land, and the poor peasants, rural laborers and other working people who constituted over 90 percent of the village population held only between 20 and 30 percent of the cultivated land. After the founding of New China, we gradually reformed the social and economic structure of China's villages. On the basis of rent and interest reduction, we first carried out land reform, and then followed up through collectivization and the creation of rural people's communes.

In land reform, we confiscated about 700 million mu of land from the hands of the feudal exploiting class, and divided it among 60 to 70 percent of the village population. Each year, we eliminated approximately 70 billion jin of grain land rent. Thereby, we changed the ownership structure of the agricultural economy from one in which landlord and rich peasant ownership held the controlling position to one of nearly all total individual peasant ownership.

After the nation's villages completed democratic reform, in 1953 we began to implement the mutual cooperation movement of socialist reconstruction in agriculture. First, we test-tried temporary mutual aid teams with cooperative labor in order to solve the difficulties of insufficient labor power, draft animals and tools during busy agricultural seasons for individual families and households. On this foundation, we gradually developed a small number of permanent mutual aid teams holding public property. We continued by setting up agricultural producer cooperatives using shares for land and draft animals in order to implement unified management. Going further, we implemented advanced agricultural producer cooperatives with complete collective socialist ownership. By 1957, we had formed over 700,000 advanced agricultural producer cooperatives, with 96.2 percent of all agricultural households participating.

The structure of agricultural economic ownership changed from individual peasant ownership to collective socialist ownership.

Based on advanced agricultural producer cooperatives, in the later half of 1958 we went forward with the people's commune movement in a big way, and within a period of a few short months, the more than 700,000 advanced agricultural producer cooperatives throughout the country had been consolidated into over 26,000 people's communes. This changed the agricultural economic ownership system from a small collective ownership system using as basic accounting units the 100-odd household advanced agricultural producer cooperatives, to a large collective ownership system which used the people's commune of from several thousand to 10,000 households as the basic accounting unit. Practice showed that this change was not suited to developing the level of productive strength and not beneficial in hastening the development of social production. In 1962, it was decided to maintain the people's commune organizational form, and to establish within it "three-level ownership with the production team as the base." This actually was an ownership form which made the production team the basic accounting unit.

During the cultural revolution, under the destruction and interference of the extreme left line of Lin Biao and the gang of four, there was constant advocacy for enlarging teams, consolidating teams, carrying out "extreme transition," and implementing large-scale criticism and large-scale cutting of various family managed production activities.

Smashing the gang of four, particularly since the Third Plenary Session of the 11th party Central Committee, criticized the leftist errors in the villages, and the agricultural ownership structure was gradually readjusted. Seen from the three aspects of the nation as a whole, the collective and sideline occupations of individual commune member families, in 1979, the collective ownership economy was 79.2 percent of the structure of the total value of agriculture, the sideline occupations of individual commune members' families, 17.1 percent and ownership by the whole people, 3.7 percent. As for cultivated land, collective ownership constitutes 94.3 percent (including 6.2 percent for the private plots of commune members' families), and ownership by the whole people is 5.7 percent. For the production structure of grain, hog and aquatic products, in 1979, the collective economy's production of grain was 92.3 percent; hogs, 12.2 percent and aquatic products, 84.8 percent. Ownership by the whole people accounted for 2.8 percent for grain, 2.7 percent for hogs and 15.2 percent for aquatic products. Production by commune member families constituted 4.9 percent for grain and 85.3 percent for hogs.

Seen from the internal structure of the collective ownership economy, it is still the "three-level ownership" of commune, production brigade and production team, "with the production team as the base." From various aspects, the team-owned economy of the production brigade is the overwhelmingly dominant position. Of the 5.06 million basic accounting units in 1979, only 56 took communes as the basic accounting unit, only 1 percent had production brigades as the basic accounting unit, but 99 percent took the production team as the basic accounting unit. And seen from the structure of the total income of the village people's commune three-level economy, in 1979, the income of the

production team was 68.5 percent, the income of production brigade was 15.2 percent, and that of the communes was 16.3 percent.

In the past two years, under the moral inspiration of the Third Plenary Session of the 11th party Central Committee, village cadres and 100 million peasants, cleared out the leftist ideological influences in the villages on a wide scale, implemented the spirit of the party concerning relaxing village policies, gradually bringing respect for the autonomy of village communes and production brigades. One thing came out of this practice. In adjusting the scale of the commune and production brigade, many kinds of economic components coexisted, and the new situation of setting up the production responsibility system is just now appearing in the villages.

Many areas reduced the scale of the basic accounting unit, and in 1979, the number of basic accounting units in the nation's villages had increased to 370,000 more than in 1978.

Under increased flexibility in village policy, in addition to the joint economic bodies of brigade and brigade, commune and commune, commune and brigade, county and commune, agriculture and industry, agriculture and commerce, town and countryside and other joint enterprises, in the vast sea of the collective economy, individual economic components are also beginning to appear in a small number of particular areas that are backward and poor. There are agricultural households that are sole enterprises, and that take full responsibility for profits and losses, and there are individual managers of various kinds of handicrafts and small businesses.

Village communes and brigades throughout the country are right now in the midst of spreading and perfecting various forms of production responsibility systems. The responsibility forms that currently exist are varied and suited to local conditions. Most are the following kinds:

The first kind is to contract for both labor and production, and to tie the reward to the labor. Tying reward to labor is particularly welcomed in contracting specialized fields. Under conditions where production teams are united with management, this form constitutes the cooperative division of labor. We should contract work out in agriculture, forestry, animal husbandry, sideline occupations, fishery, industry and commerce, respectively, in accordance with the technological ability and the capability of the labor force and with the principle of convenience of production and advantageous management. The contracted production of each field, in accordance with the form of the contract, can be contracted to the team, or it can be contracted to the household or to the individual. The contracted production amount is dispersed all at once. Surplus is thus a reward and a shortfall is a punishment.

The second kind applies to certain communes and production brigades where various forms of management are fairly well developed, the level of mechanization is relatively high and there is a fairly solid collective economy. In these areas they should break out of the confines of the production team, and implement a responsibility form with specialized area contracts using the production brigade as the unit and tying production to reward.

The third is that in remote mountain areas or in poor, backward areas, which have "depended on grain resold back from the state for eating, depended on loans for production and depended on relief for daily living" for a long time, under the demands of the masses, certain production teams have implemented a responsibility system that contracts production to the household. This form consists of the production team, under different circumstances, contracting total responsibility for a yield target of an agricultural crop to a commune member's household. The contract method is to implement the "five fixes," that is to fix a plot of land, designate specialized people, agree on measures, set the output and determine the reward, while firmly maintaining the socialist principle of public ownership and distribution according to labor. Surplus product is the reward and a shortfall is punishment. This is one kind of production responsibility system within socialist collective economics.

## II. Major Problems in the Agricultural Structure

Certain irrational conditions exist in the economic structure of China's agriculture. Some could be described as unbalanced development. Whether we speak of being suited to natural laws or to economic laws, or whether we speak of being suited to the development of agriculture itself or suited to the requirements of national economic development, there are a number of problems that require conscientious study, and which should be more actively pursued and solved.

### /1. The Structure of Agricultural Production Is Not Suited to the Development of the National Economy or to the Requirements of the People's Livelihood./

The basic responsibility of agricultural production is to supply the necessary means of livelihood and industrial raw materials for society. Along with the rise in the people's standard of living, and the development of industrial production, not only has the number of these requirements grown, but the variety has become more and more varied. But with China's basically simple agricultural production, we have been unable to meet these demands. Despite the fact that grain production constitutes by far the greatest proportion in the structure of China's agricultural economy, it is precisely the grain problem that has not been solved. Although China's total grain output has gradually increased, the average per capita level of consumption is still very low, and is increasing very slowly. In 1956, the national average grain output was 614 jin. By 1978 it had reached 636 jin, a 22-jin increase in 22 years, or only 1 jin of grain increase per capita per year.

The development of cash crops is even slower. Moreover, it is quite unstable. Cotton production has not increased in the past 15 years. And the 1979 output was even over 2.6 million dan less than in 1956. In 30 years, there were 14 years of decreased production. In 1979, the average per capita cotton output was only 4.5 jin, which was even lower than the 6.3 jin average of 1966.

For more than 20 years, the total output of oil-bearing crops has not reached the level of the mid-1950's. And only just recently it has returned to the 1956

level. In these 30 years, there were 11 years in which the output of three important oil-bearing crops decreased.

In sugar production, although the area of sugarcane in the south has expanded in the past 30 years, the yield per unit area has still not reached the level of the mid-1950's. And as for sugar beet production in the north, neither the areas sown, the per mu yield or the total yield have reached the levels of the historically highest years.

There are still other circumstances in which the development of cash crops has been irrational. For example, silkworn cocoons. In 1979, output was 4.27 million dan, which still did not reach the 1929 level of 4.42 million dan. The per unit area yield of tea leaves is only one-third to one-half of that of that of India, Sri Lanka, Japan and other countries. Ramie has a 3,000 year history of cultivation in China, and the grass cloth made from it enjoys a great reputation in the world market. In the 1920's and 1930's, the yield for China's ramie reached 2 million dan, or about 80 percent of the world output. In recent years it has been only 20,000 or 30,000 dan.

For a long time the situation in forestry, animal husbandry and fishery production, too, has been one of supply not meeting demand. The level of meat consumption of the Chinese people is very low. In 1979, the average per capita meat output was only 21.9 jin, and marine product output was only 8.9 jin. The contradiction between supply and demand is particularly conspicuous in lumber; of the lumber uniformly distributed by the state, according to calculations for maintaining the lowest [necessary] consumption level, each year we lack several million cubic meters.

The slow increase in the production of cash crops, forestry products and animal husbandry products has had a severe impact on light industry and the textile industry which use agricultural and sideline products as raw materials. In output value of light industry between 1953 and 1979, the output value of items made from nonagricultural raw materials increased each year on the average of 13.3 percent, while that of items which used agricultural raw materials increased only 8.1 percent. For example, in the period of the Fourth 5-Year Plan, chemical fiber using industrial products as raw materials increased at a yearly rate of 8.9 percent, but the rate of increase of cotton yarn and cotton cloth using cotton as a raw material was only 0.5 percent. And even to maintain this low rate, each year we still imported an average of 4 million tons of cotton. The situation for other agricultural raw materials in regard to meeting the needs of industry is as follows: leather, about 30 percent; oil-bearing products, about 50 percent; sugar crops, about 70 percent; and wool, about 80 percent.

The slow increase in agricultural products has also created certain difficulties in external trade. In the most recent 10 or so years, the amount of primary agricultural exports has become less and less, and the amount imported has become greater and greater. In 1978, the total national net import of grain, cotton and sugar was, respectively, 2.5 times, 12 times and nearly 3 times that of 10 years earlier in 1968. And the 1978 export of agricultural products such as soybeans, fresh eggs, marine products, goat skin, pork,

decreased by 84 percent, 35 percent, 15 percent, 20 percent and 3 percent, respectively, compared to 1968.

This raises a question. In a nation such as ours where agriculture, forestry, animal husbandry, sideline occupations, and fishery have all enjoyed energetic development, but where grain, cotton, oil, sugar, animal products, marine products and forestry products are still inadequate, in the end, does the primary contradiction lie in the backward level of all agricultural production, or does it lie in the irrational structure of the agricultural economy? We feel that although the reasons for the slow rate of agricultural economic development are complex, one of the most important reasons is that the structure of the agricultural economy is irrational. Because agriculture is basically simple production, this has made the whole of the agricultural economy very listless. And under these conditions, even if we wished to increase grain production, it cannot be done. It appears that the crux of China's agricultural problem is precisely here. And we will explain this problem further in our later discussion.

/2. The Structure of Agricultural Production Does Not Fit the Conditions of China's Agricultural Resources./

Agricultural production has an extremely intimate relationship to natural conditions. Marx has pointed out: "The process of economic reproduction, regardless of its particularly social characteristics, within this field (agriculture), invariably is the same individual natural reproduction process interwoven together."[2] Seen from the angle of studying the structure of the agricultural economy, if the social reproduction process of agriculture is able to harmonize with the natural process of reproduction, this then enables change within nature to continue to go forward without interruption. And this is the most perfect kind of structure.

However, for the last 30 years the structure of Chinese agriculture production has not been arranged in accordance with natural resources and natural laws. And many production activities have been out of harmony with the reproduction process of nature, and some even in contradiction to it.

Of China's 14.4 billion mu of territory, the proportion of cultivated area is only a little over 10 percent, and the average per capita amount is very small. For 30 years, we have been extremely inflexible about planning our living on this limited amount of land, and extremely singleminded in planting grain. Nearly one-third of the nation's land is taken up by 5.3 billion mu of grasslands, grassy mountains and grassy slopes. This is a vast area for developing animal husbandry, particularly grazing animals. There are about 3 billion mu of land in forests or appropriate to forest growth in the nation. This constitutes about one-third of the national territory and it is very good land for developing forestry production. China possesses about 400 million mu of fresh water surface area, there are over 100 million square nautical miles of coastal water surface, with over 32,000 km of continental and island coastline,

2 "Collected Works of Marx and Engels" Vol 24, pp 398-99.

all of which makes a vast range for developing fishery production. And yet no effort has been put into developing all of these resources. In the 1950's, within the structure of China's total agricultural output, forestry, animal husbandry, fishery and sideline occupations combined, basically did not surpass 20 percent. In the 1960's up to the mid 1970's, it did not go beyond 30 percent. And only in the most recent years has it surpassed 30 percent; in 1979 it reached 33.1 percent. Cadres and the masses in many areas are quite dissatisfied with this situation. They figuratively say that this is "holding a golden rice bowl while begging for rice."

On the other hand, there is still the phenomenon of strongly going against natural laws in the distribution and management of China's agricultural production. This is simply that agricultural production is out of harmony with the natural process of reproduction, but it also destroys it. In the 3 billion mu of forested land or land suited for forests, some has been severely overcut, while, on the other hand, about 40 percent of the land is not utilized or is allowed to go uncultivated. And in some remote forest areas, large amounts of forest resources are not used or are allowed to overmature and rot. For example, in the Daxing'an Ling Forestry Bureau, 2 million $m^2$ of timber naturally wither and are lost each year. This is equivalent to about one-half of the amount that this forestry bureau takes through planned cutting. In about 5 billion mu of grasslands, on the one hand, a large number of pasture grasslands are overgrazed, leading to the decline of the plains, while, on the other, natural grasslands, particularly 1 billion mu of grassy mountains and slopes in the south, have not been well utilized. In regard to the utilization of fishery resources, on the one hand, because lakes close to the sea and inland have been overfished and blindly subjected to construction, this has led to severe harm to the fishery resources while, on the other hand, a great deal of the water surface that could be cultivated has not been fully utilized. About 40 percent of the over 75 million mu of inland water that could be cultivated still has not been used. And about 85 percent of the over 7.4 million mu of shallow seas along the coast that could be cultivated, still have not been utilized. Whether it be overutilization or underutilization of natural resources, both are great loss and waste.

/3. The Structure of Agricultural Economic Areas Is Not Rational Enough./

The Chinese territory is vast, its topographical, soil and climatic conditions are complex, and there are great regional differences. Consequently, not only must the agricultural structure of each area be determined in accordance with the circumstances of local resources, but it must fit the local natural conditions. But for 30 years, the distribution of Chinese agricultural production in many areas has not fully respected objective laws in making measures suit local conditions and developed rationally, but "made grain the key," in a stereotypical fashion. For example, in broad grassland areas, animal husbandry has not been energetically developed, making pasturing the main activity, but they have reclaimed the grass to plant grain. On the loess plateau in arid areas which are suited to growing trees and grass and to the development of forestry and animal husbandry, we have indiscriminately reclaimed land and cut down trees, and even cleared off steep slopes to grow grain. This destroyed the plant cover and created conditions by which soil erosion has become increasingly worse, climatic conditions increasingly dry, and created a

vicious cycle whereby "the more we reclaim, the poorer we become, and the poorer we become, the more we reclaim." Certain delta areas and river networks along the middle and lower reaches of the Chang Jiang have both cultivated land and water surfaces for breeding. Historically these have been "the home of fish and rice." But in these areas we solely stressed grain, dyking up lakes and creating fields, filling in and growing grain, and reclaiming sea coasts, which not only destroyed the resources for many kinds of marine products and aquatic plants, but also destroyed the river system and lowered the capability for flood control, with serious consequences.

Within cultivation, because soil conditions differ, the agricultural crops suitable for cultivation also differ. Take the red soil of many areas in the south. The yield for food crops such as grains and soy beans is very low, while they get a fairly good harvest when they grow mandarin oranges, tea leaves and peanuts, etc. Overseas they use this sort of area to grow the precious resource of mandarin oranges, but for a long time we did not take advantage of its superior conditions, instead spending a great deal of effort to transform this red soil to grow grain. In regions with a low degree of salinity in the soil, you get better economic results planting sugar beets and cotton than you do planting grain. But we have not paid enough attention to making measures fit local conditions or to utilizing these kinds of superior conditions. The net per mu output value for cotton in many areas of Hebei is 68 percent higher than that for maize. In the 1950's, the area in cotton reached 17.7 million mu, and it was the highest cotton-growing and cotton-producing province.

In many areas of Hebei, Shandong, Henan and Liaodong, the soil and other natural conditions are quite suited to peanut cultivation and historically these have been China's primary peanut-producing areas. But for 20 years, grain has again squeezed peanuts in these areas, causing the total national area under peanut cultivation in 1978 to be 30 percent less than in 1956.

Because of the irrationality of the agricultural economic structure, in many areas natural resources have already been destroyed and climatic conditions have worsened. The most conspicuous problems are the indiscriminate cutting of forests, the destruction of forests to open up wastelands, the reclamation of grassland to plant grain and the dyking and reclamation of lakes and shores. For many years China has cut more trees each year than it has grown. The lake area that has been dyked and reclaimed in six provinces and municipalities along the Chang Jiang has reached over 28 million mu and the bays and shores in the whole nation that have been dyked and reclaimed are about one-seventh of the water surface [suited] for breeding. The nation's reclaimed grassy plains have reached about 100 million mu. And of that amount, a great deal was irrationally subjected to indiscriminate reclamation and reckless cutting. Currently, the area of soil erosion has expanded nearly 30 percent over that of the period right after liberation, the plains area subject to desertification has expanded nearly 20 percent, and the average area subjected to flood and drought disaster each year has expanded nearly 50 percent.

/4. The Agricultural Economic Structure Is Not Suited to the Requirements of Raising Economic Results./

One important goal in establishing a rational agricultural economic structure is to exchange the smallest expenditure for the greatest economic benefit. The economic results of agricultural production are not only tied to the level of management and administration and to labor productivity, but are very closely related to rational distribution. For example, certain areas along the Fujian coast have sandy alluvial soil with strong permeability. If they plant paddy rice, "in the morning the ditch is full, but by the afternoon it is empty." They put in a lot of labor, the yield is low at high cost, but they earn little income. But when they plant sugarcane, they expand little labor, have high yield at low cost, yet earn a large income. According to a survey, the Dengke Production Brigade of Buwen Commune in Longhai County planted paddy rice in the past. Each mu needed 90 laborers to harvest 1,605 jin of rice at a cost of 102 yuan and with a total profit of 160 yuan. Later they switched to planting sugarcane. Then each mu required only 50 laborers to harvest 18,000 jin of cane at a cost of 60 yuan, bringing an economic gain of 315 yuan per mu. Compared to growing paddy rice, sugarcane required 40 less workers, and earned 155 more yuan. When you take into account the fact the expenditures were 42 yuan less, then it was equivalent to an additional income of 197 yuan per mu.

As another example, the (alpine-sand-loam?) region along the northern bank of the Chang Jiang in Jiangsu, has fairly high terrain and sandy soil. There is a large population with little land. Each person has only 8 fen of land. Through history the masses have created a "hog, oil, and wine" economic structure based on the best features of the area. That is, they grew peanuts and sorghum, pressed oil from the peanuts and fermented the sorghum to make wine. Then they used the cakes made from distillers' dregs to feed the hogs, and the hog manure to fertilize the fields. They used part of the income from marketing the hogs, oil and wine to buy rational grain from neighboring grain districts to meet that part they cannot meet themselves. This kind of economic structure made quite good use of the best features of the area, and brought relatively high economic results. But under the one-sided influence of "making grain the key," they destroyed these quite good economic results. According to rough statistics, when the (alpine-sand-loam?) district plants peanuts, the per mu yield is about 350 jin, valued at 119 yuan (unadjusted price). Deducting costs, they could earn 71. But when they planted paddy rice, the per mu yield was about 800 jin, valued at about 108 yuan. Deducting the cost, they earned 31 yuan per mu, or 40 yuan less than when they planted peanuts.

The structure within animal husbandry, too, has not paid sufficient attention to economic results. For a long time we overemphasized increasing the number of livestock in inventory, in developing the guiding thought and assessing standards in animal husbandry, while neglecting the increase in animal products. In many areas therehas been a considerable increase in the number of livestock, but there has also been a considerable increase in the consumption of feed grain. In 1978, the number of hogs in inventory was 81 percent higher than in 1965, but the number of hogs purchased by the state increased only 38 percent, and there was a 75 percent decline in the number of hogs removed from inventory. The grain used by people's communes for feed grain increased 45

percent between 1973 and 1978, yet during the same period the output value for animal products increased only 12.9 percent. Within this, the number of hogs in inventory increased 16.8 percent, but the number of hogs purchased by the state increased only 3.1 percent. This is to say, we have used a considerable portion of our scarce feed grain and wasted it in maintaining the lives of livestock without effectively producing even more animal products.

/5. The Structure of Ownership Has Changed too Frequently./

From the land reform movement in the early period after the establishment of the People's Republic, to the movement for agricultural cooperativization of the First 5-Year Plan, to the movement to set up people's communes of the Second 5-Year Plan period, and again, to the period of "cutting off the tail of capitalism" and "relentless transition" of the great cultural revolution, on and on for 30 years, the structure of agricultural ownership has constantly, continually changed, and been unstable for a long period. Apart from land reform, every change has been too hasty and too left. This tossing about not only does not serve the role of promoting the development of production, but it dampens the enthusiasm of the peasants, obstructs the development of production and even seriously harms agricultural producers.

Consequently, because China's agricultural production still relies basically on hand laborers, the enthusiasm of agricultural workers is an importa nt element determining the level of China's agricultural productive forces. And the key to whether they give full play to their enthusiasm is formed by party policy, the form of agricultural economic ownership, and the distribution determined by these first two. Under the present level of productive forces, if we cannot actually reflect the socialist principle of "to each according to his labor," and if peasants do not for the most part receive the economic benefits appropriate to their own labor, then it is unlikely that their creativity and enthusiasm will be given full play. Actual practice on both sides of this issue over the past 30 years has amply proven this point.

Animal husbandry is most sensitive in reflecting the ownership system. If we review the circumstances of the three declines in China's animal husbandry production, we can see the unfortunate results created by changes in the structure of the agricultural ownership system not appropriate to the area.

The first large-scale decline was between 1955 and 1956, in the period of the high tide of collectivization. Due to the overly radical pace in socialist transformation of the villages, many areas blindly pursued the collectivization of domestic livestock-raising, causing the number of hogs in inventory to fall from 101.7 million head in 1954 to just over 84 million head in 1956, which was even 5 million head less than in 1952.

The second large-scale decline was the period between 1958 and 1961. During the movement to create people's communes and during the great leap forward, the number of hogs in inventory, fell from 146 million in 1957 to just over 75 million head in 1961, a reduction of nearly one-half, which was a 10-year decline to the 1951 level. This was because we committed the

errors of "issuing confused orders," "being prone to exaggeration," and "commune style," in addition to the impact of natural disasters.

The third large-scale decline was between 1967 and 1969. Under the destruction and interference of the extreme left line of the Lin Biao and Jiang Qing gang, the number of hogs in inventory fell from over 193 million in 1966 to 172 million head in 1969, or an 11 percent decrease.

These three broad-scale declines were all created by the collectivization of raising domesticated livestock which had been raised by individual commune households, the confiscation of commune member's private plots or equating raising livestock by commune households with the tail of capitalism which was to be cut off.

The situation in animal husbandry has improved each year since 1978, when the party Central Committee formulated "On the Solution of Certain Problems in Speeding Up Agricultural Development," and encouraged commune member families to develop livestock raising. These facts show the great significance of changes in the ownership structure in the agricultural economy on the development of animal husbandry production.

## III. Major Causes of the Irrationality in the Structure of Agriculture.

There are multiple reasons for the irrational situation in China's agricultural economic structure.

1. China's present agricultural economic structure developed on the foundation of the small-peasant economy of old China. Under the long period of control by the feudal and semifeudal system, the level of China's agricultural productive forces was very low and the village economy was blocked up. For the peasants who constituted the vast majority of the population, it was extremely difficult to maintain even a very low standard of living after paying land rent and taxes on the productive gain each year. This created a self-sufficient economy with the simple objective of satisfying the food and clothing needs of each household and family. At the same time, industry in old China did not develop much, and was unable to stimulate agriculture to energetically develop cash crops or commercial products. The old society left behind this self-sufficient, small-peasant economic structure along with a self-sufficient, small-peasant mentality. And it is not an easy matter to change the thinking and economic structure that formed over several thousand years. This, then, is the historical origin of the irrationality in China's current agricultural economic structure.

2. China is a vast territory with complex natural conditions, many mountains and few plains, isolated communication, in addition to which it lacks the means for preserving and processing local agricultural and sideline specialty products. All of this creates great obstacles in the development of a commercial economy. This is not only an important reason for the past formation of a self-sufficient, small peasant economic structure, it is also an important reason why the commodity rate is very low in the present agricultural economy.

3. The Chinese population is 970 million, with tremendous grain requirements and yet the cultivated area is very small. Under conditions in which the level of the productive agricultural forces is low and a broad increase in per unit area yield is impossible, supporting such a huge population becomes a very glaring problem. Eating is an important matter, and in many areas, in order to solve this problem above all else, they have had to adopt various means, even inappropriate means, in order to expand the cultivated area of grain crops, and reduced the production of other agricultural products in order to alleviate the tight grain supply. This is one of the important reasons why China's agricultural economic structure has for a very long time found it so difficult to carryout completely rational plans in accordance with natural conditions.

4. We have lacked overall planning and rational distribution. In capitalist countries, the agricultural economic structure relies on the marketplace for adjustment. But in China, we rely primarily on the national and local governments to implement planned arrangements. But, for a very long time, we have not done adequate work in this regard. In China's 9.6 million sa Km of territory, what drops are suited to what areas? What should we develop? If we do not carry out overall planning and rational arrangements suited to the actual circumstances, then each area cannot help but set up its own small, but incomplete and self-sufficient agricultural economic structure, in accordance with its own local partial circumstances.

5. The study of agricultural science and technology and agricultural economics is behind the times. China has a very long history and rich experience in agriculture. But we lack a good grasp of modern agricultural science and technology because we closed the country to international intercourse for a long time. In addition to which, we have not given much attention to the important field of agricultural economics. Consequently, not only are China's agricultural production and technology currently not improving very rapidly, but we also lack scientific leadership. And there is still some one-sidedness and blindness in the deployment and planned distribution of agricultural productive forces and in management and administration.

What is the condition of China's agricultural resources? What areas should be used for developing which products in order to obtain the highest yield and the best economic results? To a great degree, because we lack comprehensive scientific investigations and experiements, to a great degree, there are a limitless number of such questions.

How does the law of the natural ecological cycle express itself in different regions? How should we make our work in organized agricultural production and construction suitable to this natural law? After the original balanced relationship has been destroyed, what kind of new ecological balanced relationship should be set up? On and on along these lines, we do not have adequate knowledge. We have not paid enough attention to these issues. It is very difficult to take an agricultural economic structure which was formed under these circumstances and make it into a scientific, rational one. Even if we wished to do well in the rational distribution of agriculture, there is no certainty that it can be done well.

6. Certain principles and policies in guiding agriculture development have been inappropriate.

Agricultural policy has been extremely influential in the formation of the agricultural economic structure. As an objective for struggle, the overall spirit and intent of the "National Program for Agricultural Development," which was proposed on 1956 and adopted in 1960, was fine. However, in the process of implementation, making grain "reach the target set by the "National Program for Agricultural Development," as the sole standard in assessing village work led the entire nation into attempting to make grain "reach the target set by the 'National Program for Agricultural Development'" in disregard of everything else. The principle of "comprehensive development with grain as the key," which was proposed in 1962, was fine for cultivation, but in the process of carrying it out, it went astray, so that it only stressed "making grain the key," and did not concurrently give due attention to "comprehensive development." And moreover, raising questions of crop distribution to the level of a political line was like making grain production the correct line and making cash crops, forestry, animal husbandry, sideline occupations and fishery equivalent to "making money the key," or "capitalist tendencies." And from that time the structure of China's agricultural production was led solely along the narrow path of grain. Following this, the slogan "in agriculture, learn from Dazhai" was raised, which over evaluated the Dazhai experience to an unacceptable degree. The Dazhai experience was mechanically applied as if there was only this one Dazhai production brigade model in China's agricultural development. Everywhere in the nation this one model had to imitated. This not only pressed upon cash crops, but it expanded into forestry areas, pastoral areas and fishery areas. All of these areas "made grain the key." There were three one-sided tendencies. One, to one-sidedly seek to "reach the target set by the 'National Program for Agricultural Development'"; two, to one-sidedly carry out "make grain the key"; and three, to one-sidedly "learn from Dazhai." All three of these were in play for a long time, and all created extremely unfortunate influences in the formation of the agricultural structure, the rational distribution of agriculture, in the preservation and full utilization of natural resources, and in the prosperous development of the agricultural economy.

7. The fundamental reason for the radical changes in the ownership structure in the agricultural economy over 30 years, is that we have lacked a corredt understanding toward the question of the appropriate relationship between production relations and the level of productive forces.

In discussing the social relationships of production, Marx pointed out: "Social production relationships change and transform along with the changes and development of the material means of production and the productive forces."[3] This is the Marxist principle regarding how production relationships should fit the level of productive forces. This principle is applicable to all historical

3 "Collected Works of Marx and Engels" Vol 1, p 363.

stages of social development, and to various social and economic forms. Under the socialist system, we do not need to go through class struggle and violent revolution to transform social relationships, but can carry out adjustments and reforms in social production relationships consciously and with leadership, and in accordance with the circumstances of the development of productive forces. However, this certainly does not mean that under the socialist system we can transform social production relationships in just any way we wish.

After land reform was completed in Chinese villages, was the agricultural ownership structure stable for a period, allowing the agricultural production forces which had been bound for a long time by feudal ownership been given full play, or did we continue to carry out reforms without a pause? Did it put agricultural cooperativization into practice by steadily carrying it out over a 10- or 15-year period in accordance with the original conception, or did it go through one high tide in a very short 3- or 4-year period? These questions are worth studying and discussing, in order to sum up this experience. Lenin pointed out: "Our nation has 11 million individual peasant households scattered in remote villages. It would be completely absurd to try to use some sort of quick method to force them to change by issuing orders from outside or from the side."[4] Lenin's incisive analysis is fully applicable to China's situation. We must say that it would have been more beneficial if, after completing land reform, we had given full play to the excellent circumstances within the villages at the time, and to the enthusiasm of the peasants and, with the support of the nation, if we had allowed agricultural production to develop anew, improved agricultural conditions and technological facilities, raised the management level of the cadres and allowed various kinds of administration to have developed; and then, on a foundation of new economic conditions, made the best use of the situation and changed the ownership structure of the agricultural economy steadily over a 15-year period, and not hastily carried out collectivization with 3 or 4 years.

After carrying out the cooperative movement, we again adopted radical methods in changing the agricultural ownership structure on the question of transition from small to large collective bodies, and the transition from large collective bodies to national ownership. Using a period of only a few months, we carried out the people's commune movement in one fell swoop. At the same time, we were not able to emphasize the development of production and go through the process of raising the level of agricultural productive forces in order to promote the development of the social economy. But rather we departed from the actual conditions of the level of productive forces and overly emphasized the "reaction" of the production relationships toward the promotion of productive forces. It seemed as if the larger the scale of the collective economy, the greater the advance, and that national ownership was even more advanced than collective ownership. Therefore, areas competed in the task of expanding and combining work teams, and in joining poor teams with rich teams. This developed into a situation in which the assets of the collective economy were used in egalitarianism and the indiscriminate transfer of resources without pay, blowing "a communist wind," egalitarianism, and limited the development of a

4 "Selected Works of Lenin", Vol 4, p 106

commercial economy, etc. Later when the gang of four pushed an extreme left line, completely similar methods again appeared, such as "relentless transition," and cutting of "the tail of capitalism." Some areas made transition one of the main duties of village work, even to the point of raising the mistaken slogans "early transition is better than late transition," and "transition within a limited period."

In studying the origins of all of this, one finds that we lacked correct concepts in our ideological awareness toward the standards of being advanced and being backward, between being revolutionary and being conservative, and between left and right. It was always purely, singlemindedly pursuing change in production relationships, blindly seeking the large, the common and the "high." But actually these have nothing to do with being advanced. Only when production relationships are in tune with the level of development of productive forces can you guarantee and promote the development of social production and the prosperity of the economy. This is true advance. To develop productive forces you do not change obviously backward relationships so as to bind the further development of productive forces. This is not appropriate. And under conditions in which the level of productive forces is rather low, to force the "rise" in productive relationships and casually change the ownership structure not only does not promote the development of production, but leads to the decline and destruction of production. This, too, is not appropriate. Both of these are inappropriate. Neither is suited to Marxism-Leninism, and neither is beneficial to the development and progress of society. And so both are mistakes. With regard to the present agricultural ownership structure which makes the production team the basis of ownership, in the future, will we definitely transform it into production brigade or commune ownership or even ownership by all the people? Can we adopt joint economic forms on the foundation of production brigade ownership, to solve the problem of making production relationships fit the productive forces? These are questions which we can study further.

## IV. Views on Adjusting the Agricultural Structure

How should we adjust China's agricultural structure for it to be considered rational? We must examine this question from many angles before we can reach a fairly accurate conclusion. Generally speaking, with present productive forces, the agricultural economic structure would be rational if we could utilize China's various natural resources in the most economic and efficient way, get the greatest benefit from the land, the most use from its material, and the greatest talent from its people, and if we could maintain the constant propagation of natural resources. Actually this goal requires that the entire nation, from top to bottom, and all of the various concerned departments, gradually go forward with united awareness, concerted action and common effort. In adjusting the agricultural economic structure, starting from the present circumstances of China's national economy, we should consider the following several questions.

/1. Ideologically, We Must Change the Narrow Concept of Agriculture./

Comrade Mao Zedong pointed out: "An economy without animal husbandry is an incomplete national economy."[5] But for a long time, we were controlled by a narrow one-sided concept of agriculture in our agricultural work, pursuing cultivation in every possible way, and sparing no effort in grain production. We did not fully understand the great significance of fully, rationally using the large area of grasslands, mountains and water surfaces outside of the agricultural cultivated land to energetically develop forestry, animal husbandry, sideline industries, fishery and cash crops, and raising their proportion within the agricultural economic structure. Their importance is expressed not only in the high economic value of forestry, animal husbandry, sideline occupations fishery and cash crops themselves, but also in the further broadening of people's outlooks. In agriculture, if we can break out of the narrow situation of one-crop production of grain and really march forward toward deeper, broader production, then the varied natural resources of China can be broadly developed and rationally used, the abundant labor resources of China's villages will have wider room for maneuver and accomplish a great deal, China's rich and varied agricultural and sideline products will be able to steadily supply a wide domestic and international market, and peasants, village communes and brigades will be able to enrich themselves fairly quickly. In this way, not only will the people in the towns and countryside be satisfied, but the reproductive capacity of industry and agriculture will be strengthened.

Forestry, animal husbandry and cultivation are mutually dependent, and mutually stimulate each other. Forestry creates a good environment for agriculture and animal husbandry; cultivation supplies feed grain and forage grass for animal husbandry, allowing the existence and development of animals and domestic fowl; and animal husbandry supplies organic fertilizer for cultivation, compensating for the depletion of soil fertility and allowing the continuous development of cultivation. Someone has calculated that one dairy cow produces 30,000 jin of manure in 1 year, equivalent to a half ton of chemical fertilizer. Moreover, it is a compound organic fertilizer containing nitrogen as well as phosphate and potassium. And of the 62 elements required by agricultural crops, manure contains all 15 of the main ones. Large-scale applications of manure is effective in improving the soil and raising fertility. The single-minded production of grain in the past wrecked the mutually dependent and mutually stimulating relationship between agriculture, forestry, and animal husbandry, resulting in a situation in which neither grain nor cash crops developed very rapidly. Therefore, we must recognize that the energetic development of forestry, animal husbandry, sideline occupations, fishery and cash crops is an objective requirement for the further development of agricultural production.

5 XINHUA YUEBAO, 1966, No 5, p 150

/2. We Must Respect Objective Natural Laws and Economic Laws./

What is called respecting natural laws is simply setting up the agricultural economic structure on a foundation that suits measures to local conditions, protects the ecological balance and gives full play to the superior aspects of natural conditions.

How should we treat the ecological balance when we adjust the agricultural economic structure? This question is worth discussing. We feel that the indiscriminate reclamation and reckless tree cutting of the past was a mistake, and that we must resolutely halt and correct it. However, we do not feel that the present ecological balance of nature can only be left intact, and only be passively adapted to, with no further change. We advocate giving full play to the dynamic role of human production and construction to fully and rationally transform nature. We feel that we can use nature, and that the present ecological balance in nature can be destroyed and a new balanced relationship set up to replace it. Throughout the entire historical process, the relationship between man and nature has continued and developed by combining the development and utilization of natural resources with the protection and nurturing of natural resources.

Concretely speaking, we must take drastic measures to resolutely pull back from cultivation, and return to forestry, animal husbandry and fishery in all those areas where there was indiscriminate reclamation and reckless cutting which destroyed the balanced ecological relationship, and which lead to soil erosion and worsened production conditions. If we do not make that resolution, there will be countless negative consequences. In those areas that have already been reclaimed or where various agricultural engineering projects have already been constructed, in many cases they have already achieved certain results, but also had various harmful effects on the natural environment. This situation requires that we adopt proper remedial measures starting from a situation there is already a fait accompli. For example, in places where reclamation of China's northern wastes made it difficult to avoid destruction of the native forests and grasslands, we cannot now adopt a uniform method of withdrawing from cultivation and returning to forestry, but must get a good handle on planting trees and forests in the agricultural reclamation areas. Some water conservancy projects created obstacles to timber floating down stream, to the progress of schools of fish, and to boat transportation and communication. We cannot now adopt methods that destroy these projects, but must supplement and improve the project facilities. From now on we must continue to reclaim wasteland and construct various agricultural engineering facilities, in order to develop agricultural production and to remedy the weakness by which the per capita cultivated land in China daily becomes smaller. That is to say, apart from nationally designated nature preservation areas where we must absolutely prevent the interference of human activities in order to protect the natural ecological environment, we must constantly transform certain natural areas. We must adopt a positive, scientific attitude and energetically move toward the further development and utilization of all natural resources, as long as it does not violate the ecologically balanced relationship, or we should set up a new ecologically balanced relationship after we have destroyed the old one.

How should we view economic value and economic results when we adjust the agricultural economic structure? We feel that the goal of engaging in agricultural production is to obtain material wealth from the natural realm, and moreover, to get the greatest economic profit from the smallest possible expenditure of labor and material. This principle must be adhered to by all social and economic forms, and it is the basic guarantee for the uninterrupted development and progress of human society. It was a mistake in the past to only pursue an undeserved reputation and not to seek substance or to consider cost. And it should serve as a lesson. On this question, we should particularly stress that we must maintain a strict consistency, acting in accordance with economic laws while respecting natural laws. Generally speaking, only when production activities adhere to natural laws are we able to achieve long-term, stable economic results. But in respect to certain concrete problems, we are not consistent, and contradictions can even appear. For example, seen from a microeconomic angle, all such activities as destroying the grass to reclaim the wilderness, the indiscriminate feeling of forests and the filling in of ponds to catch fish, can bring immediate economic benefit. But seen from a macroeconomic angle, they destroy resources, violate the ecological environment, wreck long-term economic gains, and bring countless future problems. We submit that doing things in accordance with economic laws refers to doing things in accordance with the economic laws of socialism, and asking people to pay more attention to economic results refers to macroeconomic results which are beneficial in both the short and long-term, and benefit both the nation, collective and individual. If we violate these principles and consider only benefits for the individual, small collective body or some areas, without regard to benefits for the nation as a whole, and regardless of macroeconomic results, it will lead the adjustment of the agricultural structure askew. This would probably have some benefit, seen from the temporary, partial, microeconomic point of view. But from the long-term, overall, macroeconomic point of view, it would result in losses, and we must firmly oppose it.

/3. We Must Carry Out Adjustment Under the Guidance of Overall National Planning./

The socialist national economy is a whole and it develops according to a national unified plan. The agricultural economy is an important integral part of the national economy, and it should be developed in accordance with the conditions and requirements allowed by the national economy.

Agricultural production itself involves a broad area and vast numbers, has a strong regional character and it should have fairly large independence and adaptability. However, certain important production and construction plans still need to be unified and brought into focus. Some should have overall planning by the state, and some should have overall planning by the province, municipality or the autonomous region. When we adjust the agricultural economic structure, it would create a great deal of confusion if we just completely let things drift or let each go his own way, and would affect the planned development of the national economy.

We feel that overall planning by the state is required for primary agricultural products concerned with the national economy and the people's standard of

living such as grain, cotton, sugar, oil, meat, fish, lumber, etc. And major strategic materials, such as rubber, should be subordinated to state planning. Important commercial grain base areas, cash crop base areas, animal product base areas, marine product base areas, and concentrated agricultural export product base areas, should all be planned by the state. Important water conservation facilities, forestry construction, open-water fishing, large-scale reclamation, etc., which have an important impact on the transformation and utilization of natural resources, should be carried out under a unified national plan.

Every province, municipality and autonomous region should adjust the local agricultural economic structure under the guidance and restraint of these overall plans, in accordance with the special features of the locale.

Overall planning is necessary because, seen from the viewpoint of one province or autonomous region, there is no great need for certain products, such as cotton, sugar and rubber, so that there is a balance in those provinces themselves. They could completely reduce the production of these products and develop other products which would be more advantageous. But seen from the viewpoint of the nation as a whole, there are inadequate supplies of these products, and so we must ask that these areas make an even greater contribution to the nation.

There is another situation where the development of a certain agricultural product requires coordinated industrial construction. For example, producing sugar requires the local construction of a sugar-processing plant. When you develop animal or marine products you need a whole set of facilities for butchering, refrigeration, processing and transportation. This, too, requires planning by the state. Of course, unified national plans must fully consider the concrete situation in each province and autonomous region, and energetically allow the agricultural economic structure of each province and region to move in the direction of complete rationality, give full play to the favorable agricultural conditions of each area and avert their shortcomings.

The question of agricultural specialization is also worth studying. Most of the agriculture in capitalist countries has developed along the path of specialization. And in America the degree of agricultural specialization is extremely high. Should the agricultural economic structure in China move in this direction or not? Our preliminary view is that agricultural distribution within the scope of one province or autonomous region should carry out suitable concentration of specialized production because, with specialized production, labor is efficient, there is a high utilization of mechanized equipment, and it is easy to raise production technology and to adopt the newest technological results. Consequently, the economic results are generally fairly good. However, we must note that the special features of China's agriculture are the small scale of the commune and production team, the backwardness of transportation and communication conditions and of storage and processing technology for agricultural products, and the complexity of natural conditions and of the agricultural cultivation system. These factors determined that China cannot carry out large-scale regionalization and a high level of specialized production like those other nations. At the present stage, we can only make measures suit

local conditions, and carry out suitable concentrated regionalized and specialized production on a fairly small scale. In the future, with improvements in communication, transportation and other conditions, and with the development of commodity exchange between regions, we will be able to go further in raising the level of regionalized and specialized agricultural production. But this is a long evolutionary process and we cannot rely on subjective desires to obtain it in a short period.

/4. We Must Adjust the Economic Structure of Agriculture Gradually on a Foundation of Maintaining the Continuous Development of Production./

Adjusting the agricultural economic structure is a very complex task involving a broad area, and requires the adoption of safe measures, while looking ahead and behind, and gradually moving forward in the proper sequence. Generally speaking, we should begin with those things we ought to develop, create the proper conditions and open a new frontier. Then after we have summed up our experience, again gradually expand and gradually reduce those things which we should reduce through selection. For example, in order to expand the cultivated area in cash crops in regions suited to the development of cash crops, we must first complete the arrangements for seed and seedling supply, production technology, production tools, and processing and transportation capabilities, while considering the impact that these could have on the food, fuel and hog raising of the peasants of the area. In areas which require withdrawal from cultivation and return to forestry or to pasturage, as well, we cannot simply say "change," and automatically have change through rapidly completing the transformation back. Rather, it requires a process involving some overlap and replacement. In addition to suiting the laws of the ecological environment and giving full play to favorable local conditions, adjusting the agricultural structure should also fully consider the social and economic conditions as well as the production and technology conditions of the region. We cannot act with undue haste or arbitrary uniformity.

In the measures and scope of adjusting the agricultural economic structure, we need to do a good, conscientious job with the grain problem. We feel that we should adjust the agricultural economic structure beginning from the actual economic conditions in China and on a foundation of working toward basic self-sufficiency in the majority of provinces and autonomous regions. At the present stage, in measuring whether or not the agricultural economic structure in a particular province or region is rational, requires, to a large extent, that we see whether or not grain production in the province or region meets the needs for the livelihood of the people of that particular province or autonomous region. That is to say, apart from a very few provinces and autonomous regions with special conditions, all the provinces and regions of the nation should gradually achieve self-sufficiency or basic self-sufficiency in grain. This is because China has a massive population with a tremendous grain requirement. Moreover, about 85 percent of the grain consumers are in vast numbers of villages, and the vast majority of grain is consumed right there in the villages.

Consequently, it fits China's actual conditions to have the distribution of grain production in China use the province or autonomous region as the unit, and meet local needs, by and large.

Seen from the viewpoint of China's natural conditions, most of the nation's provinces and autonomous regions are suited to developing grain production. Most provinces and autonomous regions, in any particular year, achieve self-sufficiency or basic self-sufficiency in grain.

Of course, there are actually a great many difficulties in adjusting the agricultural economic structure in each area in accordance with this demand. Of course, many places are able to produce a good many cash crops and engage in various kinds of enterprises. But because of their heavy grain production responsibilities, they have not had the means of realizing this. And in some areas it has been very difficult to carry out adjustment. In trying to solve this contradiction, if we only look at present areas under cultivation, and if, moveover, we make our calculations based on the low level of per unit yield, we press them and they press back, and it will end up that not much is accomplished at all.

We think that first, we must get a good handle on grain, carry out intensive cultivation, and raise the per unit yield. Those areas with the right conditions all wish to set up commercial grain bases and supplement these with reclamation of wastelands. Speeding up grain production would enlarge our power of initiative in adjusting the agricultural economic structure. Secondly, transforming those past methods of sacrificing all for grain resulted in everything being squeezed, and grain did not come up to standards, either. From here on, we must give the greatest possible space to developing cash crops when planning grain production. Third, we must violate that commandment of being willing to spend a great amount of foreign exchange to import cotton, table sugar and oil, and not being able to spend even a little foreign exchange to import grain. Now, China imports upwards of 10 million dan of cotton every year, more than 1 million tons of table sugar, and several hundred million jin of edible oil, which requires spending over $1 billion in foreign exchange. If we are going to permit China's production of cotton, sugar and oil to meet the domestic needs of the people's standard of living, and not import any more, then we can import some grain to supplement the grain yield which would be affected by expanding cultivation of cotton, oil and sugar crops. In terms of foreign trade, this would be worthwhile, according to international market prices. We could extract some power of initiative in adjusting the agricultural economic structure, and it would also be useful in spurring on the development of China's light, textile, and food industries. Fourth, to develop cash crops is not to say that they would all be developed at the same time. But we must highlight the important things, and the important things are cotton and sugar. It would be a very great accomplishment if within 5 years we could first get a good hold on these two, and without relying on imports, achieve a low level of domestic self-sufficiency. We should go all out in developing all other miscellaneous cash crops, mountain and local products and others that do not compete for land with grain, cotton and oil. Fifth, in some areas we must acknowledge real current conditions. Only with the prerequisite of having basically solved the grain ration question will we be able to actually do a great deal of adjusting when we attempt to do so, and with very poor communication and transportation conditions it is very difficult to adjust the agricultural economic structure in a manner that relies on bringing in large quantities of grain over long distances.

The Luliang Prefecture of Shanxi has calculated that there are 1.4 million people in the entire region. If each person were supplied by the state with a 150 jin grain ration, the mountain region would have to transport in 210 million jin. This would not only greatly increase the cost of each jin of grain, but would require 100 trucks 300 days to bring grain from the central Shanxi plains to each commune in the mountain area. You can see from this that it is not worthwhile economically if the basic grain ration for tens of millions of people in one province must rely on large-scale importation from other provinces. And just in terms of transportation, it is currently unthinkable.

Seen in long-range terms, we can go a step further toward solving this contradiction by further raising the per unit area yield of grain, increasing the proportion of meat and nonstaple foods and controlling the natural increase in population. At that time, we will have even greater room for maneuver in adjusting the agricultural structure.

What we particularly need to explain here is that when we speak of basic self-sufficiency in grain we are speaking within the scope of one province or autonomous region. And we certainly must not adopt the simplistic method of taking responsibility for self-sufficiency in grain and sending it down to each level, uniformly demanding self-sufficiency in grain from each individual area or county or commune or even each individual production brigade, regardless of natural conditions. If we were to do so, it would have absolutely nothing to do with the question of adjusting the structure.

/5. We Must Energetically Develop Agriculture, Forestry, Animal Husbandry, Sideline Occupations and Fishery on a Foundation of Gradually Developing Cultivation./

One important goal that we must reach in adjusting the agricultural structure is to hasten the development of forestry, animal husbandry, sideline occupations and fishery, and raise the proportion of each within agricultural production as a whole. How do we realize this requirement? There are no more than two methods. One is to give a free hand to the development of forestry, animal husbandry, sideline occupations and fishery, and not balk at pressing against cultivation a bit. The other way is to hasten the development of forestry, animal husbandry, sideline occupations and fishery as actively as possible on a foundation of steadily developing cultivation. We feel that it would be most proper to adopt the later method. We feel that it was wrong in the past to overemphasize cultivation while overlooking forestry, animal husbandry, sideline occupations, and fishery, and that there were negative consequences. From now on, it would be wrong if we were to go the other route. If we depart from the steady growth of cultivation, then the large-scale development of forestry, animal husbandry, sideline occupations and fishery would lose its dependable foundation. This is because, first, the period required for forestry production is very long. Second, animal husbandry always consumes feed grain. Third, China has very little cultivated land, and from here on, we can only expand it gradually and we must not reduce it again. Fourth, our tremendously large population still relies mainly on cultivation for food and clothing and we cannot change the composition of foodstuffs in one fell swoop.

Fifth, the raw materials for China's light industry and textile industry are cotton, sugar, hemp, silk, etc., all of which rely on supply from cultivation. Therefore, only on a foundation of gradually developing cultivation will we be able to develop and raise the proportion of forestry, animal husbandry, sideline occupations and fishery.

Some comrades say that China's agricultural economic structure should be based on animal husbandry and that meat should be the primary foodstuff in the food composition of the Chinese people. We feel that, speaking from the natural scope, according to China's concrete circumstances, for a fairly long time--for example, during the process of realizing the four modernizations--the proportion of animal husbandry within the total output value of China's agriculture will rise a great deal. But still it cannot surpass cultivation and take the primary position. The process of animal husbandry production is simply the transformation of feed grain and forage grass into animal products through the digestive function of animals and domestic fowl. If there are inadequate nutrients in the forage grass and feed grain, then it does not transform itself into animal products. And in this process of transformation, you generally lose between two-thirds to four-fifths of the energy, which is tosay that 3 to 4, or even 4 to 5 jin of feed grain is transformed into 1 jin of meat. We can see from certain nations in the world with advanced animal husbandry, that they are all nations which rely on their own feed grain to practice animal husbandry, and that they all possess these features: 1) per capita grain production is generally over 1,000 jin; 2) per capita cultivated land is generally over 5 mu; and 3) per capita grassland is generally over 15 mu. Consequently, they can entirely use cultivated land to grow feed grain and forage grass to meet the feed grain requirements of developing animal husbandry, and to realize an agricultural economic structure based on animal husbandry. In another kind of country where there is not so much per capita grain production, cultivated land and grassland, they rely primarily on importing feed grain to develop animal husbandry. In China, per capita grain production is only just over 600 jin, 1 to 2 mu of cultivated land and 3 to 4 mu of grassland. And moreover, the situation is poor. Consequently, for a rather long period, 1) we will not be able to use a lot of grain for feed grain; 2) we will not be able to use much cultivated land to grow feed grain; 3) we will not have much grassland with the good conditions for developing grazing animals on a large scale; 4) we will not be able to use foreign exchange to purchase feed grain on a large scale. From these actual conditions we can see that for a fairly long time, China's agriculture can only strive to raise the proportion of animal husbandry within agriculture under conditions of steadily developing cultivation. Of course, this is speaking for the nation as a whole. When it comes to pasture areas or to certain areas which are suited to the development of animal husbandry, then proceeding from the actual conditions of that specific place, we should fully carry out an agricultural economic structure with animal husbandry as the main element.

/6. We Must Gradually Develop a Comprehensive Economic Structure Composed of Agriculture, Industry and Commerce on a Foundation of Energetically Developing Agriculture./

The agricultural economic structure must not only achieve the proper proportions between grain and cash crops and harmonize the proportions of agriculture,

forestry, animal husbandry, sideline occupations and fishery, but it should also be a comprehensive economic structure combining agriculture, forestry, animal husbandry, sideline occupations and fishery, moving toward an even higher transition stage. That is to say, we should not only allow peasants to produce agricultural and sideline products, but should also allow them to engage in certain processing industries to to engage jointly in processing and marketing along with industrial and commercial enterprises. This in essence is taking one part of the processing and sales profit from agricultural and sideline products and again giving it to the peasants.

This manner of doing things has great significance. With the development of agricultural modernization, the matter of finding an outlet for village labor forces is a major question. If China's peasants only produce agricultural and sideline products and only supply grain and raw materials for industry, then the peasants will have little income, and the communes and brigades will accumulate very little, it will be very difficult to reduce the disparity between industry and agriculture and between town and countryside and those disparities could become even greater. Carrying out an overall economic structure which combines agriculture, industry and commerce would be useful in fundamentally and gradually solving these problems. Consequently, when we adjust agriculture's economic structure, we must question the adopting of various forms to gradually move toward transition to a comprehensive economic structure combining agriculture, industry and commerce. But no matter what forms we adopt, they must all be carried out on a foundation of energetically developing agricultural development, for only when we develop agriculture, forestry, animal husbandry, sideline occupations and fishery, will we have large amounts of agricultural raw materials to supply industrial processing, and large amounts of commercial products which we have ourselves produced to market. For only then can the overall economic structure including agriculture, industry and commerce have a solid material foundation.

Currently, because of historical factors, the vast majority of processing industries which use agricultural and sideline products as raw materials are concentrated in large cities. This severly affects the development of commune and brigade industry. However, when there are insufficient raw materials, communes and brigades should not blindly set up duplicate factories from a microeconomic angle, and compete for raw materials with existing large industries, but they should primarily adopt joint methods. City industries which use agricultural and sideline products as raw materials, such as large and middle-sized light industries, textile and food industries, should consider establishing long-term joint relationships or joint management with the raw material production areas. In this way, they can join together without changing the ownership system or influencing subordinate relations, and closely coordinate, comprehensively plan and rationally distribute the profit so that each receives what he is entitled to.

Seen from the long-term, processing industries which use agricultural and sideline products as raw materials should generally not further develop new processing capacity on a large scale in large- or middle-sized cities or places that do not have raw materials. Rather we should gradually move them

out as much as possible to countries, communes and brigades with raw materials.

At the same time, communes and brigades should energetically develop various industries as long as they do not compete for raw materials with large industry. However, they must be sure to avoid processing industries that "make bricks without straw."

Cities, should take those products which are suitable for village processing and gradually spread them out as much as possible to commune and brigade industries, as long as it does not affect employment. And they should constantly expand the scope of village enterprises, industry and commerce, and gradually employ this general rural construction to build small towns everywhere.

/7. We Should Adopt Even More Flexible Policies and Give Full Play to the Assisting and Supplemental Economic Role of Commune Families, and Permit the Existence of a Few Individual Economic Components, Under Conditions Where the Socialist Economic Component Maintains a Position of Superiority./

Due to the limitations of various rules and regulations for 30 years, the proportion of the commune household economy within the agricultural economy's ownership structure, is very low. In 1979, the total output value created by the commune household economy was approximately 2.7 billion yuan, or 17.1 percent of the total agricultural output value. China is a socialist country and carries out the socialist principle of "to each according to his labor," under conditions where public ownership, consisting of three-level ownership with the production team as the basic accounting unit, holds the dominant position. It is an essential supplement to the socialist economy, it motivates and increases the peasants' enthusiasm, promotes important measures in the development of agricultural production and increases the commune members' income, thus expanding this important route for letting peasants enrich themselves as quickly as possible.

There are many production activities which are suited to dispersed management by individual households and families. For example, raising domestic fowl and domestic animals, or growing trees, melons and beans around the house, gathering and hunting wild natural resources, and household handicrafts, etc. These production activities by commune households management are all beneficial in fully utilizing natural resources, giving full play to the potential of village labor forces, lowering productions costs, increasing the wealth of society, invogorating the marketplace, improving the people's standard of living and even strengthening the collective economy of agriculture. According to 1979 statistics, 86 percent of the pork bought by the state comes from commune households, and over 90 percent of the duck eggs. We can see from this the important role of the village commune household economy. When agricultural communes and brigades are unable, or do not have the power, to replace the economic activities of these commune households, using their enthusiasm to develop production benefits both the nation and the people and plays a stimulating role in the development and progress of society. On the other hand, if we adopt methods which limit or forbid these

activities, it would be no different from "cutting off your nose to spite your face," obstructing the development of production and the progress of society.

In certain poor, backward areas permitting individual agricultural households, handicraftsmen and small merchants to engage in individual household management and assume sole responsibility for profit and losses, when China's socialist economy maintains the position of superiority, is advantageous in in motivating their enthusiasm and breaking out of their long-time poor and backward situation. With regard to the existence of these individual economic components within the socialist collective economy and to the economic activities of commune households, the state can supply various economic levers, policies and decrees to regulate the sphere of their economic activities, so that their economic activities will play a supplemental role for the socialist economy and not be able to develop into capitalism. Consequently, as long as their economic activities do not destroy natural resources, do not violate the law or exploit other people, they should be allowed to exist, and moreover, we should boldly encourage and actively help them to develop. They should give full rein to their supplemental role for the socialist economy.

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## CHAPTER VI

# THE STRUCTURE OF LIGHT INDUSTRY

By Rong Wenzuo [2051 2429 0146]; original text pp 195-222; portions within slantlines in boldface in original text.

[Text] Light industry is primarily industrial departments that produce means of subsistence. In China, production in light industry is jointly managed by the Ministry of Light Industry and the Ministry of Textile Industry. Other industrial departments also produce some goods of daily use but their proportion is small. Besides, nonindustrial departments such as those in commerce, grain, foreign trade, forestry and agricultural departments also jointly manage some light industry, for instance in the processing of meat, grain, sideline food and forestry products. In particular, almost half of the enterprises of commune production brigades produce light industry products. Therefore, light industry generally has two kinds of meaning. In the broad sense it refers to light industry that exists in comparison with heavy industry departments, and in the narrow sense it refers to light industry under the charge of the Ministry of Light Industry. The economic structure of light industry we study here mainly concerns the scope of light industry under the charge of the Ministry of Light Industry in the narrow sense. However, when we study theoretical problems we often touch on the realm of light industry as a whole. To avoid confusion, when I speak of light industry in the broad sense I generally label it "light industry as a whole" in order to differentiate it from light industry in the narrow sense.

## I. Structure of Raw Materials of Light Industry

Light industry is primarily a processing industry. The source of raw materials has always been a key problem in speeding up the development of light industry. The raw materials and materials for light industry come from two main areas: first, agriculture; the other, industry, primarily heavy industry. The study of the structure of light industry raw materials is not only significant to the correct understanding and handling of the relationship between a processing industry which uses agricultural products as raw materials and a processing industry that uses industrial products as raw materials. It is also an important link in the correct handling of the relationship between light industry and agriculture as well as heavy industry. We therefore stress the study of the following problems.

/1. The Component Ratios of the Sources of Raw Materials of Light Industry/

The structure of light industry raw materials is essentially the relationship of ratios of raw materials from agriculture and from industry. Changes in the structure of raw materials of light industry as a whole in China are as follows:

| Year | Percentage of raw materials from agriculture | Percentage of raw materials from industry |
|---|---|---|
| 1957 | 81.6 | 18.4 |
| 1962 | 73.2 | 26.8 |
| 1965 | 71.7 | 28.3 |
| 1970 | 70 | 30 |
| 1977 | 68.5 | 31.5 |

It is evident from the above table that after 21 years, in the raw materials of light industry as a whole the proportion of agricultural raw materials decreased from 81.6 to 68.5 percent while industrial raw materials increased from 18.4 to 31.5 percent. During this period, the proportion of light industry using industrial products as raw materials gradually increased while that using agricultural products as raw materials gradually decreased. With the exception of the Second 5-Year Plan the changes in ratio between the two have been quite slow. This is because the difference in growth rates of raw materials from industry and those from agriculture was only slight. As for the cause of the great change in ratio in the period of the Second 5-Year Plan, not only was there no development in agricultural raw materials but on the contrary they dropped slightly while the ratio of raw materials from industry had a sudden jump. It should be said that such changes were extremely abnormal.

The above referred to light industry as a whole. But circumstances are different with light industry under the charge of the Ministry of Light Industry. According to statiatics of this portion of industrial raw materials, in 1957 those from agriculture generally accounted for about 70 percent and in 1978 they dropped to about 46 percent (if we exclude light industry machinery, chemical raw materials and heavy weight apparatus and others that purely belong to trades that produce the means of production, which belong to the authorities in charge of light industry departments, raw materials from agriculture generally accounted for about 56 percent). Evidently in this part of light industry the ratio of raw materials from industry gradually increased, and the change in ratio after 20 years will also be faster. This is because, first, it included secondary light industry which developed from the basis of handicraft industry and which primarily produces manufactured goods for daily use. The primary raw materials for this portion of products have always been industrial goods. Second, in over 20 years, it has newly developed bicycles, sewing machines, watches, light-sensitive materials, synthetic detergent, plastic goods

and other rising trades which use metallic and chemical industry (synthetic) materials to form product substance. In 20-odd years the annual growth of these trades are mostly above 20 percent, thereby considerably increasing the ratio of industrial raw materials. Third, the major industries under its jurisdiction and which use agricultural products as raw materials are the paper manufacturing and food industry. In these 20 years the rate of growth of these two main industry has been slow.

We must make concrete analysis of the changes in the structure of raw materials of light industry. We must both affirm the trend of gradual increase of industrial products in the ratio of raw materials as well as discover existing problems. Some comrades believe that the higher the ratio of raw materials and materials in light industry the better, and that the faster the change in ratio between the two the better. They even think that we can assume that in a short span of 5 to 10 years we will be able to cause the proportion of industrial raw materials to exceed that of agricultural raw materials in light industry as a whole. Such ideas deserve to be discussed. I believe that we cannot treat the structure of raw materials in light industry in isolation but should separately analyze the two areas of agricultural and industrial raw materials. Moreover in order to explain the issue well we must study by combining the interrelationship of agriculture, light industry and heavy industry.

/2. Source of Agricultural Raw Materials of Light Industry and Its Relationship With Agriculture/

The raw materials of light industry primarily come from agriculture. The processing industry of agricultural products has always been the principal part of light industry as a whole. Despite a decline in the proportion of agricultural raw materials in light industry as a whole during the past 30 years, the basic condition that agricultural raw materials are the principle source of raw materials for light industry as a whole has not changed. Even with the light industry under the Ministry of Light Industry, agricultural raw materials account for over half of those used for the production of consumer goods.

During the period of the First 5-Year Plan, over 80 percent of the raw materials used in light industry as a whole came from agriculture, and the growth rate of agriculture and the supply level of agricultural products as raw materials have played a decisive role in the development of light industry production. In 1952, China's agricultural production increased 15.3 percent and in 1953 the production of the means of subsistence within the industrial output value increased 26.7 percent. In 1955, agricultural production grew 7.7 percent and in 1956 the means of subsistence in total agricultural output value increased 19.8 percent. In 1954 and 1956, the growth in total agricultural output value was under 5 percent. Consequently the means of subsistence in total industrial output value in each of the second years was slower, when they decreased 0.03 percent in 1955 and merely increased 5.6 percent in 1957. During the period of the Second 5-Year Plan, agricultural production was severely damaged, and consequently the agricultural product processing industry in light industry

as a whole did not develop. For 30 years since the founding of the state, our basic experience has shown that light industry and agriculture have an extremely close relationship. Only if agriculture grows can light industry speed up its development. Therefore, when we study the possibility of speeding up the development of light industry we must first consider the conditions of agricultural production, particularly how much in raw materials agriculture can provide light industry. We should plan the development of the agricultural product processing industry based on "putting agriculture first, light industry second" in order to safeguard the supply of agricultural raw materials and not to "cook a meal without rice."

There is usually a strong advantage in following the needs of the broad masses of consumers on processing of agricultural products and having light industrial departments put forward the demands on developing agricultural raw materials, implement among agricultural departments the policy of "suiting measures to local conditions and making appropriate centralization," and actively develop the production of industrial crops and crops for raw materials of light industry. It is wrong to fail to recognize this point and cause the development of the agricultural product processing industry to remain in a passive state and get jostled around for a prolonged period of time.

With a fixed farm area and under the given level of agricultural production, we must generally stress the following points in order to enable light industry and agriculture to promote each other even better.

First, suit measures to local conditions, make appropriate centralization, and build a strong base of agricultural raw materials. This is particularly important for cotton, oil-bearing, sugar, tobacco and other main industrial crops. In order to safeguard the increase in grain production, suitable control of the cultivated area of certain industrial crops is necessary. However, we cannot violate the principle of "suiting measures to local conditions and centralizing appropriately" because of this. In a similar cultivated area, economic results indeed differ whether we ignore conditions and cultivate in a dispersed manner or "suit measures to local conditions and centralize appropriately." Take sugarcane as an example. The climate and soil of Zhujiang Sanjiaozhou in Guangdong suit the cultivation of sugarcane. The output per mu may reach over 5 metric tons. its sugar content is also relatively high, and generally less than 2 mu will yield 1 metric ton of sugar. However, for sugarcane grown in northern Hunan, the output per mu is merely about 1 metric ton and it generally takes 7 or 8 mu to yield 1 metric ton of sugar. According to the figures of concerned departments, in recent years the growing area of China's sugar-bearing materials (including sugarcane and beet) has reached 13 million mu but the annual output of sugar is merely some 2 million metric tons. If we can earnestly implement the policy of "suiting measures to local conditions and centralize appropriately," grow sugar-bearing crops individually in Guangdong, Guangxi, Fujian, Jeilongjiang and other areas which suit the growth of sugarcane (or beet), sugar-bearing materials produced by similar growing areas will provide sugar refineries with an extra 1 to 1.5 million metric tons of sugar which will basically realize self-sufficiency.

Second, increase the economic results in the utilization of agricultural raw materials. There is a great disparity in economic results in supplying agricultural raw materials of the same quantity and quality to technologically advanced and modern processing plants or processing by local methods. For many years, many machine-processed sugar refineries, cigarette plants, breweries, soap plants, fur plants and others are in serious shortage of raw materials while some small factories of commune production brigades which are technologically backward and which use local measures for production develop everywhere. This not only affects the production of light industry but is also a serious waste of the resources of agricultural products. Commune brigade enterprises should develop but they should abide by the principle of not competing with large factories for resources. Moreover, they cannot use backward methods of production to spoil quality raw materials (such as high-grade tobacco and valuable fur). The method of signing economic contracts between production units and purchase units (or production enterprises) of raw materials should be followed, under the conditions of paying attention to mutual economic benefits and supplying the limited raw materials preferentially to various light industrial plants which are advanced in their technological and economic targets. In order to increase the economic results in utilizing agricultural raw materials, state-operated farms and rural people's communes can also develop agricultural, industrial and commercial joint enterprises which will raise the technological and management level for processing of agricultural products and therefore increase economic results. Under the conditions of voluntarism and mutual benefits, concerned farms, people's communes and light industry factories can organize joint management, divide profits and concurrently care for the interests of the cities and countryside, workers and peasants. These methods have their own scopes of application and should be permitted to exist simultaneously.

Third, positively expand the scope of utilization of agricultural raw materials. China's level of agricultural production is still relatively low. Take the case of certain principal light industries which use industrial crops and forest and livestock products as raw materials and the resources are insufficient; but we must also recognize that in China there simultaneously exist considerable agricultural resources that are not adequately utilized which has resulted in the phenomenon of goods abandoned on the ground. For example, in many forest zones, up to now there are still large quantities of small wood and branch wood that suit paper manufacturing not having been utilized. According to surveys by concerned departments, in some countries with a developed paper manufacturing industry, the wood utilization rate is around 80 percent. It is merely 50 percent in China, where every year somewhat more than 10 million $m^3$ of forest residual materials are wasted. If we can process these materials into wood chips on the spot, collect and transport them to paper mills for use, then it will greatly help to resolve the problem of insufficient supply of wood for papermaking. The potentials are even greater for utilizing fruit, grass and uncultivated resources. Light industry departments should closely coordinate with agricultural departments, make every effort to expand the scope of utilizing resources and open all avenues for production. For example, using various fallen fruit

to develop jam, preserved fruit and fruit juice; using bamboo, rattan, palm and straw to manufacture furniture, woven articles, arts and crafts in order to broaden the avenues for processing of agricultural products and enrich the varieties of light industry goods for people's daily use.

We should have a comprehensive analysis of the sources of agricultural raw materials for light industry. On one hand, we should understand that it is not very easy to resolve this problem. The present production level of China's commodity, grain and industrial raw materials is very low and the need of the state for these materials increases every year. For over 20 years, due to leftist errors in the guiding principle as well as the interference and destruction by Lin Biao and the gang of four, agricultural production, particularly that of industrial crops and the diversified economy, suffered serious damage. Moreover, with population increase being too fast and cultivated area limited, the contradiction in this area becomes increasingly acute. On the other hand, we should recognize that on the basis of summing up experience and lessons, we have already formulated a series of policies and principles to comprehensively develop agriculture and have mobilized the enthusiasm of the broad masses of peasants. Under these conditions, correctly handling the relationship among agriculture, light industry and heavy industry and the strengthening of industry's support for agriculture, the sources of agricultural raw materials for light industry will increase and the processing industry of agricultural products will develop faster.

/3. Industrial Raw Materials in light industry and their relationship with heavy industry/

Industrial products are becoming more and more the major source of raw materials for light industry. Industries processing industrial products as raw materials are occupying a larger and large proportion of the light industry makeup. In light industry the expanded utilization of raw materials originating in the industrial sector, and the further enlargement of the proportion of industries processing industrial products within the overall sector, forms a basic problem impacting on both light industry itself and on the direction the expansion of production will take in heavy industry.

In light industrial production we should gradually increase the ratio of industrial raw materials in a planned way. This is determined by the production characteristics of industrial raw materials. It generally has the following characteristics as compared to the production of agricultural raw materials.

One, the production of industrial raw materials is affected by little or no natural conditions. These natural conditions include soil, climate and water conservancy. China has a large population and cultivated area is limited so that the restrictions in this regard are more numerous. Although the production of certain industrial raw materials is affected by mineral resources, as a whole the effect of natural conditions is relatively small.

Two, the production of industrial raw materials is easier to manage. The production (supply) cycle of industrial raw materials easily suits the light industrial production cycle for the consumption of these raw materials so that its planning and management is easier. The seeding and harvesting of agricultural raw materials are seasonal and their output is often determined by how good the year's harvest is. Consequently, it cannot be accurately predicted and managed like industry.

Three, industrial raw materials are already increasingly produced by chemical synthesis, but plants and animals as agricultural raw materials do not have such a possibility. In the last 10 or so years in particular, following development in the chemical industry, the variety of new synthetic materials has increased and the development of plastics industry is changing even faster. Under the conditions of modern production techniques, many light industry products which used to be made from agricultural products, such as woolen fabric and cloth, leather and fur, rubber goods and cleansing goods have already been replaced by organic, synthetic materials, and large quantities of products which have similar properties or which can better suit various uses are being produced.

Four, it is easier to use industrial raw materials to design and manufacture many new product varieties and form new light industrial categories according to the daily needs of the people. In particular, following the appearance of electronic technology, computer technology and new optical and acoustic technology, many new light industrial trades and products have been produced, such as the everyday use electronics industry and light-sensitive material industry. In the production of industrial raw materials, although we can use various types of advanced technology and the cultivation of new varieties to expand the source of raw materials, it is not possible (at least not easy) to produce various new trades.

When studying the development of the use of industrial products as raw materials for light industry, we must recognize its benefits as well as its limitations. For example, the scope of industrial raw materials substituting for agricultural raw materials is chiefly limited to articles of clothing and of daily use but is unsuitable for food. Substitution of synthetic fiber for natural fiber, because of economic reasons is only suitable for knitwear but not papermaking. Some industrial products substituting for agricultural raw materials by still have property weaknesses so that they must be used in conjunction with agricultural raw materials or can only replace some of their uses. It is erroneous to overlook the above-mentioned limitations of industrial raw materials and to put undue emphasis on the development of the processing industry with industrial raw materials.

The industrial raw materials of light industry mainly come from heavy industry (including metallurgical, chemical, electronic and certain nonmetallic mineral mining industries). The problem of the source of industrial raw materials for light industry is essentially one of how heavy industry should support light industry and serve it better. Of course, certain trades in light industry produce some of the raw materials or directly

carry out continuous production from mining and selection of materials to processing and mutually supply some of the raw materials. However, taking the case of the division of work among departments within the entire industry, particularly the division of work between the production of the means of subsistence and the production of the means of production, it is not suitable to place the emphasis for solving the source of industrial raw materials on light industrial departments themselves, but stress shold be put on the cooperation and support of light industry by heavy industry. For a prolonged period of time, China's heavy industry is of the type that has mainly served itself. It has not adequately served agricultural production, much less light industry. For over 20 years, light industry has had no choice but to spend a great deal of effort to "rely on itself" so that a great part of investment is spent on producing raw materials. This has obstructed the development of light industrial production and has not been beneficial to the development of heavy industrial production. We should examine the problem from the goal of developing heavy industry; basically change the method of developing heavy industry for the growth of heavy industry, treat light industry as an important market for heavy industry, conscientiously strengthen heavy industry's support of light industry and let heavy industry serve light industry even better.

To strengthen heavy industry's support of light industry, for instance, in solving the problem of industrial raw materials for light industry, there are the following chief aspects. First, positively increase the output of products from industrial raw materials, improve specifications, increase quantity and lower cost so that it will provide for light industry even more varieties, and industrial raw materials that have suitable specifications, fine quality and inexpensive prices. Second, positively trial-manufacture and produce light industrial raw materials for new varieties, particularly developing large quantities of various organic raw materials in order to replace many agricultural sideline products as raw materials and open up sources of raw materials for light industry. Third, positively provide for light industry large quantites of the electronic and electrical parts, bearings and instrumentation components used in producing products for daily use and thereby create the conditions for the increased output of these products by light industrial departments. Fourth, positively make use of the technological equipment of heavy industry and carry out the work of remaking some industrial raw materials for light industry. For example, cutting down in size, altering the roughness and reducing the thickness of metallic materials; refining chemical raw materials by electrolysis and purifying them by dissolution. Fifth, positively supply various leftover bits and pieces of materials from production of heavy industrial enterprises preferentially to light industrial departments for their use.

The relationship between light industry and heavy industry is one of interdependence and mutual promotion. Strengthening heavy industry's support of light industry promotes the growth of light industry which in turn creates conditions for speeding up the growth of heavy industry. Only if agriculture and light industry truly advance, will it in the long run "increase the development and growth rate of heavy industry, and as it safeguards the daily needs of the people it will further strengthen the base of its development."[1]

1 "Selected Works of Mao Zedong, Vol 5, p 269.

Besides, some enterprises of heavy industry can also produce some light industrial products by comprehensive utilization of equipment, mineral resources and even the "three wastes" (waste gas, waste water, and industrial residue). On this basis, they can also develop some of the joint enterprises that produce both the means of production and the means of subsistence. Some light industry enterprises should also appropriately develop the production of some raw materials according to their own production conditions and the demands of comprehensive utilization of resources, for example, comprehensive utilization of seawater resources for the production of salt and the production of various basic chemical products. It is erroneous to overlook the division of work between heavy and light industries, demand light industry departments and enterprises to develop their own raw materials and to proceed from stressing raw materials. It is also erroneous to put undue emphasis on the division of work among departments and cut apart the processes of the original production of organic relations and comprehensive utilization of resources.

/4. Composition of Light Industry Raw Materials and Trend of Development/

There are two basic ways to analyze the composition of light industry raw materials. First, determine how much of the raw materials used by light industry come from agriculture and from industry, which is an analysis of the composition of the source of raw materials. Second, determine the proportions of agricultural products processing industry and industrial products processing industry among light industry departments, which is an analysis of the composition of two types of raw material processing industries. The two kinds of composition mentioned above are closely related and are distinctly different.

Over the years in the practice of China's economic work, the total output value of all trades and all products has generally been used as a basis to figure the composition of the source of raw materials. That is, separately figure the output value of light industry produces that use agricultural products as raw materials and those that use industrial products as raw materials, then figure the composition ratio of the two. For example, in a certain year the total output value of light industry products that primarily use agricultural products as raw materials is 6 and those that primarily use industrial products as raw materials is 4, the output composition ratio of that year is 60 percent agricultural product processing industry and 40 percent industrial raw material processing industry. This kind of method of calculation on the basis of output value is simple and clear and can be used to calculate the growth rate and composition ratio of the two separate types of products of raw material processing. However, this method of calculation has its shortcomings. First, it is figured on the basis of primary raw materials of the substance of constituent products, and in many light industry trades many supplementary materials are often used at the same time. For example, in the papermaking industry agricultural fiber is the primary raw material and at the same time large quantities of bleach and caustic soda are used as supplementary materials. According to the above-mentioned method of calculation it can

only treat the entire papermaking industry as an agricultural product processing industry. Besides, the output value used by this method of calculation not only includes the value of raw materials transferred from agriculture and heavy industry but also many other factors so that it is difficult to correctly reflect the degree of reliance of light industry on agriculture and heavy industry.

There is another method of calculation in studying the structure of light industry raw materials, that is, the method of calculation using the prices of raw materials as the basis. First it separately figures the expense and sum total of raw materials received by light industry from agriculture and industry each year, and then it figures the proportional relations of its composition. Strictly speaking, the result from this method of calculation is the real composition of the source of raw materials. By using this method of calculation, it can more accurately reflect the composition ratio of the source of raw materials and also the relationship of dependence of light industry on agriculture and heavy industry. Its shortcoming is that the calculation is more complicated, and generally it can only reflect the changing conditions of the level of supply of raw materials and not the various changes in growth rate and composition ratio of the total output value of the two types of raw material processing industries. Therefore it has its limitations.

Summarizing the above, the two different methods of calculation have their own advantages and disadvantages and we cannot affirm one and negate the other. In practice, we should select one or both methods of calculation at the same time according to the needs of work.

Despite two different methods of calculation in studying the composition of light industry raw materials, their total tendencies of change are consistent. When the composition ratio of raw materials increase, the composition ratio of output value will generally also increase. Of course, two different methods of calculation can sometimes yield inconsistent results. For instance, the composition of the value of raw materials will change with price increases of agricultural products and price decreases of industrial products and raw materials. Under such circumstances, we should carry out concrete analysis.

In regard to the composition of light industry raw materials, the light industries using industrial products as raw materials will have the faster development; the proportion of industries processing industrial products as their raw materials will continue to increase in light industry as a whole. This is an inevitable trend in the development of the composition of light industry raw materials. Of course, this does not mean that light industry production can rapidly change the state of agricultural products as the primary raw materials, nor does it mean that in the future there is no need to positively develop production in the agricultural product processing industry. For this reason, the following points should be clearly understood:

First, it is in terms of the total tendency of change in the composition of the agricultural product processing industry and the industrial product and raw material processing industry. For all trades, it is not necessary that light industry using agricultural products as raw materials develop slower and that light industry using industrial products develop faster. For instance, following the change in the composition of agriculture, the leather and fur industry and the dairy industry, which obtain raw materials from animal husbandry, should develop a little faster.

Second, it is the trend of development as a whole, seen from a rather long period of planning which is at least 3 to 5 years. The supply of agricultural raw materials is often affected by good and poor harvests created by changes in natural conditions. Therefore, in certain years, due to bumper harvests in agriculture the proportion of the agricultural product processing industry in light industry production as a whole may still temporarily increase. In the period of national economic readjustment, along with the rapid recovery and growth of agricultural production, the growth rate of the agricultural product processing industry was often higher than that of the industrial product and raw material processing industry.

In the future, the proportion of agricultural raw materials in light industry as a whole will decrease and among certain trades in light industry raw materials will shift to industrial raw materials as primary raw materials. However, the total supply level of agricultural raw materials should still increase along with the growth of agricultural production, and the proportion of agricultural raw materials in the material consumption in light industry as a whole should not decrease by too much. Particularly with the food and papermaking industries, in a relatively long period of time, agricultural raw materials will still remain the primary or even the only source of raw materials that constitute the substance of products.

## II. The Structure of Light Industrial Products

There are many ways to classify the structure of products produced by light industrial departments. Here we will only pay particular attention to the study of several classification methods.

### /1. Product Composition of the Means of Subsistence and Means of Production/

Light industry produces are basically used as means of subsistence. However, not all products produced by light industry departments are means of subsistence for they partially include means of production. Even the same light industry products (such as salt) can often be used either as means of subsistence or a means of production. Therefore, we should study the composition ratio and relations between means of subsistence and means of production as an important element of the structure of light industry products.

According to statistics, the overall tendency of the proportion of means of production produced by the system of the Ministry of Light Industry is one of gradual increase. In 1978 it reached 32 percent. What deserves particular attention is that during the 13 years from 1965 to 1978 the proportion of the production of means of subsistence in light industry clearly decreased. In 1978, in the Second Ministry's light industries whose growth was based on handicraft industry, the proportion of service to industrial and agricultural production even surpassed that of service to subsistence. According to the Second Light Industry Bureaus in 16 provinces, the concrete changes are as follows:

| Classification | Proportion by percentage in 1965 | Proportion by percentage in 1978 |
|---|---|---|
| Service for agricultural and industrial production | 39.6 | 44.6 |
| Service for consumer goods | 50.8 | 43.4 |
| Service for export | 9.6 | 12.0 |

The structural changes mentioned above show that the tendency of change is the displacement of the production of manufactured goods for daily use by service for industrial and agricultural production, particularly cooperating with heavy industry to provide complete sets. Such conditions had appeared in the period of 1958-1962, and only through readjustment in 1963-1965 were they overcome. Therefore, we should earnestly sum up the experience and lessons from the two successive structural changes discussed above. We must gradually change the conditions discussed above through readjustment, increase our theoretical understanding and conscientiously prevent similar changes from occurring in the future.

Why did the above-described conditions occur again? This is related to our putting undue emphasis for a long time on the theory of giving preference to the development of heavy industry. For a period of time, some comrades believed that in the arrangement of production within light industry we should likewise give preference to the production of the means of production and gradually increase the proportion of the production of the means of production. Governed by such an understanding, it became natural that the production of manufactured goods of daily use could be jostled around. I believe that such understanding is open to question. This because in all industrial departments, light industry departments primarily produce means of subsistence. Its main task in the national economy is to provide for the people more and better means of subsistence in order to satisfy the growing needs in the material and cultural life of the whole society. In any case, it is inappropriate to make arbitrary use of the principle of giving preference to developing the production of means of production regardless of time and conditions. To further use this principle in the arrangement for producing means of subsistence and means of production within light industry departments is even more open to question. For over

20 years, the growth rate of China's light industrial production has been slow. Because the portion of means of production, particularly the portion that cooperates with heavy industry to provide complete sets, has developed too fast, the portion of the production of means of subsistence to China's market is increasingly unsuitable for the needs of the growth in people's purchase power, causing the adopting of methods of planned distribution and limiting consumption for many consumer goods. This is a profound lesson.

On the other hand, some comrades believe that "light industry departments are engaged in the production of consumer goods, in the future there is no need to develop so-called production of means of production." This understanding is also open to question. It confuses the two concepts of light industry production and the production of means of subsistence and it equates the main task to the overall task of light industry departments. We should affirm that the main task of light industry departments is to develop the production of means of subsistence. However, we should also recognize that light industry departments must still produce some of the means of production, because it shoulders an important task of supporting the development of agriculture, heavy industry and other national economic departments. For example, Wuhan Steel built a 1.7-meter rolling mill project and the parts cooperatively produced by light industry departments and enterprises included 45 types of paper, 4 types of indication light bulbs. Such tasks must be completed. Obviously, we cannot negate the role of light industry in providing means of production.

The socialist economy is built as a planned economy on the basis of the system of ownership of the means of production by the people. Through overall balance, it should coordinate with the proportion of the production of the means of subsistence and means of production within light industry so that the means of subsistence produced by light industry departments is mutually suitable to the increasing purchasing power of the entire society, and so that the demands of the means of production produced, industrial and agricultural production as well as the entire economic construction and national defense construction are suitable to this portion of light industry products. Sometimes we should allow the production of the means of subsistence to develop a little faster and appropriately increase the proportion of the production of the means of subsistence, while sometimes we should also allow the production of the means of production to develop a little faster and appropriately increase the proportion of the production of the means of production. This should proceed from the overall situation and conscientiously reflect the demands of objective economic law in the proportional development of the national economy, and we should carry out the principle of seeking truth from facts.

Commodity production still exists in the socialist society and the law of value still plays a role in regulating production. The law of value plays a particularly distinct role in some light industrial enterprises of the system of collective ownership which are responsible for their own profits and losses. Practice has taught us that for many years, quite a few of such enterprises which were originally engaged in producing the

means of subsistence, particularly the production of small commodities of daily use, switched to cooperate with large industries in providing complete sets. This is cuased by planned arrangement but even more important are the economic reasons. This is because production of small commodities is unprofitable and there are many benefits in cooperating with large industries to provide complete sets. Therefore, in order to basically solve the problem of small commodity production being jostled around, not only must we give these products a suitable place in the planned arrangement and normal marketing channels but should also enable enterprises to obtain reasonable profits under normal conditions of management. If we overlook this point and purely rely on administrative decrees and planning to develop the production of small commodities for daily use, ultimately the goal cannot be reached even if some results are obtained for the time.

/2. Structure of Food, Clothing and Utility Products/

Light industrial products used as means of subsistence can be differentiated according to their basic functions and divided into three main categories of food, clothing and utility products. Reflected in the internal structure of light industry as a whole are primarily the relationships among the products of the food industry, the textile clothing industry and the industry of articles for daily use.

The following table shows the structural changes of commodities for food, clothing, daily use and cooking in the commodity turnover in the Chinese society during the past 20-odd years:

| Classification/Year | 1952 | 1957 | 1965 | 1970 | 1978 |
|---|---|---|---|---|---|
| For food | 56.5 | 54.6 | 54.5 | 52.4 | 50.9 |
| of which: | | | | | |
| grain | (22.3) | (18.5) | (15.1) | (13.4) | (11.0) |
| meat, poultry, eggs | (8.1) | (6.7) | (10.0) | (7.9) | (7.0) |
| For clothing | 19.3 | 18.7 | 19.5 | 23.9 | 22.6 |
| For daily use | 20.9 | 22.5 | 20.8 | 18.9 | 22.2 |
| For cooking | 3.3 | 4.2 | 5.2 | 4.8 | 4.3 |
| Total | 100 | 100 | 100 | 100 | 100 |

The above figures make clear two points:

First, among the four categories of consumer goods, the proportion of food is always in first place and so far it accounts for over half of the entire turnover of consumer goods;

Second, among the four categories of consumer goods; the overall tendency of the changes in composition is that those for clothing and daily use increase and the portion for foor decreases.

In the past 2 years, surveys of some urban and rural markets conducted by industrial and commercial departments in some areas have reached similar conclusions. Many comrades believe that along with the gradual rise in the living standard of the people in the future, composition of commodities for food, clothing and daily use means of subsistence will still change in this direction. Therefore, in light industry production as a whole in the future, we should speed up the development of clothing goods and manufactured goods for daily use so that the changes in the composition of products in light industry as a whole will mutually suit the changes in the composition of commodities needed by the market. In my view, even though the market forecast mentioned above has a basis, the derived idea of guiding the production of the means of subsistence in light industry is open to question.

Analysis of past records shows that the proportion of food consumption has decreased 5.6 percent from 56.5 percent in 1952 to 50.9 percent in 1978. Of this, the proportions of food, including meat, poultry and eggs, fell from 30.4 to 18 percent, or by 12.4 percent. Consequently, the consumption ratio of other food (including sugar, salt, tobacco, liquor, dairy products and other food industrial products) actually did not fall but rose from 26.1 to 32.9 percent, an increase of 6.8 percent. This increase not only exceeded those of the portions for clothing and products for daily use but even exceeded the sum total of their proportions of increase (the portion for clothing increased 3.3 percent and products for daily use 1.3 percent, their total increase was 4.6 percent).

Seen from the light industry consumption levels of per capita average, we are behind the average level in the world in the three areas of products for food, clothing and daily use and are far behind the advanced level in the world. In the food industry, the greatest differences are the necessary commodities for daily life, such as sugar and dairy products. In the textile industry, the greatest differences are with high-quality consumer goods, such as silk cloth and woolen fabric. Among manufactured goods of daily use, the greatest differences are with paper and durable consumer goods.

In terms of the proportions of individual fields in industry as a whole, China's textile industry is more developed while industries of food and manufactured goods of daily use are more backward and the proportion of the food industry in the entire industry is particularly low. Since the Second 5-Year Plan, we have overlooked the production of the food industry so that for a prolonged period of time we relied on imported sugar. This deserves our attention.

Someone has asked: "Based on the above reasoning, does it mean that in the future commodity composition of consumption by the society we should decrease the proportion of textile goods and manufactured goods for daily use and increase that of the products of the food industry?" Certainly not this way. I believe that the proportion of products of the food industry in total consumption by the society should be increased and the proportions of textile clothing products and manufactured goods of daily use must also be increased. The ratio of durable consumer goods, particularly among silk and fur products, synthetic fiber products and manufactured goods of daily use in the textile industry, should have a tangible increase. How should we resolve the contradiction mentioned above? We should do so by further decreasing the proportion of grain, table salt, meat, poultry, eggs, fruit, vegetables and milk in food consumption in order to increase the proportion of products for clothing and daily use in the means of subsistence as a whole as well as the proportion of sugar, dried milk, beer and convenience food in food consumption. Under the conditions of overall development of agricultural sideline production, we should permit sugar and other products to have a more tangible growth than table salt. There should be more grain for winemaking and making cakes, crackers, bread, monosodium glutamate and various convenience foods and there should be more meat, poultry, eggs and fruit for manufacturing canned food, dairy products, preserved fruit and fruit syrup.

By our correct calculations, in the last few years, the total means of subsistence for food, clothing and daily use that have truly undergone technical processing only accounted for over 60 percent of the turnover of market consumer goods. Of these, products of the food industry, textile clothing products and manufactured goods of daily use each account for about one-third, and on the whole, agricultural sideline products directly used for food, clothing, daily use and cooking accounted for over 30 percent. The direction of our efforts in the next 20 years should be to enable the great fields of light industry to develop faster and to enable the sum total of the means of subsistence that undergo industrial and technical processing to constitute 70-80 percent of the total turnover of market consumer goods.

Of course, in light industry as a whole, it is not possible for the development among the three great fields to be balanced. Under different conditions, some may develop a little faster and some slower; some are affected more by raw materials and some restricted more by investment. We should proceed from reality and implement the spirit of seeking truth from facts. If we carry out overall balance according to conditions in every quarter and when we discover that a certain part truly does not have the conditions to grow proportionally, we should then work hard to speed up the production of those products which have the conditions to develop faster, enable the growth rate of products in light and textile industries to suit the growth of market purchase power and at the same time work hard to create conditions to expand export.

/3. Composition of Products Catered to the Rural Areas, Cities and Towns/

Another problem we should study is the amount of light industry products which are catered to rural areas and find markets there and the amount of products sold in cities and towns and which find markets in cities. The study of this problem is essentially a component part in the study of the structure of the domestic market of light industry.

China's population is over 80 percent rural. In the total turnover of market consumer goods in 1979, sales to rural areas accounted for over 50 percent (of which light industry goods accounted for over 60 percent). During 1964-1978, the proportion of the rural market was smaller, which was very abnormal. In the last 2 years, due to price increases in the purchase of some agricultural products and due to increased agricultural production, the increase in the purchasing power of people in rural areas has surpassed the increase in the purchasing power of city and town residents. Hence the proportion of light industry goods sold in the rural market expanded. This tendency may still continue in the future and this must be expected as we study the domestic market structure of light industry.

We should stress the three following links when we study this aspect:

1) Study the domestic market structure to make clear the trend of development of light industrial production.

In terms of the means of production produced by light industry departments, it goes without saying that we should treat agricultural production service as an important aspect. But in terms of industrial products as means of subsistence, our understanding is quite inconsistent as to whether we should study the problem of catering them to the rural areas. This deserves to be studied.

The needs of residents and residents in cities and towns for light industry products have both consistency and inconsistency. Because their living conditions are not the same, their demands on the variety of light industry products differ greatly. Some light industry products, such as bicycles, are means of communications in cities but in the countryside they are not only means of communications but also means of transportation. Despite the fact that most light industry products of daily use are necessities of life in the countryside, the demands on variety, specifications, grades, colors and designs are not consistent. Some light industry products (such as barn lanterns, kerosene lamps and water vats) are not much needed in cities but they are needed in large quantites in rural areas. Some light industry products (such as typewriters, Western musical instruments and goods for charting) are needed in large quantities in cities but are basically, for the time being, not needed in rural areas. Light industry departments should therefore, study the market composition of products, analyze which products are targeted for sale mainly in rural areas and mainly in cities. They should particularly stress whether the variety, specifications, quality, grades, colors and designs of products to be sold in rural areas truly meet the needs of these areas so that more

light industry products that suit market needs and which are good and cheap will be produced for the countryside, safeguarding the improvement of peasant life and promoting the growth of agricultural production.

(2) Study the reaction of circulation of light industry commodities on the structure of light industry products.

Catering to the rural areas and taking rural areas as the main market is not only determined by light industry production but is largely determined by the circulation and distribution of commodities.

Light industry products are basically purchased and sold by commercial departments. Consequently, by means of the purchase and sale work of commercial departments we must support light industry departments to better implement the production direction of catering to the rural areas and taking rural areas as the main market so that circulation will react to production. On one hand, we must stress the link of the purchase of light industry products, conscientiously survey and earnestly represent the demands of rural areas as regards the variety, specifications, quality, colors and designs of light industry products, positively assist light industry departments to arrange production plans by signing and implementing production and sale contracts in order to satisfy the needs of rural areas even better. On the other hand, we must stress the link of the distribution of light industrial products. Under the principle of overall considerations and all-around arrangement for the urban and rural markets, we should try our best to preferentially first satisfy the needs of rural areas with a portion of the light industry products which are needed in both urban and rural areas.

(3) Study rural market conditions so that changes in the structure of light industry products will suit the level of purchasing power in rural areas as much as possible.

Production determines consumption. Wihtout a doubt, only if agricultural production develops can the rural market expand. But with a given overall level of agricultural production, the total purchasing power of the rural market is generally determined by two factors. One is the composition of agricultural production. What can form rural purchasing power primarily belongs to the commodity production portion of agricultural production. Therefore, when we study rural market needs for light industry products, not only must we consider the whole composition of agricultural production but analyze the amount of agricultural sideline products that can be sold by rural areas in exchange for light industry goods produced by cities. Another factor is the change in price parities between industrial and agricultural products. Under a given commodity production level, if the prices of agricultural products increase and the prices of industrial products stay the same or decrease, the purchasing power of rural areas for industrial products will correspondingly increase, and conversely it will correspondingly decrease. Therefore, when they study the needs of rural market demands for light industry products (commodities), light industry and commercial departments should do their best in investigating

the purchasing power of the rural market, connect with the price parities between industrial and agricultural products and analyze the demands for light industry products so that the production and supply of light industry products will suit the level of rural purchasing power as much as possible. In formulating long-term plans we must stress this particular point.

/4. Commodity Composition of Domestic and Foreign Markets/

The study of the composition of domestic and foreign markets of light industry products is essentially a study of the relationships between domestic and foreign markets of light industry.

Some comrades believe that the domestic market is primary and that the foreign market should be subordinated to the domestic market. This view is partially correct and partially open to question. Ours is a large country with a population of almost a billion people. In terms of a market for light industry products, it is correct to say that the domestic market is primary. If we affirm this view, then under the condition that China's entire light industry production cannot meet demand over a prolonged period of time, it actually negates the necessity or possibility of expanding the export of light industry products.

Conversely, some comrades believe that we must positively expand the export of light industry products and that the domestic market should be subordinated to the foreign market. I think this suggestion is equally one-sided. True, the export of light industry products should be expanded. According to statistics of concerned departments, in the last 2 years the value of China's light industry products purchased for export merely accounted for about 12 percent of the total output value of light industry as a whole. Deducting various duplication of figures, the composition of light industry products in the domestic and foreign markets is on the whole around 4 to 1. Evidently, we should positively expand the export of light industry products and gradually and appropriately increase the proportion of light industry products in the foreign market. However, we cannot draw the sweeping conclusion that the domestic market should be subordinated to the foreign market. It we conduct our work according to this view, ignore the concrete conditions in the domestic market and export all exportable light industry products, supply for the domestic market will sure to be affected and this is not what we desire.

The following views are suggested for the correct understanding and handling of relations between domestic and foreign markets of light industry:

First, we must persist on the domestic market as the primary market and positively expand exports, gradually and appropriately increase the proportion of exports in the whole domestic and foreign markets of light industry products. We can speed up exports a little when the growth rate of light industry as a whole is faster, and conversely we should slow it down a little. Under the special condition that light industry production cannot develop, it will not be suitable for the proportion of exports of light industry products to increase.

Second, we must conduct concrete analysis of the relations between domestic and foreign markets of various light industry products. For necessities of life which are supplied in fixed quantities, we should preferentially satisfy the minimum needs of the domestic market before we consider the possibility of export. For products which have a limited need or are not urgent in the domestic market, such as arts and crafts, cosmetics, essence and perfume, we should preferentially satisfy the demands of export and put the foreign market before the domestic market.

Third, we must be particular about economic results when we concretely study the domestic and foreign market proportions of various light industry products. In other words, not only must we look at the demands for various products but also compare the economic results of various products in the domestic and foreign markets. In the world market, the prices of various light industry products change all the time and currency exchange rates fluctuate drastically. We should promptly adjust the domestic and foreign market proportions of certain light industry products according to conditions in the world market and export more products which have higher currency exchange rates.

## III. The Regional Structure Light Industry

Light industry is primarily local industry. Light industry enterprises number in the tens of thousands and are distributed throughout the country. Study of the regional structure of light industry is therefore highly important.

### /1. Relationships Between Coastal and Inland, Advanced and Backward Regions/

Coastal and inland, advanced and backward regions are different concepts. In light industry, coastal regions are generally more advanced and inland regions are more backward. Therefore, for the sake of clarity we discuss them all together.

China's industries are largely concentrated in coastal regions. This is an irrational condition formed in the past. In 1952, distribution of all industries was 70 percent coastal and 30 percent inland; in 1978, it was 65 percent coastal and 35 percent inland. In terms of trades under the Ministry of Light Industry, it was 60 percent coastal and 40 percent inland; in 1978 it was 65.7 percent coastal and 34.3 percent inland. In the 26 years from 1952 to 1978, light industry in coastal regions grew 7.4 times at an average annual increase of 9.1 percetn and in inland regions it grew 5.9 times at an average annual increase of 8 percent.

Why were the changes in geographic distribution of trades under the Ministry of Light Industry different from industries as a whole? Analysis shows that there are three main reasons.

First, for over 20 years, state investment on the system of light industry was very low and its production growth depended on the potentials, reforms and transformation of initial enterprises.

Second, half of the trades under the Ministry of Light Industry are secondary light industry that developed on the basis of the handicraft industry. The geographic distribution of the handicraft industry was much broader than modern light industry so that in 1952 the inland proportion was greater.

Third, enterprise households of the system of ownership by the collective form the absolute majority among enterprises in the system of light industry and their output value accounts for over half of the total. The source of funds for expansion and reproduction of this portion of enterprises does not depend on investment by the state but on profits retained from the income tax submitted to the higher authorities by the enterprises. Product enterprises in coastal regions are low in costs and high in profits so that there are more retained profits and more funds for expansion and reproduction.

We must be positive about the rapid development of light industry in coastal regions. The technological and economic target enterprises of coastal regions are generally more advanced than those of inland enterprises. The differences between an old base like Shanghai and inland provinces, cities and districts are even greater.

Giving full play to the coastal light industry bases will not only benefit the development of coastal regions themselves but can also ehnance the ability of the state to strengthen the construction of the hinterland. Since 1979, due to the implementation of the four-point policy of readjusting, restructuring, consolidating and improving as well as economic policies of supply, purchase and loan by selecting the best, the development of production related construction in the advanced coastal regions has been further promoted. Along with the expansion of foreign economics and interchange, particularly doe to the popularization of import material processing, import sample processing, import component processing, compensatory trade and other new management forms, advantageous conditions have been created to speed up the development of advanced coastal regions. In the past 2 years, the development of advance in the regions coastal areas has been in most part faster than in the hinterland. This tendency of change is in accord with the objective law of economic development and is beneficial to the growth of light industry as a whole and the entire national economy.

However, we should also stress the development of light industry in backward inland regions. We encourage coastal regions to make a headstart precisely so that they can better promote the development of backward inland regsions and bring about their general advancement. Looking at the problem in the long run, we should enable the hinterland to catch up with and finally surpass coastal regions in the speed of development and gradually improve geographic distribution. We must pay particular attention to this point in minority nationality areas.

In order to improve the regional structure of light industry, we believe that we must stress the following points:

First, help the hinterland to develop new industries with planning and with emphasis, build a new light industrial base of production and fundamentally improve regional distribution.

Over the past 30 years we have implemented the policy of building the majority of new factories in the hinterland in our light industry construction. But we have succeeded in neither achieving a corresponding increase in the proportion of inland production nor fundamentally changing the state of various technological and economic targets in the hinterland being generally more backward than advanced coastal regions. If we are not particular about economic results in capital construction in the future, it will be very difficult to make fundamental changes in the backward appearance of the hinterland. During the period of the Third 5-Year Plan, the Ministry of Light Industry implemented the use of key support in constructing the Xian clock and watch industrial base, enthusiastically brought in some backbone technical personnel from Shanghai, Nanjing and Dalien, invested almost 100 million yuan, provided complete sets of equipment for a series of factories and institutes including those for watches, clock and watch materials, clock and watch machineries, time-measuring instruments and a clock and watch research institute so that the technological and economic targets of watches and some products in shortage produced by the Xian area will catch up and surpass the level of many coastal provinces and cities. This is an experience worthy of attention.

Second, carry out appropriate division of labor between cities in coastal and inland regions. Coastal regions are in a favorable position to develop foreign trade. In recent years, old light industry bases such as Shanghai, Beijing, Tianjin and Guangzhou have been working hard to develop high-grade, precision and advanced new products and actively expanding export. The proportion of light industry products produced in these cities is rapidly increasing with a corresponding decrease in the proportion of those for the domestic market. Under such conditions, it is necessary and possible for a large group of large and medium inland cities to develop light industry trades and share the task originally shouldered by Beijing, Tianjin, Shanghai and Guangzhou of supplying light industry products to the whole country. In any case, there should be division of labor and cooperation between large, medium and small cities in coastal and inland regions so that each will have a role to play. It we do not accord with the concrete conditions of coastal and inland regions and large, medium and small cities, cut make a common rush to develop high-grade, precision and advanced new products and scramble for export, they will weaken each other and none will advance.

Third, positively develop integration among regions, strengthen cooperation between advanced coastal regions and backward inland regions. Generally speaking, the processing technology of the former is more advanced but lacks resources; the latter mostly has favorable resource conditions but

is more backward in processing technology. Under these conditions, we can develop joint management between regions and processing regions, let raw material producing regions support processing regions with their rich resources by means of economic contracts and at the same time give reasonable economic benefits to raw material producing regions. Moreover, we can organize advanced regions to actively help backward regions to build factories and to help older factories to raise their technological level and pay the former for what they deserve. We must promote mutual benefit and cooperation between the regions.

In order to actively promote the support of backward regions by advanced regions, we can also give appropriate preferential treatment to backward regions in tax and price policies, and we msut do so particularly for minority nationality regions. It is wrong to protect the backward regions, but under the condition of encouraging advancement we should give them appropriate preferential treatment.

/2. Regional Division of Labor and Cooperative Relations/

There have always been two different guiding principles on how to develop local light industry. One principle stresses suiting measures to local conditions and advocates regional division of labor and cooperation, gives full play to the strengths of all regions, pays attention to economic results and advocates investment and development based on selecting the best. Another principle stresses building all categories of light industry in all regions in order to realize provincial and regional self-sufficiency in light industry products. When studying the regional structure of light industry we should pay attention to studying this problem.

Marx and Engles believed that "The level of development of a nation's productive forces is most clearly shown in the level of development in that nation's division of labor."[2] This is particularly obvious in commodity production. The above-mentioned idea of regional self-sufficiency is essentially an economic thinking that suits self-sufficiency of the level of development of backward productive forces. Determining principles and policies based on such thinking is bound to hinder the growth of productive forces. Its shortcoming is mainly reflected in, first, its ignorance of natural and resource conditions of regions and uniform demand on their self-sufficiency in light industry. This will cause what should developm unable to develop, and what cannot develop, to manage to develop. Second, it violates the principle of specialized cooperation and fosters the trend of "large and complete" and "small and complete." Third, this method is also often applied indiscriminately by every level. Not only will provinces, cities and autonomous regions demand self-sufficiency, prefectures, municipalities and counties will also make the same demand, which will result in greater disadvantages.

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2 "Selected Works of Marx and Engels," Vol 1 p 25.

Adopting the principle of suiting measures to local conditions and cooperative division of labor can avoid the disadvantages discussed above. Practice has proved that the benefits of this method are: (1) It can give full play to the strengths of all regions and hasten the development of light industry. In particular, it is mutually suitable to the agricultural policy of "suiting measures to local conditions and appropriate centralization" and can speed up the development of agricultural product processing industry. (2) It can carry out the demand for industrial reorganization in all regions according to the principle of specialized cooperation. (3) It can be applied to all levels engaging in light industry. Regardless of their scope, all levels of local administration can practice it.

Some comrades suggest: "Necessary self-sufficiency of provinces and regions cannot be denied. Products such as glue and ink cannot always be shipped from Shanghai to Xinjiang." All regions develop light industry according to different conditions, including resource, transportation and market conditions. If such products as ink have to be shipped over a long distance, then it will not be in accord with the principle of suiting measures to local conditions. Producing ink in Xinjiang is not only for self-sufficiency but also because of good economic results by reducing shipping costs.

Some comrades suggest: "If we advocate that all provinces and regions develop their strengths, then the flue-cured tobacco produced in Yunnan will have no market and the modern cigarette plants already built in Shanghai will have no tobacco leaves." Such worry is unnecessary. Suiting measures to local conditions and cooperative division of labor are both indispensable, and such conditions can be avoided by regional economic cooperation. Of course, here we need an overall program. We must advocate the overall point of view and have suitable economic and administrative measures.

The criterion for judging the correctness of a guiding principle is ultimately whether it promotes or hinders the growth of productive forces. Only by comparison can we make distinctions. Below, we will compare and explain by citing examples from the development of light industry in Guangdong and Hubei.

In the structure of regional products, the key points of Guangdong are very prominent. The climate of this province suits the growth of sugar-cane. They actively make use of this favorable condition and vigorously develop the sugar manufacturing industry with an annual output of almost 1 million metric tons, equivalent to 45 percent of the national output of sugar. This province is also close to Xianggang and Aomen. With favorable conditions to develop small hardward commodities for daily use, it has opened up import material processing, import sample processing, import material assembly, compensatory trade and other activities. Since 1979 they have successively signed 687 contracts with foreign traders, introduced $30 million worth of equipment and it is estimated that there will be an increase of $230 million in pure income from foreign remittance

within 2 years. Because it has given play to regional strengths rather well, in 30 years light industry in this province has increased 29.3 times (tha national average is less than 20 times) with an average annual increase of 12 percent (the national average is 10.4 percent). Light industry output of this province currently ranks second in the whole country (second only to Shanghai).

In developing the textile industry, Hubei has given play to its regional strengths. But when developing light industry it has overlooked this point. Lakes are found all over this province so that it has favorable conditions for developing papermaking from reeds. But for over 20 years, the output of reeds has drastically decreased and in recent years reeds have to be allocated from Hunan. This province does not have the favorable condition for developing sugar manufacturing but has invested tens of thousands of yunan on a number of sugar refineries, which in the end cannot play a role. Similarly, in developing machinery and electrical products for daily use, they do not consider conditions but make a big rush. Not only have they duplicated distribution points in all prefectures and cities with each doing something different, even the several counties (cities) in each prefecture engage in their own regional autonomy. Among the five south central provinces, Hubei's light industry used to rank third. In 1978, it declined to fourth and basically it no longer has key products that rank high in the nation. According to figures at the end of 1978, of the 30-odd types of primary products managed by the light industry bureau of that province, not one has an output that exceeds a proportion of 10 percent of the nation. Of those which have higher ratios, thermal flasks account for only 7 percent or so and tobacco 6 percent or so, which basically can only be self-supporting.

/3. Relations Between Central and Local Authorities/

An important element in studying the regional structure of light industry is to find out how many of light industrial enterprises are directly administered by ministries of the central government and how many are administered by light industry departments of provinces and cities (autonomous regions).

How should we correctly handle the relations between central and local authorities among light industry departments?

First, the details of all products of light industry trades included in state plans and departmental plans must be differentiated and the products should be managed by levels. The variety of light industry products numbers in the thousands, those included in the state plan can only be a small portion and the planned products included in central light industry products should be managed at different levels by the provinces, cities, autonomous regions and different local levels. Because China's planning and material management system has a long-time problem of excessive control, supply of raw materials is guaranteed only for products which are included in planning, regardless of what the products are. Consequently, for 30 years the products included in state plans and departmental plans have increased

in number and complexity. This is a highly abnormal phenomenon. In the future we should change this situation by reforming the system. We must implement the principle of combining planned regulation and market regulation to total industrial production, with planned regulation in the main. For production of most of the small commodities of daily use under light industry departments, we can selectively exclude them from planning or include them in planning according to major categories, exercise flexible control of the relations between planned regulation and market regulation in our actual work and implement the principle of mainly makret regulation. It will not benefit production growth if we do not distinguish the different conditions between light and heavy industries, and between the major trades and products and small trades and products within light industry but make a sweeping demand that the more products included in planning the better.

Second, to increase productive capacity through capital construction and technical measures, we must give full play to local enthusiasm and implement management by the authorities in charge to avoid duplication in construction and arbitrary construction. No doubt, we should make concrete analyses and individually treat state, department and locally planned products, projects above and below the norm, nationally unified commodity distribution and regionally balanced commodities. Funds for capital construction and technical projects of the absolute majority of light industrial enterprises should be worked out by local authorities so that local authorities can do more under the unified program and overall balance of the central authorities. Funds for a small number of key projects which require unified distribution of points throughout the whole country or which require interregional cooperation should be worked out by the central authorities. Certain projects can have joint investment and management by central government ministries and local authorities according to concrete conditions.

Third, for some trades which need a nationally unified arrangement for balanced supply, production and marketing and which need organized interregional cooperation, we should establish national or interregional corporations to resolve contradictions between regions. This way we can supply selected quality raw materials, whose resources are limited, for use by regions and enterprises which produce quality products, have a low consumption level and yield good results and high profits. The National Tobacco Industry Corp and the Leather Industry Corp established in 1964 have played good roles in this regard. National corporations can set up branches in provinces and cities (autonomous regions) or provinces (cities and autonomous regions) can set up corresponding corporations which link up with national corporations. National corporations can directly manage enterprises, or not manage enterprises or manage only some key enterprises. They can have unified management of personnel, finance and materials as well as supply, production and marketing or they can not manage personnel and finance but only control central allocation and overall balance of materials and goods. They can be set up in the capital or in cities where production of the particular trade concentrate. In the past we used to organize corporations through administrative means,

placing large numbers of enterprises under the management of top-level corporations of the central authorities and affecting local enthusuasm. In the future, we should pay more attention to economic means and organize corporations according to the principle of voluntarism and mutual benefits. We should particularly work more on some subordinate relations of enterprises which basically do not change and which stress joint corporations based on interregional cooperation in supply, production and marketing. A corporation is an economic organization which should be responsible for its own profit and loss.

Besides the relations between light industry departments of the central authorities and provincial and municipal (district) authorities, we should also pay attention to relations among provinces and cities, prefectures, counties, regions and various local levels. The above-mentioned principle in handling the relations between top level light industry departments of the central authorities and provinces and cities (autonomous regions) is generally applicable for handling relations between light industry departments of provinces and cities (autonomous regions) and industrial departments at various local levels. But conditions in provinces (autonomous regions) and directly administered cities are not the same and should be distinguished. Generally speaking, for enterprises in directly administered cities, it is usually desirable to have primarily centralized management and secondarily management at different levels, and the proportion of directly administered enterprises should be slightly higher. The administrative areas of provinces (autonomous regions) are broaderand we should give play to prefectures and provincially administered cities as much as possible. Generally it is desirable to manage primarily by levels and the proportion of enterprises directly managed by the provinces (districts) should be slightly smaller. The development of light industry among all provinces (autonomous regions) is not balanced and likewise in the same province (autonomous region) and district. Therefore, we cannot require different provinces (autonomous regions) to do things in one way. Moreover, we cannot fail to differentiate concrete circumstances and cannot arbitrarily use at every level the same concerned stipulations handed down from the higher authorities. Guided by the principle of affirming unified leadership and management by levels, when we concretely handle the light industry and economic structure of each region, we should proceed from reality and suit measures to the times and local conditions.

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## CHAPTER VII

## THE STRUCTURE OF THE TEXTILE INDUSTRY

By Zhang Pu [1728 2883]; original text pp 223-260; portions within slantlines in boldface in the original text.

[Text] In the history of the development of modern industries, the textile industry occupies a position of specific importance. Engels pointed this out: "The history of the working class of England started in the latter half of the 18th century, after the invention of steam engines and cotton-processing machines."[1] He added: "The spinning jenny reduced the production cost of cotton yarn, thereby expanding the markets and giving industries a primary motivating force."[2] Starting from the textile industry, light industry was first developed, and gradually it accumulated funds, expanded needs for means of production, and created the various conditions essential to a speedy development of the heavy industry. This was a common course the major capitalist countries had traversed at the time of achieving industrialization, and it was a reflection of the inherent objective law of economic development. In the words of some people, this economic structure is a "light-type economic structure." They have advocated that China must also embark on this course of "light-type economic structure."

Nevertheless, prevalent first in the Soviet Union and later in China is a viewpoint which maintains that industrialization proceeding from light industry is a capitalist course of industrialization, and that priority development of heavy industry is a socialist course of industrialization. The economic structure resulting from a priority development of heavy industry in disregard of agriculture and light industry, enthusiastically advocated and implemented in the Soviet Union, is called a "heavy-type economic structure." As early as 1956, Comrade Mao Zedong set forth the question of correctly handling relations of development among agriculture, light industry and heavy industry. Later, after drawing a lesson from the period of the great leap forward, he hammered out a principle of developing the national economy in the order of agriculture, light industry and heavy industry. However, for a long period of time, our country has continued to embark on a course of the "heavy-type economic structure," thus creating a serious dislocation in the proportional relations among

1. "Complete Works of Marx and Engels," Vol 2, p 281.
2. "Ibid., Vol 1, p 668.

agriculture, light industry and heavy industry. This has created an extremely adverse impact on the development of the textile industry and the national economy as a whole.

Based on our experiences in and lessons from the development of the textile industry, this chapter is aimed at studying ways and means of administering correctly the relations of development among agriculture, light industry and heavy industry, and at improving the economic structure of the textile industry, so as to bring into full play the superiority of the textile industry and to accelerate the tempo of the development of the entire national economy.

## I. Position and Role of the Textile Industry in National Economy

Viewed from the experience of the economic development of China and the various countries of the world, the textile industry occupies a position of paramount importance in the process of achieving industrialization and plays a vitally important role in development of the economy of all countries. A review of this aspect of history is of significance to a correct cognizance of the position and role of China's textile industry in the national economy of the present stage.

### /1. To Start Realizing Industrialization From Development of the Textile Industry Is a Common Course of Economic Development of the Economically Developed Countries in the World./

The Industrial Revolution was started in England's cotton textile industry. This was followed subsequently by a gradual transition of light industry branches--woolen and linen textiles, papermaking printing--from workshop handicraft industry to the mechanized large-scale industry. The speedy development of light industry enhanced the development of heavy industry. The Industrial Revolution of England, after going through a period of 70 to 80 years, was basically consummated in the late 1830's. The success of the Industrial Revolution made England the "factory of the world." In the middle of the 19th century, 80 percent of England's cotton textiles were exported to foreign countries, and cotton was supplied entirely by the colonies. Millions of handicraftsmen died of starvation, because England's machine-made cotton cloth had shattered the world-renown Indian textile handicraft industry. "This catastrophe is almost unprecedented in the history of commerce. The skeletons of textile workers have whitened the Indian plains."[3] By 1881, the proportion of England's heavy industry in gross value of industrial output surpassed that of its light industry, but the textile industry was still developing rapidly, with the number of cotton textile spindles increasing to 58.69 million in 1920, the highest level in history, accounting for one-half of the world's spindles at the time and still controlling the world's textile markets.

3. Ibid., Vol 23, p 472.

The Industrial Revolution of the United States, France, Germany and Japan was also started first in the cotton textile industry. Before 1860, light industry occupied a dominant position in the United States, with flour, cotton textiles, lumber-processing and shoemaking light industry branches standing at the forefront, the foundry and machinery industries ranking fifth, in order of magnitude of output value. After the American Civil War, heavy industry was speedily developed, and changes took place in the structure of the industrial sector. By 1900, however, light industry still surpassed heavy industry by 50 percent in output value. It was not until after World War I that heavy industry outstripped light industry. In this period, light industry, particularly the textile industry, was developing speedily. In 1928, the number of cotton textile spindles reached 36.35 million, the highest level in history. The consumption volume of cotton was far ahead of England, ranking first in the world. The export volume of cotton cloth was second only to England, ranking second in the world. In 1929, after the emergence of an economic crisis, there was a gradual decrease in the number of spindles, but production and export of cotton cloth were still increasing. The export of cotton cloth in 1947 reached a record high of 1.4 billion square yards, ranking first in the world. Then gradually it declined after being overtaken by Japan.

Prior to the Russo-Japanese War, the heavy industry of Japan was very small in size, but its textile industry was overwhelmingly superior. In 1900, 73 percent of the factories and 67 percent of the staff and workers of the whole country were in the textile industry. In 1904, after the victory of Japan in the Russo-Japanese War, the Industrial Revolution underwent a transition from a light industry centering on the textile industry to a heavy industry centering on the iron and steel industry. In 1914, however, the output of the textile industry still represented 44 percent, whereas the four industrial sectors of metal, machine-building, electric power and gas, and chemistry embraced only 24 percent, of the gross value of industrial output. After World War I, the economy of Japan developed rapidly, with the proportion of its textile products accounting for 72.4 percent of the total export volume in 1926, the highest record ever achieved. This proportion subsequently underwent a gradual decline, but rose to 46 percent in 1950 and stood at 30 percent in 1960, played an important role in Japan's industrialization and its economic recovery after World War II.

The Soviet Union, in the days of tsarist Russia, also achieved its industrialization by starting from development of light industry centering on the textile industry. In 1913, the first-class industries (industries producing the means of production) accounted for only 35 percent and the second-class industries (industries producing consumer goods) for 65 percent of the gross value of industrial output. In proportion, the second-class industries were almost 1 time higher than the first-class industries. In 1928, after the October Revolution, the first-class industries comprised 40 percent and the second-class industries embraced 60 percent of the gross value of industrial output in the Soviet Union. It was not until after the First 5-Year Plan that the situation was reversed, with the first-class industries outstripping the second-class industries.

China's textile industry, in the days of its development of the modern industries, was the sector of industry most rapidly developed and best founded. In 1949, the textile industry of China accounted for 35.5 percent, or over one-third, of gross industrial output value. It occupied a position of paramount importance in the national economy as a whole. In 1979, the proportion of the textile industry in the gross industrial output value dropped to 12.9 percent, but it still ranked second among the various industrial sectors, being second only to the engineering industry. Profits gained and taxes paid by the textile industry in 1979 constituted 13.2 percent, or one-seventh, of the total volume of industrial profits and taxes in the whole country. The export of textile products made up 21.1 percent of China's total exports. It contributed significantly to development of the national economy.

/2. The Present-day Textile Industry Remains Capable of Playing an Important Role in Industrialization of the Economically Underdeveloped Countries./

It is out of a profound economic and technological origin that the Industrial Revolution of the economically developed countries has all started from the cotton textile industry. This is absolutely not an accidental phenomenon. It is, in reality, determined by the level of the development of productivity at the time.

(1) Clothing, a most basic need of human life, second only to food, has extensive domestic and international markets. It provides development of the textile industry with a vast domain and a powerful motivating force.

(2) After development of the capitalist workshop handicraft industry, the textile industry has become a most important industrial sector. The development of the age-old textile handweaving technique provides a long-term preparation for invention of the textile machines. The technology of the textile industry is also simpler than that of heavy industry. It is, therefore, relatively natural that the Industrial Revolution starts from the textile industry.

(3) The textile industry requires less investment, produces faster turnover and yields more profits. In the initial stage of industrialization, when a shortage of capital exists, when technology remains in a state of backwardness, it is in compliance with the objective law of economic development to develop first the textile industry and other light industries until accumulation of capital and improvement of technological level are both attained, and later to develop energetically heavy industry, which needs more investment, produces slower turnover and involves a relatively complex technology.

To the economically underdeveloped countries, these conditions are today still playing a functional role. The countries having textile raw material resources or possessing an intermediate level of technology may develop the textile industry with a measure of basing output on input. By starting from development of the textile industry, it is possible to achieve a remarkable success in development of the national economy.

There are people who believe that the major economically developed countries, such as the United States, Japan, and some West European countries, are facing a decline in their textile industry; that therefore, different as it is today from the early days of industrialization, the textile industry has lost its superior position; and that as far as the economically underdeveloped countries are concerned, development of the textile industry is not more profitable than development of other industries.

The decline of the textile industry in the economically developed countries is caused by their high wages, low profits, and weak competitiveness in world markets. It is for this reason that investment has changed its course from the labor-intensive textile industry to the capital-intensive industries or the technology-intensive industries. As a result of this change in course, these countries are able to bring into full play the superiority of their ample funds and excellent technological base, and this has made it difficult for the economically backward countries to compete with them.

This is precisely a good opportunity for the economically backward countries and areas to speedily develop the textile industry. For, the original structure of the industrial production of the industrial developed countries is a structure of mainly using the raw and processed materials of the backward countries for processing and of subsequently exporting their finished products to the industrial backward countries. Today the industrial structure of these countries is in the process of a transformation from this vertical division of work pattern to a horizontal division of work pattern. Among the countries relatively well developed in industry, all are bringing into full play the distinctive features of their own countries, and through exports and imports all are making a mutual exchange of the finished products they have produced. Therefore, these countries are undergoing a gradual transformation from exporters of textile products to importers of textile products. This provides the industrially underdeveloped countries and areas with opportunities for developing the textile industry and for enhancing the growth of the entire national economy through development of the textile industry. It is through this avenue that growth has been attained in a number of the countries and areas that have achieved a relatively fast economic development in the past 20 years.

In the 1970's, an average annual growth of 14 percent was achieved in the total output value of Hong Kong, where the textile industry (including apparel) was an important mainstay of the economy. In 1977, the net output value of the textile industry accounted for 48 percent of the net output value of all industries, and over 40 percent of the total number of employed workers were textile workers. Export of the textile products in proportion accounted for 54.1 percent of Hong Kong's total export volume in 1975. In spite of a drop to 49.4 percent in 1979, the export of textile products was still close to half of the total export volume.

Since 1962, there has been a relatively fast growth in the industrial production of South Korea, where the fast-growing textile industry plays an important role. In nearly 10 years, the textile industry grew by 6 times in output, rising from 11.9 percent in 1970 to 21.8 percent in 1978 of the gross national

product. Textile products were mainly for export. The 1978 export of textile products, including apparel, amounted to $3.98 billion, accounting for one-third of South Korea's total export volume or 5.8 percent of the world's total export volume of textile products.

/3. Role of the Textile Industry in Development of China's National Economy/

Over the past 20 years, as a result of China's embarking on a road of giving priority to a onesided development of heavy industry, the superiority of the textile industry has not been brought into full play. Nevertheless, since the founding of the People's Republic, the textile industry has achieved a relatively good economic result, and it has played an important role in development of the national economy.

(1) Less Investments Needed, More Funds Accumulated

Building textile enterprises requires far less investments than building heavy industrial enterprises, but it accumulates much more profits and taxes for the state.

In 1979, the textile enterprises owned by all the people and the collective ownership generated 58.3 yuan of profits and taxes out of each 100 yuan of funds (fixed assets plus circulating funds). The average amount of profits and taxes created out of each 100 yuan of funds was 25 yuan in the national industries of the whole country, 19 yuan in heavy industry, and 47.7 yuan in light industry (including the textile industry). In percentage, the textile industry yielded profits and taxes 2.3 times higher than the national industries, 3.1 times more than heavy industry and 22 percent greater than light industry, including the textile industry. This meant that every 100 million yuan of funds used in the textile industry could produce an annual accumulated fund which was 39.3 million yuan more than the same amount of funds used in heavy industry.

From 1952 to 1979, among the industrial enterprises owned by all the people, the state investment in capital construction of textile enterprises constituted 4.6 percent of the total investment in industry, whereas the profits and taxes provided by the textile industry were 7.8 times the investment in the textile industry or 36 percent of the total investment in industry. In other words, of the state's total investment in industry, less than 5 percent went to the textile industry, which, however, yielded an accumulated fund equivalent to over one-third of the total investment in industry.

(2) Short Period of Construction, Fast Return of Funds

In normal conditions, it takes 1.5 to 2 years to complete the building of a new cotton textile mill and to put it into production, as was the case in the period of the First 5-Year Plan. Construction of a medium-sized chemical fibers plant, such as the Baoding Chemical Fiber Plant and the Beijing Vinylon Plant, took only over 2 years to complete. The average number of years set for recovery of funds, in the case of enterprises owned by all the people in 1979, was 4 years in industry as a whole, 5 years and 5 months in heavy

industry, 1 year and 10 months in light industry, 1 year and 7 months in the textile industry. A large chemical fiber plant requires more investment, but it needs only over 4 years for recovery of funds. Investment in the Shanghai Petrochemical General Plant, for example, was 2.2 billion yuan, but its profits gained and taxes paid in 1979 amounted to 522 million yuan.

(3) More Consumer Goods Provided, More Currency Withdrawn From Circulation

Textile products, which make up approximately over one-fifth of the total retail sales volume of consumer goods, are the principal industrial products used by the state in exchange for agricultural products from peasants of collectives. They are also important commodities used by the state for recall of disbursed currency. Today only polyester fiber cotton cloth and chemical fiber fabric can recall more than 10 billion yuan of currency from circulation every year. Accelerated development of the textile industry will play an important role in improving the standard of living of the broad masses of the people, in strengthening the worker-peasant alliance, in balancing differences between the purchasing power of consumer goods and the available supply volume of commodities and in stabilizing market prices.

(4) More Foreign Exchange Earnings Gained

Export of textile products constituted 21.7 percent of the total export volume of the whole country in the past 20 years (1957-1979). It was as high as over 30 percent of the total export volume during the 3 years of difficulties, reaching a record 35.2 percent in 1962. In that period of time, the foreign exchange earnings gained from the export of textile products were used to import food grains to meet the needs of cities, and they played an important role in adjustment of the national economy and in the recovery of agricultural production. The foreign exchange earnings gained from exports in 1979 totaled $2.88 billion, up 33.6 percent over 1978, or an increase of almost 5 times over the 1970 exports of $490 million.

(5) Less Energy Resources Consumed

The textile industry consumes less electric power. In 1979, the output value of the textile industry made up 12.9 percent of the gross national industrial output value, but the electric power consumed by the textile industry was only 5.4 percent of the total electric power consumption volume of the national industry. The output value created by use of each 100 million kWh of electric power is 590 million yuan in the textile industry, 560 million yuan in light industry, and only 170 million yuan in heavy industry. In the present situation of energy shortage, development of the textile industry with greater emphasis will produce more and better economic results.

(6) More People Employed

The textile industry is a labor-intensive industry. In 1979, with each 100 million yuan of fixed assets, the textile industry provided jobs for 16,500 staff and workers, whereas heavy industry furnished jobs for only 7,500 people with the same amount of fixed assets. The textile industry could provide

9,000 jobs more than the heavy industry. It is capable of creating additional jobs for 900,000 people with every 10 billion yuan of fixed assets. This is an unfavorable condition in the developed industrial countries, where low profits caused by high wages have resulted in a shift of funds to the capital-intensive industrial sector. In the present stage of China, this is, however, a favorable condition for making full use of our country's abundant labor force resources and for solving the thorny employment problems.

The experience of China's economic construction has shown that development of the textile industry at the present stage can achieve favorable economic results and attain the objective of illuminating our merits and obscuring our demerits, that embarking on the course of a "light-type economic structure" to bring into full play the superiority of the textile industry is a course compatible with China's national conditions of achieving industrial modernization with greater, faster, better and more economical results.

## II. Changes in Structure of Textile Industry

The textile industry, stamped with a very profound brand of the backward economic structure of the semicolonial and semifeudal Old China, has experienced tremendous changes in its economic structure as a result of the socialist transformation of capitalist industry and commerce and socialist construction. The changes find a concentrated manifestation in the following aspects:

### /1. Changes in Structure of Ownership/

After the liberation of the whole country, the China Textile Construction Corp of bureaucratic capitalism and the textile enterprises operated by the KMT local governments and big bureaucrats were confiscated and converted into the state-owned enterprises and the locally administered state enterprises owned by all the people. The enterprises which had a definite proportion of private shares were transformed into joint state-private enterprises after the state had confiscated the shares of bureaucratic capital in them. By 1952, in the economic structure of the textile industry, the enterprises owned by all the people constituted 30 percent of total output value and 31 percent of the total number of the staff and workers of the textile industry; followed by the joint state-private enterprises, which accounted for 8 percent of total output value and 9 percent of the total number of the staff and workers of the textile industry; and the cooperative enterprises, which made up 3.7 percent of total output value and 2.3 percent of the total number of the staff and workers of the textile industry. The private capitalist enterprises constituted 95.7 percent of the total number of textile enterprises in the whole country, with their output value taking up 43.6 percent of total output value and the number of their staff and workers making up 58 percent of the total number of the staff and workers of the textile industry. In addition, there was the individual handicraft industry, which had an annual output value of 1.4 billion yuan, equivalent to 15 percent of the total output value of the textile industry. Added together, the private capitalist enterprises and the individual handicraft industry constituted 58 percent of the total output value

of the textile industry, a proportion far exceeding that of the enterprises owned by all the people, the joint state-private enterprises and the cooperative enterprises.

As a result of the 1956 socialist transformation of agriculture, the handicraft industry and capitalist industry and commerce, capitalism no longer existed as an economic sector in China's national economy, and dramatic changes took place in the economic structure of the textile industry. In 1957, the enterprises owned by all people and the collective enterprises had slight increases and decreases in proportion, the joint state-private enterprises increased tremendously to 46 percent, and the individual handicraft industry still accounted for 13 percent, of the total output value of the textile industry. Later, the joint state-private enterprises were converted into enterprises owned by all the people, and the individual handicraft industry was transformed into socialist collective economy. In 1965, the enterprises owned by all the people accounted for 94 percent and the collective enterprises made up 6 percent of the total output value of the textile industry. From the cultural revolution to 1975, the collective enterprises achieved new developments, constituting 30 percent of the total number and 5.5 percent of the total output value of the textile enterprises. After the downfall of the gang of four, a relatively fast development was achieved in the collective enterprises, which in 1979 accounted for 40 percent of the total number of textile enterprises. 7.7 percent of the total output value of textile enterprises, 5 percent of the fixed assets and 18 percent of the number of the staff and workers of textile enterprises. Today, as we have seen, the collective enterprises are still full of vitality. Any attempt to destroy them prematurely is wrong. They must have enthusiastic support and appropriate development.

/2. Changes in Structure of Areas/

In the regional layout of the textile industry, the economic structure inherited from Old China was a very irrational one. The modernized textile enterprises were located concentratedly in just a few coastal provinces and municipalities. Only a very small number of the textile enterprises were established in localities producing raw materials and in the consumer markets of the vast inland areas. According to the 1949 statistical figures, the productive capacity of the textile enterprises in the coastal areas comprised 87 percent of the cotton textile spindles, 90 percent of the woolen textile spindles, 100 percent of the jute textile spindles and 90 percent of the silkworm reeling machines of the whole country. Shanghai had 47 percent of the cotton textile spindles and 70 percent of the woolen textile spindles of what the entire country had, whereas the inland provinces and municipalities took up a very small proportion.

Starting from the First 5-Year Plan, the textile industry had set up some cotton textile mills in the major cotton-producing areas of North China, Central China, and the central Shaanxi plain, thus creating new and developing bases of the textile industry in Beijing, Shijiazhuang, Handan, Zhengzhou, Xi'an and Xianyang. Later, in compliance with a principle of the central authorities on making full use of the coastal bases and on stepping up inland construction, many cotton textile mills were built in a fairly large number of

provinces, municipalities and autonomous regions under the joint efforts of the central and local authorities, thereby boosting the productive capacity of the inland cotton textile facilities from 13 percent in 1949 to over 40 percent.

Beginning in 1956, the woolen textile industry had built its first group of woolen textile mills in the wool-producing areas of Nei Monggol, Gansu, Xinjiang and Qinghai. Today, modernized woolen textile enterprises have been established in over 20 provinces, municipalities and autonomous regions throughout the country, with woolen textile spindles in the inland areas increasing from 10 percent in 1949 to 33 percent of the national proportion. As a result of developments in the production of jute, hemp, flax and ramie, linen textile mills have been built in a vast majority of the nation's provinces, municipalities and autonomous regions, with the productive capacity of the inland linen textile enterprises comprising 51 percent of the jute textile spindles. In the silks and satins industry, silk-reeling mills and satin-weaving mills have also been built in an overwhelming majority of the areas, especially in Sichuan Province where the production of silkworm cocoons has developed most rapidly, now ranking first in the whole country, with silkworm-reeling machines increasing from 13,500 sets in 1949 to over 160,000 sets, an increase of nearly 11 times. The silkworm-reeling machines in the inland areas have also grown from 16 percent in 1949 to 32 percent of the national proportion.

After 30 years of development, the regional layout of the textile industry, guided by a principle of "dispersion of big textile enterprises and concentration of small ones," has brought about a shifting of the textile enterprises from a concentration in a few coastal provinces and municipalities to the various localities of the whole country. Today, there are over 1 million cotton textile spindles in the 6 provinces and municipality of Shanghai, Jiangsu, Hubei, Shandong, Hebei and Henan; over 500,000 cotton textile spindles in the provinces and municipality of Shanxi, Heilongjiang, Zhejiang, Jiangxi and Beijing; in addition to woolen textile enterprises, linen textile enterprises, silks and satins enterprises, printing and dyeing enterprises, and knitting enterprises, which have formed a definite base of the textile industry, and which have played a promotive role in the economic development of these areas.

/3. Changes in Sector Structure/

After the Liberation, a most prominent change in the structure of the textile industry was the speedy development, from scratch, of the industrial sector producing the means of production for chemical fibers, textile machines and textile equipment. This development played an important supporting and promotive role in the development of China's textile industry.

In Old China, there were only a few repair and spare parts plants for servicing the textile industry, and the sophisticated textile machines were mostly imported from foreign countries. Shortly after the Liberation, in order to meet the needs of developing the textile industry, forces were organized to design and manufacture textile machines through self-reliance. This was followed subsequently by the construction of a number of new and extended

textile machinery plants. Today, these plants have grown to the level of producing complete sets of equipment of over 1,200 varieties, with an annual output capacity of 160,000 tons, for 13 trades and professions, including the cotton, woolen, linen and silk textile industries, the printing and dyeing industry, the knitting industry and the chemical fibers industry. In a period of 30 years, the plants have provided the textile industry with a total of 15 million spindles, cotton textile equipment for 3.5 million thread spindles, 533,000 cotton textile machines, printing and dyeing equipment with a total processing capacity of 5 billion meters of cloth, equipment for chemical fibers and for reeling off raw silk from cocoons with a total capacity of 500,000 tons, plus a huge quantity of equipment for woolen and linen textiles, silk reeling and satin weaving, and knitting. Apart from meeting the needs of domestic construction, the textile machinery plants have exported for foreign aid complete sets of equipment with more than 1.8 million spindles.

Also developed out of nothing was China's chemical fibers industry. Complete sets of equipment were imported for viscose fiber and polyamide in the 1950's, for polyvinyl alcohol fiber and orlon in the 1960's, and for synthetic fiber of petroleum and natural gas in the 1970's. To this was added the production of complete sets of equipment for dacron, orlon, polyamide, polyvinyl alcohol fiber, and for reeling off raw silk from cocoons, which were successfully developed and manufactured by us on the basis of studying the advanced technology of foreign countries, and which provided the construction of new plants with an annual output capacity of 520,000 tons of chemical fiber. The output of China's chemical fibers grew from 200 tons in 1957 to 326,000 tons in 1979.

In the early days of the Liberation, there was but a very small output of the means of production--textile machines, textile equipment, chemical fibers--which rendered services to the textile industry. By 1979, the chemical fiber industry accounted for 6.4 percent, the textile machinery industry for 2 percent, the textile equipment industry for 0.6 percent, adding up to a total of 9 percent, of the gross output value of the textile industry. This percentage was ahead of each and every sector of the textile industry, with the exception of the cotton textile printing and dyeing industry. Computed in net output value, the output of the means of production came even higher in proportion to a total of 9.8 percent, or close to 1/10th, of the net output value of the textile industry. This was a relatively fast development, but the output of the means of production for the textile industry, particularly the output of chemical fibers, still lagged far behind actual needs.

Within the ranks of the textile processing industry, a relatively important change was the decline in proportion of the cotton textile printing and dyeing industry, in contrast with a one-time increase in proportion of the knitting industry, the woolen textile industry, and the silk and satin industry. The cotton textile printing and dyeing industry constituted in proportion 78.2 percent of the gross output value of the textile industry in 1952, but it dropped to 67 percent in 1979. In the same period of time, the knitting industry was up from 3.8 percent to 8.8 percent, the woolen textile industry up from 1.5 percent to 5.3 percent, the silk and satin textile industry up from 3.2 percent to 7.1 percent, whereas the linen textile industry was down from

2.2 percent to 1.5 percent, a much lower proportion than in the early days of the Liberation. This change in the structure of the textile industry is gradually altering the defects of an excessively high proportion of the cotton textile industry and an excessively low proportion of other branches of the textile industry, thereby rendering possible a more extensive utilization of textile raw materials and bringing about a richer and more abundant variety of colors and designs of the textile industry, as a reflection of the elevation of the consumption level of the masses of the people and as a compliance with the trend of development of the world textile industry. Nevertheless, the development remains not fast enough in the woolen textile industry, the linen textile industry, the silk textile industry, and the knitting industry, which are still not able to keep abreast of the growth in the supply of raw materials and to meet the needs of development in domestic and foreign markets.

/4. Changes in Raw Materials' Structure/

The textile raw materials produced in China, notably the slow growth in cotton production, are an important factor that has kept the textile industry from developing rapidly. Therefore, how to increase and expand the raw material resources of the textile industry and how to change the raw material structure of the textile industry are matters of great significance.

As a result of the utilization of chemical fibers, quite a tremendous change has taken place in the structure of the raw materials of China's textile industry. In the 1950's, the silks and satins industry was the earliest industry to use artificial silk. In the early days of the 1960's, the cotton textile industry started using staple rayon and polyvinyl alcohol fiber to produce blend chemical fiber cloth and pure chemical fiber cloth, but the output was small; after 1972, production of dacron blend cloth and medium-length fiber fabrics was started, and it developed very rapidly. In 1979, the output of cotton blend cloth and pure chemical fiber cloth reached 3.5 billion meters, accounting for 28.9 percent of the total output of cotton cloth. In the various branches of the textile industry, the silks and satins industry had a highest utilization ratio of chemical fibers, constituting 47 percent in 1979, almost half of the consumption of raw materials; followed by the woolen textile industry, making up 40 percent; and the cotton textile industry, with 17.1 percent. All branches of the textile industry consumed 538,000 tons of chemical fibers in 1979, which accounted for 17.3 percent of the total consumption volume of textile raw materials, a big increase as compared with consumption of the past years. However, in the consumption of the raw materials consumption of the world's clothing industry, whose use of chemical fibers constitutes 47 percent of textile raw materials, the utilization ratio of chemical fibers in China is still very low.

The other important change in the structure of the raw materials of China's textile industry is the fast increase in quantity and proportion of the import of raw materials. Before the Liberation, although China was an agricultural country, the raw materials of the textile industry--cotton, wool, jute, artificial silk--had to be imported in huge quantities, with the only exception of raw silk which was exported. In 1950, the net import of cotton made up 32 percent of the domestic cotton procurement volume, but it dropped to less than

1 percent in 1957, being then basically self-sufficient in cotton supply. In the years following 1958, agriculture was dealt a fatal blow, which caused a tremendous decline in cotton production. It was not until 1965 that cotton production surpassed the cotton procurement level of 1958. Nevertheless, because of increasing needs, the net import of cotton increased to 10 percent of the domestic cotton procurement volume in 1965, and again to 25.4 percent in 1979, the year when 550,000 tons of cotton and 215,000 tons of chemical fibers were imported, accounting in total to 32 percent of the raw materials for cotton textiles.

The trend of development of wool and jute differs from that of cotton. In the initial stage of the Liberation, 85 percent of the wool used in the woolen textile industry was imported. Later, as a result of the energetic improvements in the quality of wool and the full utilization of Chinese-made wool, there was a tremendous increase in the ratio of utilization of wool produced in our country. In 1978, the actual consumption of wool by the textile industry consisted of 85 percent Chinese-made wool and 15 percent imported wool, thereby creating a significant change in the situation of wool consumption.

Jute, which in the past also relied heavily on import, registered a decline in import after the Indo-Pakistan War. Beginning in 1973, an enormous growth was recorded in the production of jute and hemp, and the import of jute dropped off. In 1978, the import of jute dropped to 33,600 tons, 11 percent of the jute used in the textile industry during the year, a percentage higher than that of the woolen textile industry in the degree of self-sufficiency.

The proportion of imported raw materials in the textile industry's consumption of raw materials rose from 12.2 percent in 1975 to 25.4 percent in 1979. In this one sees a relatively big rise in the import of raw materials after 1975. This was due to the implementation of a principle of "basing output on input," by using less foreign exchange earnings in import of raw materials and by processing the imported raw materials into finished products for export, thereby regaining over 100 percent more of foreign exchange earnings to benefit the nation. Therefore, an increase in the import of raw materials requires an analysis, and it is not necessarily a discouraging event. In terms of domestic needs, it goes without saying that we must do our best to achieve a self-sufficiency in raw materials.

/5. Changes in Structure of Technology/

The technological structure of the textile industry taken over from Old China was likewise a very backward one. Over the past 30 years, as a result of the construction of new plants on a grand scale, the number of cotton textile spindles increased from 5 million in the pre-Liberation days to 16.6 million at the end of 1979, an increase of 2.3 times. The reform of technology or the renewal of equipment of the old plants brought about dramatic changes in the technological image of the textile industry. The average fixed assets possessed by each of the staff and workers of the textile industry grew from 2,600 yuan in 1952 to 5,466 yuan in 1979, reflecting comprehensively an improvement in the level of mechanization and automation of China's textile industry, as compared with the past years.

Changes in the technological structure of the textile industry were achieved mainly through a large-scale construction of new plants. In the various branches of the textile industry, the chemical fiber industry is a new and developing industry established after the Liberation, an industry armed with a relatively high degree of mechanization and automation, possessing specifically several large-scale petrochemical fiber integrated complexes furnished with imported installations and equipment that are partially the products of the 1970's. The cotton textile industry, the woolen textile industry and the linen textile industry have built up a large number of new plants with the equipment and installations designed and finalized after the Liberation, such as the Model 65 cotton textile equipment which has adopted the achievements of a nationwide scientific and technological innovation and absorbed the new technology of foreign countries, thus enabling the technological level of China's cotton textile equipment to approach the world's advanced level at the time. Of the old pre-Liberation equipment, one-fifth has been partially renewed, and another part of it was remodeled. Now being also remodeled are the enterprises fitted out with pre-Liberation Model 54 equipment. The woolen textile equipment made in China, with designs already finalized, is equivalent to foreign-made equipment of the early 1960's. The linen textile equipment is more backward, being equivalent to foreign-made equipment of the 1940's and the 1950's. Therefore, as compared with the pre-Liberation days, we have achieved remarkable progress, but in comparison with the advanced level of foreign countries, we must still work hard for a reform.

Changes were all the more conspicuous in the industrial branches of relatively backward technological composition. For example, China had 500,000 cotton looms in 1957, of which 13 percent were automatic looms, 17 percent ordinary looms, 4.5 percent electric iron-wood looms, 27 percent manual iron-wood looms, and 38 percent wood looms. By the end of 1979, there were 515,000 cotton looms. The increase was slow, but the technological composition had undergone a significant change, with automatic looms accounting for 81 percent, ordinary looms for 13 percent, electric iron-wood looms for 3 percent, and manual iron-wood looms for 1.4 percent, of the total number of cottom looms. This raised tremendously the level of mechanization and automation.

Equally conspicuous were the changes in the technological structure of the silks and satins industry, the printing and dyeing industry, and the knitting industry. In the initial stage of the Liberation, within the various silkworm reeling mills, the backward horizontal silk-reeling machines comprised 57.4 percent of all silk-reeling machines; but after an energetic popularization of the upright silk-reeling machines and the automatic silk-reeling machines, all the silk-reeling machines were basically transformed into the upright silk-reeling machines at the end of 1979, of which 15 percent consisted of the automatic silk-reeling machines. The satin-weaving machines, which had originally been composed mainly of iron-wood looms, consisted of approximately 60 percent of automatic silk-weaving machines in 1978. The printing and dyeing industry, which was technologically backward and equipped with obsolete equipment, had only 28 continuity-dyeing machines, 64 printing machines, and over 4,300 outmoded dyejiggers in 1957; but in 1979 it was in possession of 330 continuous-dyeing machines, 179 printing machines, and only 2,880 dyejiggers. The printing and dyeing industry in the 1970's was equipped also

with thermal-treatment dyeing machines, high-temperature and high-pressure dyeing machines, thermal boarding machines, resin-finishing machines, and preshrinkage finishing machines, which rendered possible a relatively great improvement in capability and standard of treatment after printing and dyeing, an improvement to meet the needs of a large-scale development of chemical fiber products.

To sum up, as compared with the early days of the Liberation, the technological composition of the various branches of China's textile industry has improved profoundly, but it still lags behind the advanced level of foreign countries. Particularly noteworthy is the low capability of treatment after printing and dyeing, which lags far behind that of foreign countries, and which needs an imperative improvement.

## III. Development of Textile Industry Lagging Behind Needs of National Economic Development

Since the Liberation, China's textile industry has achieved a relatively great development that contributes immensely to the growth of the national economy and an improvement of the people's standard of living. However, the development of the textile industry is still not compatible with the developments of the national economy and the needs of the people. This finds manifestation mainly in the following aspects:

### /1. Development of the Textile Industry Is Not Fast Enough, and There Is Not Much Increase in Per Capita Output./

In 1953-1979, the gross output value of the textile industry increased by 5.3 times, at an average annual growth rate of 7 percent, which was not a slow growth rate. Nevertheless, the national economy is an organic whole in which the various branches must maintain an appropriate proportional relationship. If compared with the other branches of industry and agriculture, the textile industry was then developing at an obviously slow tempo. In the same period of time, the average annual growth rate was 13.4 percent in heavy industry and 9.1 percent in light industry (including the textile industry), with the gross output value of industry increasing 11.1 percent and the gross output value of industry and agriculture rising 8.2 percent. As compared with the growth rate of the textile industry, heavy industry was 90 percent higher and light industry was 30 percent higher. The growth rate of the gross output value of industry and agriculture was lower than that of light industry, but it was over 17 percent higher than that of the textile industry. In the period of the Fourth 5-Year Plan, the average annual growth rate of the textile industry was only 4.2 percent, slightly higher than the growth rate of agriculture. This was a very abnormal phenomenon.

And even the growth rate of the textile industry's main products--cotton yarn and cotton cloth--was lower than that of the textile industry's gross output value. In 1953-1979, the average annual growth rate of cotton yarn was 5.3 percent, and that of cotton cloth was 4.4 percent; in the period of the Fourth

5-Year Plan, the annual growth rate of cotton yarn and cotton cloth dropped to as low as 0.5 percent; in recent years, the situation was better, but the growth rate in the 1970's as a whole was still very low. In 1971-1979, the average annual growth rate was 2.9 percent for cotton yarn and 3.2 percent for cotton cloth, which was much lower than the average annual growth rate of the gross output value of the textile industry.

Developed at a faster tempo were knit goods, wool fabrics and silk fabrics, the growth rate of which surpassed that of the gross output value of the textile industry. However, because of their low proportion at the present time, these products are not likely to alter the basic trend of a slow growth of the textile industry.

Because of the slow increase in the output of textile products, especially the output of cotton yarn and cotton cloth, and because of China's rapid population growth of nearly 70 percent in the 1953-1979 period, the per capita quantitative increase in the output of textile products was negligible. The per capita output of cotton cloth was 6.7 meters in 1952 and 12.5 meters in 1979, an increase of less than 100 percent in 27 years.

The per capita quantitative growth of knit goods, knitting wool, woolen goods and silk fabrics was fairly fast, but the absolute quantity was still very little. In 1979, each individual had an average share of only 0.046 kg of knitting wool, 0.093 meters of woolen goods, 0.68 meters of silk fabrics, plus a per capita share of precisely a little over 1 piece of the combined total of cotton knitwear--sweat jerseys and trousers, cotton jerseys and trousers, undershirts and T-shirts. On the average each person had only 1.1 towel and less than 1 pair of socks, being indeed at a very low level.

/2. Composition of the Consumption of Textile Products Has Changed, and the Per Capita Consumption of Textile Products for Civil Use Remains Low./

Quantitatively the per capita growth of textile products is not fast, but as a result of the national economic development, there has been a faster growth of textile products for export, for industrial utilization, for (labor insurance) [wage-bonus distributions] and public usage. Therefore, as changes are also taking place in the composition of consumption of textile products, it becomes all the more necessary to slow down increases in the consumption of textile products available for civil use.

In 1976-1980, cotton cloth was distributed in the order of 69 percent for civil use, 17 percent for export, and 10 percent for industrial, labor insurance and public use; cotton yarn was distributed in the pattern of 75 percent for weaving cotton cloth, 16 percent for use in knitwear, 6.2 percent for industrial use, and 1.9 percent for export [figures as published]. In 1980, of all the cotton yarn for use in knitwear, export took up 23 percent and civil use accounted for two-thirds. Of every 1 million bales of cotton yarn produced, only 630,000 bales are available for civil use, including 525,000 bales for wearing cotton cloth and 105,000 bales for making knit goods.

The trend of development indicated that as a result of the national economic development, there was a gradual rise in the proportion of cotton cloth for industrial, labor insurance and public use. In Liaoning, a relatively well-developed industrial province, for example, the 1952 cotton cloth consumption was made up of 90 percent of cloth for civil use and 10 percent of cloth for industrial, labor insurance and public use, which was then equivalent to the present consumption level of cotton cloth throughout the country; in 1978 the cotton cloth for civil use dropped to 70 percent and the cotton cloth for industrial, labor insurance and public use rose to 21.4 percent of the total cotton cloth consumption (the percentage could have been much higher if computed on the basis of the use of cotton yarn), an increase of over 100 percent.

In the proportion of China's textile products for export there has existed a trend of gradual increases. Therefore, growth in per capita consumption must slow down even more than it has. For example, the per capita output of cotton cloth from 1953-1979 rose by 88 percent, whereas the per capita consumption[4] of cotton cloth in the same period increased only 62 percent. In the period of the Fourth 5-Year Plan, the real consumption level of cotton cloth registered a decline, falling from 23.7 shichi (1/3 meter) in 1970 to 22 shichi in 1975, but rising to 23.2 shichi in 1978, though still not capable of reaching the 1970 level. Had it not been due to a faster growth in 1979, there would not have been one single year in the 1970's surpassing the 1970 consumption level.

A look at the per capita consumption level of cotton cloth in cities and villages shows that villages consume less cotton cloth than cities. The average consumption level of cotton cloth by each individual in cities was 50.3 shichi in 1979, an increase of 39 percent over the 1952 consumption level of 36.3 shichi. The average consumption level of cotton cloth by each individual of the rural population was only 21 shichi in 1979, up 53 percent over the 1952 consumption level of 13.7 shichi. The growth rate of cotton cloth consumption was faster in villages, which, however, consumed only 42 percent of what was being consumed in cities.

The 1977 per capita consumption of fibers for apparel was 6.8 kg in the world, but only 2.9 kg in China, less than half of the average world consumption level. In that same year, the United States was 7.4 times, the Soviet Union 3.9 times, and Japan 4.1 times, ahead of China in the per capita consumption of fibers. Therefore, in spite of a relatively big increase in the output of textile products, we can only say that China has solved the clothing question at a low level, and the level is even much lower in the rural areas where efforts are required to bring about an improvement.

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4. Included in the consumption volume of cotton cloth were cotton cloth, mosquito net cloth, window screening cloth, uniform cloth, cap and shoe cloth sold by commercial departments to city and village residents; cloth supplied to the armed forces for their daily use; cloth supplies to government offices, organizations, schools, enterprises and other social mass organizations. Also included, as of 1963, were chemical fiber cloth and polyester cotton blend cloth.

/3. Development of the Textile Industry Lags Behind the Growth of Purchasing Power for Consumer Goods./

The relationship between the growth rate of the production of the textile industry and the growth rate of the purchasing power for consumer goods is an important yardstick for measuring whether the output of the textile industry can meet the needs of national economic development. In the past, Stalin had set forth a theory, believing that under the socialist system, "the growth of the consumption (purchasing power) of the masses is always ahead of the growth of production and pushes production forward."[5] As a matter of fact, this confounds the needs of the masses of the people for consumer goods with the requirements of capabilities to pay. The emergence in the markets of a phenomenon of demand exceeding supply, which results from the growth of purchasing power for consumer goods outstripping the growth of production of consumer goods, is virtually a comprehensive reflection of imbalance in the relations of proportion among agriculture, light industry and heavy industry. If this is erroneously regarded as an objective law of the relations of supply and demand of commodities under the socialist system and as a manifestation of the superiority of the socialist system, we shall then get used to the phenomenon of demand exceeding supply of commodities in the markets, and no efforts will be made to work out a solution to the problem.

In the past 28 years, the growth of the production of the textile industry surpassed the growth of the purchasing power in only two periods, that is, the period of the Third 5-Year Plan when the growth rate of the purchasing power was excessively low, and the period when two adjustments were being made. In the periods of the First 5-Year Plan, the Second 5-Year Plan, and the Fourth 5-Year Plan, the growth of purchasing power for consumer goods had outstripped the growth of the production of the textile industry. And, moreover, this happened in the conditions of a nonadjustment of wages over a long period of time, of a reduction of prices of agricultural products, and of an establishment of control over purchasing power, when contradictions between supply and demand of the textile products were not fully brought to light.

In terms of purchasing power for consumer goods, expenditures for clothing as a category of consumer goods registered an average annual growth rate of 7.3 percent in its total retail sales volume during the 1953-1979 period, which was slightly higher than the 6.7 percent average annual growth rate of purchasing power for consumer goods and the 6.5 percent average annual growth rate of the total retail sales volume of consumer goods. In the composition of the total retail sales volume of consumer goods covering the areas of food, clothing, articles for daily use, and heating, clothing accounted for 19.3 percent in 1952, and it rose to 23.7 percent in 1979.

In 1953-1979, the average annual growth rate of the gross output value of the textile industry was 7 percent; but the average annual growth rate of the textile products available for the domestic markets, after deduction of exports, was only 5.5 percent (as of 1978), which lagged far behind the average annual

5. "Complete..." op. cit., Vol 12, p 282.

growth rate of 7.3 percent in the total retail sales volume of the clothing commodity. In 1979, the gross output value of the textile industry increased 12.1 percent, which was a faster rate of growth; yet because of the hiking of prices for agricultural products and the raising of wages and bonuses for staff and workers, the purchasing power for consumer goods rose 22.8 percent, and the total retail sales volume of textile products increased 23 percent; the growth of the production of the textile industry still lagged far behind the growth of the purchasing power for consumer goods and the growth of the total retail sales volume of textile products. In order to meet the needs of domestic markets, some textile products had to be imported each year, beginning in 1973. In 1980, 84 million meters of textile products were imported, consuming $118 million of foreign exchange earnings, yet withdrawing 1.5 billion yuan of currency from circulation.

/4. Development of the Textile Industry Cannot Meet the Needs for Fast-growing Export of Textile Products./

To achieve the four modernizations, China must import all varieties of advanced technology and complete sets of equipment, which require the use of a large amount of foreign exchange earnings. And this calls for an energetic development of the export trade. In the 1970's, exports of textile products developed at a relatively fast tempo. In 1971-1979, the total export volume of textile products registered an average annual growth of 21.6 percent. The speed of development was even much faster in recent years. The 1978 exports of textile products were up 43 percent over 1977, and it increased again by 33.4 percent in 1979, all far surpassing the growth rate of the gross output value of the textile industry.

The export of China's textile products, though developing at a faster pace, constitutes only a very small proportion in the international markets. Since the 1960's, the trade volume of the world's textile products has increased very rapidly. The total export volume of the world's textile products (including apparel) increased from $35.9 billion in 1973 to $68.4 billion in 1978, an increase of 90 percent in 5 years, or an average growth of 13.7 percent per year. The export of China's textile products amounted to $2.34 billion in 1978, accounting for approximately 3.4 percent of the world's total export volume of textile products, much lower than Hong Kong's exports of $4.2 billion and South Korea's exports of $4 billion. Therefore, in order to meet the needs of the international markets for textile products, it is necessary that we strive to improve the economic structure of the textile industry and accelerate the tempo of development of the textile industry.

## IV. Correct Handling of Relations Among Agriculture, Light Industry and Heavy Industry Essential To Promotion of Development of Textile Industry

China possesses many favorable conditions for developing the textile industry, but why is it that the textile industry cannot grow faster to meet the needs of a national economic development? The key to this question lies in a protracted and undue emphasis on giving priority to development of heavy industry

in disregard of agriculture and light industry, thereby creating a serious imbalance in the relations of proportion among agriculture, light industry and heavy industry, and affecting the tempo of development of the textile industry. This is manifested mainly in the following aspects:

/1. The Serious Disruption of Agricultural Production and the Imbalance in Relations of Proportion Between Food Grains and Industrial Crops Have Slowed Down the Production of Agricultural Raw Materials, Particularly Cotton Production./

In 1975, cotton constituted 89 percent in the proportion of the textile industry's consumption of fibers, but it dropped to 79 percent in 1979. Therefore, a fast or slow growth of cotton production has a very intimate relationship with the tempo of the development of the textile industry.

In the days of rehabilitating the national economy and during the First 5-Year Plan, China's cotton production recovered and developed at a much faster pace. The 1950 cotton production of China was 13.85 million dan, which rose to 26.07 million dan in 1952, an increase of 90 percent in 2 years. The average annual growth rate of cotton production in 1953-1958 was 7.1 percent, with procurement registering an average annual growth rate of 8.6 percent in the same period. It was indeed a very excellent situation in 1958 when cotton production went up more than 20 percent and cotton procurement was up 26.7 percent over 1957.

The very fast growth of cotton production brought about a correspondingly fast development of cotton yarn production. Because cotton produced in the current year was used mainly for production of cotton yarn in the next year, the cotton yarn production of 1954-1959 increased over 100 percent, at an average annual growth rate of 12.7 percent. In that period of time, there was a more harmonious relationship in the proportions among agriculture, light industry and heavy industry, which grew very rapidly.

In the fall of 1958, after the launching of a mass movement of the nationwide smelting of steel and iron, the various branches of the national economy stepped aside as iron and steel took precedence. Moreover, as a result of the undue emphasis on the movement of people's communes being large in size and collective in nature, the relations of production had overstepped the level of development of productivity, thus seriously disrupting agricultural production. Beginning in 1959, cotton production declined year after year. By 1961, cotton procurement dropped to 13 million dan, a decrease of almost two-thirds as compared with the 1958 cotton procurement of 35.96 million dan. The production of cotton yarn also plunged sharply, decreasing almost two-thirds in 1962 as compared with 1959.

In the period of adjusting the national economy in 1963-1965, as a result of correctly administering the relations among agriculture, light industry and heavy industry, and of placing agricultural production in a position of paramount importance, cotton production recovered relatively fast. The 1966 cotton procurement reached 43.56 million dan, an increase of 21 percent over 1958. However, in spite of going through tremendous twists and turns, there was but an average annual growth rate of 2.4 percent in a period of 8 years.

The production of cotton yarn in 1966 was up only 2.2 percent over 1959, at an average annual growth rate of merely 0.3 percent. This made fully clear that the undue emphasis on "taking steel as the key link" and giving priority to the development of heavy industry, as well as the faulty agricultural policy, had brought serious harm to agriculture and light industry.

The national economy that had just recovered was again fatally damaged by the cultural revolution. Procurement of cotton declined year after year. There was a slight rise in the 1970 cotton procurement, but only 40.67 million dan was procured, still below the 1966 procurement level. The 1973 cotton production reached 51.24 million dan, the highest production level ever achieved in history, and cotton procurement of the year was 46.9 million dan, an increase of 7.7 percent over 1966. In the days that followed, because of disruption by the gang of four, cotton production again registered a gradual decline. Therefore, the production of cotton yarn increased only 2.7 percent in the period of the Fourth 5-Year Plan, at an average annual growth rate of 0.5 percent. After shattering of the gang of four, cotton production went up again, but the growth rate was negligible. The 1979 cotton procurement was 43.18 million dan, still lagging behind the 1966 procurement level.

In 1953-1979, the production of cotton yarn increased 3 times, at an average annual growth rate of 5.3 percent, whereas the procurement of cotton increased only 97 percent, at an average annual growth rate of 2.6 percent, thereby producing a very salient imbalance between supply and demand and creating a necessity to rely on imports of raw materials and on Chinese-made fibers to make up for the deficiency. The 1980 planned import of cotton was 16 million dan, but with the import of chemical fibers included, the total imports added up to 20 million dan, embracing about 50 percent of the 1979 cotton procurement. The world's total export of cotton today is approximately 4 million tons, of which China imports almost one-fifth. Therefore, in a country of huge population such as China, the key to an accelerated development of the textile industry lies in promoting fast development of the production of textile fibers, particularly cotton.

Developing at a much faster pace of production than cotton are wool, jute, hemp and silkworm cocoons. The situation of growth in procurement during the 1953-1979 period was: sheep wool up 3 times, at an average annual growth rate of 5.3 percent; jute and hemp up 4.6 times, at an average annual growth rate of 6.6 percent; silkworm cocoons up 3.5 times, at an average annual growth rate of 5.8 percent; all growing much faster than cotton, which had an average annual growth rate of 2.6 percent.

The key to promotion of the development of cotton and other natural fibers lies in altering the internal structure of agriculture, in correctly administering the relations between food grains and industrial crops, and in enhancing an all-round development of farming, forestry, animal husbandry, sideline production and fishery. It is necessary to act in line with local conditions, to achieve an appropriate centralization, to bring into full play the superiority of the various localities, and to build up a large number of production bases of cotton, wool, hemp and silk cocoons. In order to solve the contradictions arising from a rivalry for land between food production and cotton

production, we must import an appropriate quantity of food grains and chemical fertilizers and carry into effect a measure of using food grains and chemical fertilizers as a bonus sale to reward overfulfillment of cotton procurement. This is much better than importing cotton.

/2. The Development of Heavy Industry, Centering on Self-Service But Not Rendering Good Services to the Development of Light and Textile Industries, Has Slowed Down the Development of Chemical Fibers Production./

In recent decades, the rapid development of chemical fibers production has brought about important changes in the structure of raw materials for the textile industry. A basic trend of the world's production and consumption of textile fibers is the gradual decline of natural fibers and the sustained growth of chemical fibers in proportion. In 1950, the production of chemical fibers in the world was only 1.68 million tons, which accounted for 18 percent of the total production of fibers used in apparel, including 69,000 tons of synthetic fiber. By 1978, the world's production of chemical fibers increased to 13.26 million tons, which made up 47.6 percent of the total production of fibers used in apparel, including 9.95 million tons of synthetic fibers, representing 35.7 percent in proportion of the total production of fibers used in apparel.

The development of chemical fibers was started as a result of shortages in the supply of natural fibers. In the wake of this came a multiplication in the varieties of chemical fibers of various distinctive features, such as dacron possessing the superior features of great strength and good elasticity for making permapress, easy-washing and fast-drying apparel, orlon possessing superior qualities similar to wool, being soft and warm, in brilliant dyed colors. Therefore, for the purposes of increasing the variety of designs and colors, improving the quality of products, and producing all kinds of textile products low in prices and high in quality, it is necessary to have chemical fibers and natural fibers blended and interwoven, or to turn out products of purely chemical fibers. This is an important factor propelling the fast development of chemical fibers.

Cotton production in the United States reached 3,156,000 tons in 1978, with net cotton exports standing at 970,000 tons, almost one-third of the total cotton production; production of chemical fibers in the same year was 3.63 million tons, 15 percent higher than cotton production, with net chemical fiber exports amounting to 265,000 tons, exactly 7.3 percent of total chemical fiber production. This indicated that the United States exported more cotton and kept chemical fibers mainly for its own domestic consumption.

China has a vast population with a relatively small area of cultivated land, which imposes definite limitations on attainment of a significant increase in cotton production. Therefore, to solve the issue of clothing, we must carry into effect a simultaneous development of natural fibers and chemical fibers, regarding the development of chemical fibers as a long-term strategic principle. This can increase the quantity of textile products and is of great significance to improvement of the quality of products and expansion of the variety of colors and designs.

Since the beginning of the First 5-Year Plan, we have paid special attention to chemical fibers, and we have not started out too late; however, as a result of undue emphasis on giving priority to development of heavy industry at the expense of agriculture and light industry, vacillations and uncertainties have cropped up in the course of implementing the principle of developing chemical fibers; in time of poor cotton harvests, there arises an intention to develop chemical fibers, but in time of bumper cotton harvests or in time of diminishing state investments, the intention to develop chemical fibers vanishes. In the 1970's, when contradictions between supply and demand of textile products became very serious, a determination was finally reached to build nine vinylon plants; especially after the import of four petroleum, natural gas and chemical fiber projects we saw a faster development in China's chemical fiber industry. Nevertheless, because of the long delay, China's output capacity of chemical fibers was only 462,000 tons at the end of 1979, and the annual production of chemical fibers was merely 326,000 tons, both lagging behind a number of the countries and areas that had started out almost at the same time as our country in development of chemical fibers.

For example, the synthetic fiber industry of Japan was started after it had imported polyamide production techniques from the United States and Switzerland in the early 1950's. Japan developed the production of synthetic fiber at a much faster pace after its import of dacron production techniques from England in 1958 and its import of orlon production techniques from Italy at a later date. Japan produced only 16,000 tons of synthetic fiber in 1955 and 118,000 tons in 1960. Because of a vigorous development of the synthetic fiber industry in the 1960's, Japan's production of synthetic fiber was in excess of 1 million tons in 1970, an increase of 900,000 tons in 10 years. And the production rose to 1.28 million tons in 1978. The fast development of synthetic fiber propelled a growth of the petrochemical industry and brought about a change of course in the Japanese economy to one centering on heavy and chemical industries, which have achieved a high-speed development.

The use of petroleum for production of synthetic fiber yields the best economic results. A ton of crude oil produces an output value of 175 yuan when used as fuel for generating electricity, an output value of 622 yuan when used as raw materials for the petrochemical industry, or an output value of 1,600 yuan when used for production of chemical fibers, which means 800 percent more in output value than the use of petroleum as fuel, or 150 percent more in output value than the use of petroleum as petrochemical raw materials. At present, the consumption structure of China's crude oil is a very unreasonable one. In 1979, only 5.2 percent of crude oil was used for production of chemical fibers and petrochemical products, whereas 34.3 percent was used as fuel oil. It is, therefore, necessary to strive for a change in the consumption structure of crude oil, by burning less crude oil and by using more crude oil for development of synthetic fiber production, thereby creating more wealth for the nation.

At present, China's chemical fiber industry is already capable of producing viscose fiber manmade cotton, artificial silk, and high-strength curtain thread; synthetic fiber dacron, orlon, polyamide and polypropylene fiber. Generally speaking, however, the output of chemical fibers is negligible, and there is only a small variety of colors and designs. In the structure of

varieties, a major flaw lies in filament which constitutes an extremely small proportion and is incapable of meeting the needs of a developing situation. In the world of today, dacron filaments after undergoing low-pressure processing can produce all kinds of imitation wool fabrics and imitation silk fabrics of a rich variety of colors and designs, which are highly welcomed by the broad masses of the consumers, and which have developed very rapidly, accounting for over 46 percent of the world's total output of dacron in 1978. China has only a 2,000-ton output capacity of dacron imported by the Shanghai Petrochemical General Plant. We must rely on imports for solving a very large portion of domestic needs. In the days to come, we must strive with greater efforts to achieve faster growth in the production of dacron filaments in order to meet the needs of domestic and foreign markets.

While synthetic fiber is being energetically developed, it remains necessary to continue developing the production of viscose fiber, which is excellent in hygroscopicity and can upgrade the performance of textile products if it is blended with synthetic fiber. The output of China's viscose fiber constitutes 35 percent of the output of chemical fibers, but it still lags behind needs. In 1979, 39,000 tons of staple rayon and 10,000 tons of artificial silk were imported to make up for the deficiencies of domestic production. The present raw materials of viscose fiber are madeup of two-thirds of cotton pulp and one-third of wood pulp. China's resources of short-staple cotton velvet still possess definite potentials and can be used for appropriate development of some viscose fiber. From a long-term point of view, it is necessary to build up bases of fast-growing forests of broadleaf trees and to develop viscose fiber using wood pulp as raw materials.

/3. China's Unreasonable Investment Structure Over a Long Period of Time Has Resulted in a Tremendous Decline in the Proportion of Investment in the Textile Processing Industry./

The inadequate supply of textile raw materials is a key factor of the slow development of the textile industry. The other important factor affecting the development of the textile industry is the slow development of the productivity of the textile processing industry because of excessively small investments in it over a long period of time. This finds concrete manifestations in:

(1) In allocation of funds, emphasis is placed on the output of means of production in disregard of the production of consumer goods. This is a basic cause of imbalance in the relations of proportion among China's agriculture, light industry and heavy industry.

This is shown clearly in the state allocation of investments in industry and agriculture. In the past 20 years (1958-1978), heavy industry accounted for 76 percent, but light industry and agriculture made up only 24 percent, of China's total investments in industry and agriculture. In almost the same period of time (1956-1975) the first-class industries (producing the means of production) in Romania took up 64 percent of the nation's total investment in industry and agriculture, and the heavy industry in Yugoslavia (1956-1971) embraced 61 percent of the nation's total investment in industry and agriculture. The proportion of China's investment in heavy industry was much higher than that of the two countries.

In the total investment in industry, when the means of production constitutes a high proportion, the means of subsistence declines correspondingly in proportion. The proportion of the textile industry in the total investment in industry was 6.1 percent in the First 5-Year Plan, 2.9 percent in the Second 5-Year Plan, 3 percent in the Third 5-Year Plan, 4.3 percent in the Fourth 5-year Plan, and 6.7 percent in the 3-year period of 1976-1978, which was higher than the proportion in the First 5-Year Plan. From 1958 to 1978, the proportion of the textile industry in the total investment in industry added up to only 4.3 percent, which certainly had highly adverse effects on development of the textile industry.

(2) In the last 20 years as a whole, the proportion of the textile processing industry in the total investment in industry was 64 percent less than in the period of the First 5-Year Plan.

The internal investment structure of the textile industry has undergone profound changes in the past 20 years. In terms of proportion, investment in development of chemical fibers increased rapidly, but investment in the textile processing industry decreased sharply. In the proportion of investment in the textile industry, chemical fibers constituted less than 1 percent in the First 5-Year Plan, 13 percent in the Second 5-Year Plan, 12 percent in the Third 5-Year Plan, 69 percent in the Fourth 5-Year Plan, and 77 percent in the 1976-1978 period. Therefore, the proportion of the textile processing industry in the total investment in the textile industry declined by a big margin.

In the First 5-Year Plan, investment in the textile industry was used almost entirely in the textile processing industry, because the chemical fiber industry consumed very little investment. Later, the proportion of the textile processing industry in the total investment in industry decreased by a big margin, because investment in the textile processing industry was being discriminated against both inside and outside, due, on the one hand, to the falling proportion of the entire textile industry and, on the other hand, to the rising proportion of the chemical fiber industry in the investment of the textile industry. The proportion of the textile processing industry in the total investment in industry was 2.7 percent in the Second 5-Year Plan, 2.7 percent in the Third 5-Year Plan, and 1.5 percent in the Fourth 5-Year Plan. It rose slightly to 1.6 percent in the 1976-1978 period, which was equivalent to only one-fourth of the 6 percent proportion in the First 5-Year Plan.

In a period of 20 years, from 1958 to 1978, the proportion of the textile processing industry in the total investment in industry was reduced to 2.1 percent, which meant 64 percent less than in the First 5-Year Plan. Because of the negligible amount of investment pumped into the textile processing industry, development of the productive capacity of the textile industry lagged behind the needs of the development of the national economy as a whole.

(3) A general shortage of productive capacity is felt in the various branches of the textile industry.

The sharp decline in the proportion of investment in the textile processing industry created a general deficiency of productive capacity in the various

branches of the textile industry. There was an average increase of 400,000 spindles per year in cotton textile equipment in the First 5-Year Plan and the Second 5-Year Plan, 600,000 spindles per year in the Third 5-Year Plan, and less than 300,000 spindles per year since 1970. After the attainment of an increase in the utilization volume of chemical fibers, the capacity of spinning and weaving, printing and dyeing, and processing failed to catch up correspondingly, and there was specifically a serious shortage of finishing capacity after printing and dyeing of dacron cotton cloth. The 1980 output of dacron cotton cloth was 2.6 billion meters, of which a portion was left unprocessed. That was a relatively prominent contradiction. The world market needs wide cloth, but China's weaving and spinning as well as printing and dyeing equipment and installations cannot meet the needs of export. The products exported consist of more narrow cloth and less wide cloth. The wide cloth accounts for only 30 percent of the exported cotton cloth.

In the 1970's, the productive capacity of China's textile industry was constantly in a state of deficiency; and because of attaching profound importance to heavy industry, belittling light industry and failing to ensure an adequate supply of fuel, electricity and processed materials, extra work shifts and extra work hours were put in throughout the various localities, with the number of work shifts reaching up to 19 or 20 shifts, and even 21 shifts within a definite period of time in some localities, where workers labored continually for several days in a row without taking a rest, all for the sake of consummating tasks and making up for losses caused by stoppage of work. Since 1979, following a gradual popularization in the cotton textile industry of a working system of "four-shifts and three-rotations," under which workers take a rest of 2 days after working 8 days, with factories operating also on Sundays and with productive capacity fully utilized, the productive capacity of the textile industry has continued to lag far behind the needs of the national economic development.

Therefore, in order to accelerate the speed of development of the textile industry, it is necessary to derive experience and draw lessons from the past, to improve the structure of investment, and to handle correctly the relations of development among agriculture, light industry and heavy industry, thereby attaining a fundamental solution to this question. In the light of China's economic conditions, it is necessary to render more lightly the structure of the national economy in the 1980's, by more energetically developing the light and textile industries. This will play an important promotive role in development of the textile industry.

In the days of adjusting the national economy, as a result of the implementation of six priorities in the light and textile industries, an improvement was achieved in the conditions of production and construction, and the situation is changing too. In the 1979 total investment in industry, light industry accounted for 11.9 percent and the textile industry for 5.5 percent, which were all higher than in the First 5-Year Plan; the proportion of the textile processing industry in the total investment in industry was raised to 2.9 percent, slightly higher than the average annual 2.1 percent in the last 20 years. There was a further improvement of the situation in 1980, when the state increased significantly its medium- and short-term loans to the textile industry,

and when the various localities became much more enthusiastic in developing the textile industry. In the field of agriculture, enthusiastic research went on in enhancing the production of cotton and other textile fibers. To sum up, lines and principles are on the right track, the conditions hindering the development of the textile industry are changing, and the prospect of the textile industry is becoming increasingly optimistic.

## V. Adjustment of Internal Structure of Textile Industry Acceleration of Development Tempo of Textile Industry

After the external conditions have changed, it remains necessary to adjust the internal structure of the textile industry, in order to enhance the growth of the textile industry at a faster pace and to contribute a greater strength to realization of the four modernizations.

### /1. It Is Necessary To Adjust the Relations of Proportion Among the Textile Industries of Cotton, Wool, Linen, Silk, and To Promote a More All-round Development of the Textile Industry./

It is obviously too insignificant that the proportion of the woolen textile industry and the linen textile industry as well as the silk and satin industry constitutes a total of only 14 percent in the gross output value of the textile industry. Today, the woolen textile industry and the linen textile industry as well as the silk and satin industry have had a more adequate supply of raw materials than the cotton textile industry, but they are still deficient in productive capacity and cannot meet the needs of domestic and foreign markets. Therefore, an acceleration of the development tempo of the woolen textile industry and the linen textile industry as well as the silk and satin industry, a further improvement of the relations of proportion among the cotton textile industry, the woolen textile industry as well as the linen textile industry and the silk and satin industry, is an important aspect of improving the structure of branches and the structure of products of the textile industry. This is of great significance to a fuller utilization of the various resources of textile raw materials, an acceleration of the development tempo of the textile industry, an improvement of the living standards of the masses of the people, and an enhancement of the development of the export trade of the textile products.

(1) The woolen textile industry: The woolen textile industry, which internationally is an important textile industry ranking second only to the cotton textile industry, constitutes in China only 5.3 percent of the gross output value of the textile industry, a percentage even lower than that of the silk and satin industry. By the end of 1979, China had only 533,000 woolen textile spindles, much less than the number of spindles in the countries well developed in the woolen textile industry, such as 3.38 million woolen textile spindles in Italy, 2.6 million woolen textile spindles in Japan. The capital of the woolen textile industry in West Europe and Japan is being shifted to the capital-intensive sectors and the technology-intensive sectors which require less labor force, and the production of woolen textile products is declining.

This has provided China with a favorable condition for developing exports of woolen textile products. The woolen textile products gain more foreign exchange earnings, and this is in line with the measure of "using input as a source of strength for building up output." Wool production has a relatively bright prospect in China, where the woolen textile industry uses more chemical fibers, now reaching almost 40 percent. Furthermore, the various textile products use chemical fibers with a specific emphasis of their own--refined textiles placing a specific emphasis on dacron, coarse textiles on viscose fiber, knitting wool and woolen blankets on orlon, and woolen cloth for industrial use on polyamide. This provides the woolen textile industry with wider sources of raw materials and better conditions for development.

There are now some precious special wools that have not been properly utilized. They are mostly exported as raw materials. For example, China's output of cashmere accounts for over 40 percent of the world output of cashmere. The 1979 procurement of cashmere was 3,000 tons, of which over 90 percent were exported as raw materials for foreign exchange earnings of $50 million. China produces about 90 percent of the world's rabbit wool. The 1979 production of rabbit wool was 3,300 tons, of which nearly 3,000 tons were exported for a foreign exchange gain of $60 million. The annual output of camel wool is 2,000 tons, of which a portion is retained for domestic use, and about 500 tons are exported. The textile products processed out of these raw materials are high-class consumer goods selling at high prices in Europe, America, Japan and other countries. If improvements through research can be made in processing techniques, and if exports of raw materials can be transformed gradually into exports of finished products, a tremendous increase will be achieved in foreign exchange earnings.

(2) The linen textile industry: Currently the jute textile industry has had an ample supply of raw materials and is mainly capable of meeting the domestic needs for gunnysacks. In the days ahead, it is necessary to reform the structure of products, to develop vigorously the production of maritime gunnysacks, fine sackcloth, carpet-base cloth, and to increase export products. Fine yarn fabrics sell at higher prices, gain more foreign exchange earnings and consume less raw materials. Carpet-base cloth has a vast sales market in the world and is also needed in the domestic market. China must develop carpet-base cloth, which has not yet been produced in the country.

Ramie is a special product of China, which produces 600,000 dan of it a year, of which less than 200,000 dan is processed in the country, and a vast portion is exported as raw materials. Ramie fabrics in foreign countries are raw materials for making high-class cloth, high-quality tablecloths, napkins and handkerchiefs. A pure ramie dress is priced 2 to 5 times higher than a pure cotton dress.

Linen is also a high-class cloth of daily use in foreign countries. It makes cool and comfortable dress materials, and it shows a characteristic style of valuable decorative fabrics when used for home fabrics such as tablecloths, furniture covers and handkerchiefs. Linen has a high foreign exchange earning power. An ordinary punchwork tablecloth is worth $60, whereas a similar one made of cotton cloth costs only $15. Because of its very small output of

linen, China had to spend millions of dollars a year in the past to import linen to make all kinds of drawnwork handicraft products, embroidered handicraft products, or printed and dyed handicraft products for home use. The 1979 imports of linen amounted to $31 million, and the consumption of foreign exchange reserves is rapidly increasing. For all that, the export of linen raw materials continues. It is, therefore, imperative to increase the productive capacity of the flax industry in order to meet the needs of development of the domestic and foreign markets.

(3) The silk-reeling and satin-weaving industry: This is China's traditional industry. In the recent 10 and more years, silkworm production has increased relatively fast. The procurement of silkworm cocoons in 1965-1979 achieved an average annual growth of 9 percent, and it could possibly increase faster in the future. The export of silks and satins make up over one-fourth of the foreign exchange earnings gained from the export of textile products. Of this one-fourth, the export of raw silk constitutes about 66 percent of the foreign exchange earnings acquired from the export of silks and satins. China's export of genuine silks and satins is made up of 80 to 90 percent of refined white silks. If it is possible to reduce the export of raw silks and increase the export of genuine silks, and if it is possible to export more printed silks and dyed silks, but less refined white silks, there will then be a tremendous increase in foreign exchange earnings. It is, therefore, necessary to focus specific attention on increasing equipment for printing, dyeing and finishing silks and satins in order to upgrade the level of finishing capacity after printing and dyeing.

/2. It Is Necessary To Adjust the Relations of Proportion Between the Raw-and-processed-materials-type Industry and the Processing-type Industry, and To Raise the Depth and Precision of Processing, so That the Quality of Products Can Be Improved and the Development Tempo of the Textile Industry Accelerated./

In 1979, each 100 yuan of fixed assets of China's textile industry yielded 297 yuan of output value and 71.2 yuan of taxes and profits, whereas in Shanghai it generated 586 yuan of output value and 169 yuan of taxes and profits. As compared with the national average level, the textile industry in Shanghai creates 97 percent more in output value and 1.4 times more in taxes and profits out of every 100 yuan of fixed assets. This is due, on the one hand, to Shanghai's higher level of management and technology and its greater proportion of chemical fiber products, and, on the other hand, to Shanghai's relatively well-developed processing-type industry, greater depth of processing and larger additional values, which render possible the output of high-value and colorful products and the attainment of better economic results with the same quantity of raw materials.

The development of Shanghai's cotton textile industry is also a reflection of a similar situation: In 1966-1979, the Shanghai Cotton Textile Industry Co which produced semifinished products did not increase its equipment of spindles, but its output of cotton yarn increased 23.7 percent, achieving an average annual growth rate of 2.8 percent in output value; the Shanghai Second Textile Industry Co which produced gray cloth had an annual growth rate of

only 3.9 percent in output value. The proportion of these two raw-and-processed-materials-type industrial companies in the total output value of the entire textiles bureau was 40 percent in 1966, but it dropped to 31 percent in 1979. Nevertheless, the processing-type industry which used cotton yarn and cotton cloth as raw materials for production of finished products grew at a much faster pace. An average annual growth of 9 percent was achieved in yarn-dyed fabric companies, 8 percent in knitting companies, 6.6 percent in towel and bedding companies as well as in thread and ribbon companies of the reproduction industry, and 5.1 percent in printing and dyeing companies. The proportion of the processing-type industry in the entire textile bureau increased from 37.4 percent to 44.9 percent, and its increased output value constituted 53.3 percent of the total output value of the whole textile bureau, thus playing an important role in the tempo of development of the Shanghai textile industry.

The economic results of investment indicated that the processing-type industry created higher economic results than the raw-and-processed-materials-type industry. In 1978, both the Shanghai Cotton Textile Industry Co and the Shanghai Second Textiles Co generated 157 yuan of taxes and profits out of every 100 yuan of fixed assets, whereas the processing-type industry yielded 244 yuan of taxes and profits out of every 100 yuan of fixed assets. In 1966-1979, profits of the entire textiles bureau increased 98 percent, of which the raw-and-processed-material-type industry of cotton textiles accounted for 69 percent and the processing-type industry 1.3 times. As compared with 1966, the 1979 profits of the entire textile bureau increased 1.19 billion yuan, of which 46 percent was provided by the processing-type industry, 26 percent by the raw-and-processed-materials industry, and the other 28 percent by the woolen textile industry, the linen textile industry, the silk textile industry, the chemical fiber industry and the textile machinery industry.

A similar situation existed in the foreign exchange earnings of exports. In the entire textiles industry's procurement for foreign trade in 1979, the raw-and-processed-materials-type industry of cotton textiles accounted for 12 percent and the processing-type industry constituted 65.3 percent. This indicated that Shanghai's exports of cotton textile products were composed of a vast portion of finished products and a relatively small portion of semi-finished products, such as cotton yarn and gray cloth. This was also an important achievement in development of the processing-type industry.

At present, China's textile products in the international market lag behind mainly in the area of backward finishing capacity after printing and dyeing. Because China lags behind foreign countries in the processing-type industry, apparel constitutes a very small proportion in exports. The disparity which exists between other provinces or cities and Shanghai is precisely the same as the gap which exists between China and the advanced foreign countries. Therefore, either for the objective of developing export trade or for the goal of enriching domestic markets to meet the needs of the broad masses of the people, it is necessary to focus our attention on development of the processing-type industry. If this work is well done, output values and profits will increase at a faster pace, as is the case in Shanghai, even in the condition of no fast growth in raw materials.

/3. It Is Necessary To Reform the Product Structure and the Export Products Structure of the Textile Industry, in Order To Meet the Needs of Domestic and Foreign Markets./

The speech growth of purchasing power for domestic consumer goods demands a rich and colorful supply of textile products. The commodity structure of the world trade of textile products is progressing from one centering on low-quality and medium-quality products to one centering on medium-quality and high-quality products. This requires the product structure of the textile industry to meet the needs of the developing situation.

(1) We must raise still higher the proportion of chemical fiber blend fabrics and pure chemical fiber fabrics.

Chemical fiber blend fabrics or pure chemical fiber fabrics constitute an ever-increasing proportion, now reaching about 40 percent, of the world trade of textile products. The production and consumption of the world chemical fiber fabrics are expected to surpass those of natural fiber fabrics by the mid-1980's. At present, the export of chemical fiber fabrics from Japan and other countries has surpassed that of natural fiber fabrics, and the import of chemical fiber fabrics by the various countries is also increasing rapidly in quantities. Without developing the production of chemical fiber fabrics, it would be impossible to meet still better the needs of the broad masses of the people, nor would it be possible to develop speedily the export trade of textile products. For this reason, in enhancing the export trade of China's textile products in the 1980's, this is an important link worthy of attention.

(2) We must strive to develop medium-quality and high-quality textile products and upgrade the level of finishing capacity after printing and dyeing.

In the past, the Third World countries were the major importing countries of textile products, and the textile products traded with them were mainly low-quality and medium-quality products. In the late 1960's the situation underwent a change. Especially in the late 1970's, as a result of the transformation of the economically well-developed countries from exporters of textile products to importers of textile products, some developing countries which had once been importers of textile products were able to develop their own textile industry at a very fast pace. They became self-sufficient in supply of low-quality and medium-quality products, and were capable of attaining a positive development of exports. Therefore, the economically well-developed countries have become a main market for import of textile products, importing 85 to 90 percent of the world's total textile imports. What they need are mostly medium-quality and high-quality products, and their markets have a huge capacity for imports. China's exports of textile products are less than 2 percent of the total imports of these countries. There is still ample room for development.

And coming in the wake of the development of the national economy is a speedy rise in the purchasing power for consumer goods in the domestic market. This has also resulted in rapid growth of need for medium-quality and high-quality products. Whereas in recent years dacron cotton blend cloth was sold mainly

in cities and municipalities, the rural market today has a very fast-growing need for it. In the first half of 1980, the supply of dacron cotton blend cloth in the rural areas increased by 30 percent, as compared with the same period of 1979. Contradictions were particularly conspicuous in supply and demand of high-quality products, such as woolen products, silks and satins, knitwear and overcoats.

Therefore, to meet the needs of international and domestic markets, it is necessary that the proportion of medium-quality and high-quality products be raised to a higher level, and that efforts be made to produce more textile products which are well finished, superbly combed, dazzlingly graceful in designs and colors, new and original in styles. However, as compared with foreign countries, the level of China's finishing capacity after printing and dyeing remains a principal weak link. First, the proportion of blend chemical fiber cloth and pure chemical fiber cloth was 66 percent in the United States during 1974, 53 percent in Japan during 1976, and only 29 percent in China during 1979. Second, foreign countries are in need of wide cloth measuring over 56 inches in width, but the cloth produced in China consists mainly of narrow cloth measuring 36 inches in width; the wide cloth produced in 1979 made up only 2.2 percent of the printed and dyed cloth, and that was far from being enough to meet the needs of export trade. Third, resin-finished products now constitute 70 percent in Japan, but only 4.9 percent in China and with just a few varieties. Fourth, shrinkproof-finished products are developing rapidly in foreign countries. Japan's shrinkproof-finished products already comprise 70 to 80 percent of its total output, but China's shrinkproof-finished products are still unpopular and unstable. Fifth, only 21 percent of yarn-dyed cloth has gone through general treatment. Sixth, the level of finishing capacity after printing and dyeing of the woolen textile industry and the silk textile industry as well as the knitting industry still lags far behind that of the cotton textile industry. Therefore, in order to meet the needs of domestic and foreign markets, it is necessary to vigorously upgrade the level of finishing capacity after printing and dyeing.

(3) We must upgrade the depth of processing, reduce the export of raw materials and semifinished products, and increase the proportion of finished products in export.

China's present export of textile products is composed principally of raw materials and semifinished products, such as, gray cloth, raw silk and gray silk, which comprises 63 percent of the total exports, with the remaining 37 percent made up of finished products. In the category of cotton cloth, gray cloth and bleached cloth take up over 50 percent, and colored cloth about 45 percent. Prices of exported dacron cotton colored cloth are 30 percent higher than those of exported gray cloth, and exports of dacron cotton yarn-dyed cloth get 23.8 percent more in prices than do printed calico.

Yarn-dyed cloth possesses a unique style of its own. It makes high-quality products, such as imitation wool fabrics and imitation silk fabrics, by using cotton yarn and chemical fibers as raw materials, which are low in prices and high in quality, having a very extensive marketability and being very fashionable and popular in domestic and foreign markets. In recent years, there has

been a relatively faster development, not only of cloth for making dresses, but also of cloth for decorative purposes, cloth for industrial usage, cloth for labor insurance and protection usage, which are being widely used and have strong adaptability. If efforts are made to secure a firm hold on reform of the finishing capacity after printing and dyeing, to upgrade the high-quality finishing capacity on wide cloth, resin, elasticity, full shrinkproofing and softness, yarn-dyed cloth will become a product with excellent development prospects.

Silk exports consist of over 80 percent of gray silk and less than 20 percent of printed silk and dyed silk. In terms of export prices, gray silk sells over 20 percent more than filature silk, dyed silk costs 15 percent more than gray silk, and printed silk is worth 42 percent more than dyed silk. We must, therefore, strive to enhance the depth of processing, reduce export of raw materials and semifinished products, and increase the proportion of finished products in export.

(4) We must with full might and main develop the production and export of apparel and strive to increase the proportion of apparel of textile exports.

In recent years, world exports of apparel have developed at a faster pace. The total export volume of apparel in the world rose from $12.59 billion in 1973 to $27.9 billion in 1978, an increase of 122 percent in 5 years, or an average annual growth rate of 17.3 percent. The proportion of apparel in the entire export of textile products also jumped from 35 percent in 1973 to 41 percent in 1978.

The turnover of Hong Kong's import and export trade of textile products in 1978 was $6.36 billion, with the export of textile products (not including transit goods) accounting for $3.66 billion, of which the export of apparel was $2.99 billion, embracing 82 percent of the export of textile products. In recent years, Hong Kong has ranked first in the world export of apparel, being second only to South Korea. China's export of apparel has just started, for it makes up only 27 percent of the total export of textile products. To speed up the growth rate of textile exports, we must strive to raise the proportion of apparel in exports of textile products.

The knitting industry has developed very rapidly in foreign countries over the past years. In the United States, Japan, and the various countries in West Europe, knitwear constitutes over 40 to 60 percent of overall textile production. In 1976, 56 percent of men's and women's apparel in the United States was composed of knitwear, being higher in proportion than shuttle fabrics. The apparel exported from Hong Kong consists of 51.5 percent knitwear and 48.5 percent shuttle fabrics. Therefore, for the sake of developing the export of apparel, it is necessary to increase the production and export of knitwear. Knitted coats gain 30 to 50 percent more foreign exchange earnings than knitted underwear. Knitted coats, if made in the right styles and designs catering to popular taste and liking, plus exquisite and superb processing, are priced over 100 percent higher than underwear. China has developed along this time at a faster tempo in recent years. The present export of knitted underwear is composed mainly of sleeveless garments, panties and cultural shirts.

We must vigorously strive to develop the production of knitted coats. Knitwear is needed not merely for export, it is also in short supply in the domestic market. We must, therefore, accelerate the tempo of development of the knitting industry in order to meet the daily-increasing needs of domestic and foreign markets.

(5) We must develop the production of cloth for interior decoration, cloth for industrial usage and textile products for tourism.

As a result of the development of the national economy and the improvement in the people's living standards, the needs for cloth used in interior decorations--such as, for sofa covers, drapes, tablecloths, bedspreads, bedsheets, towels, carpets--have increased very rapidly. In the countries that are economically well developed, products of this category have constituted a relatively high proportion in the consumption structure of textile products. For example, the 1978 consumption structure of textile products in the United States was made up of 40.3 percent of textile products for apparel, 32.3 percent of textile products for interior decoration, 23.3 percent of textile products for industrial and other consumption usage, and 4.1 percent of textile products for export. The situation in the countries of West Europe is almost the same. Because the proportion of textile products for interior decoration and industrial usage has increased with each passing day in the world consumption of textile products, development of the output of textile products of this category is also an important avenue to expansion of China's export of textile products and has great significance for fulfillment of the needs of the domestic market.

In the wake of the fast development of China's tourism trade, there has come a fast-growing necessity to meet the needs of tourists for textile products of all kinds. And so it is necessary that we step up investigation and study, do an excellent job in trial production, and increase the variety of colors and designs, in order to meet the needs of tourists.

/4. It Is Necessary To Improve the Structure of Technology and Quicken the Pace of Modernization of the Textile Industry./

An important landmark of modernization of the textile industry is modernization of textile science and technology. Only a textile industry armed with sophisticated technology and equipment can produce modernized textile products of all types. Therefore, an uninterrupted improvement of the technological structure of the textile industry is an important task of achieving modernization of the textile industry.

The structure of technology and the structure of industrial branches, the structure of raw materials and the structure of products, are all closely related. For example, the use of chemical fibers in the textile industry can alter the structure of raw materials and the structure of products. Nevertheless, if no improvement is made in the structure of technology--such as installation of various types of finishing equipment for use in after-printing and after-dyeing processes that are most essential to processing of chemical fiber products, and creation of technological conditions essential to utilization of chemical fibers--it would then be difficult to achieve the anticipated goal.

To improve the structure of technology, to overtake and surpass the advanced technological level of the world, it is necessary to proceed from China's actual conditions and embark on China's road to modernization. Because of high wages and salaries, adequate power supply, relatively inexpensive electricity and abundant funds, the economically well-developed countries have done their utmost to upgrade the level of automation in order to reduce production costs. Conditions are precisely the opposite in China, where funds are inadequate, power is in short supply, electricity is expensive, labor force is in ample supply and wages are comparatively low. Therefore, at a time of achieving modernization of the textile industry, we must not blindly seek a high degree of automation, electronization and reduction of employment, but should achieve a gradual transition to advanced technology by proceeding from improvement of the quality of products, enrichment of the variety of colors and designs, economical use of energy and raw and processed materials, betterment of labor conditions, enhancement of economic results, attainment of a solution to weak links in the production chain and adoption in the main of applicable technology and intermediate technology.

Construction of new plants will play an important role in improvement of the structure of technology, but more important is innovation or reform of the existing old plants. For this costs less, produces faster effects and achieves better economic results. It is necessary to integrate into one single entity the crucial issues arising from the development of production in the various periods of time according to plan and step-by-step, to make one key point stand out prominently at a time, and to concentrate forces to achieve a solution to one of the weak links in the production chain. For example, fruitful results have been achieved in Shanghai since 1972 in vigorously laying a firm hold on development of chemical fiber blend products, on promotion of medium-length fiber fabrics and knitted coats, and on enhancement of the finishing capacity of printing and dyeing. The appropriate varieties of the new technology and the new equipment that are technologically mature or basically mature, such as open-end spinning, self-twisted spinning, wide loom, arrow-shaft loom, water-jet loom, should be popularized in accordance with their performances. The components and equipment of vital importance--electronic yarn scutcher, spinning frame "tripex," printing and dyeing roller, metal card clothing--should be reformed in line with needs, because of their obvious effects on improvement of quality and on enhancement of efficiency. Equipment and installations that are particularly backward, such as iron-wood looms, ought to be gradually eliminated and replaced with new ones.

To realize modernization of the textile industry, we must import some technological equipment from foreign countries. Nevertheless, regardless of whether it involves building new plants or improving old plants, we must rely mainly on China's own supplies. At present, the textile machines manufactured in China, though totaling over 1,200 kinds, have had many product gaps that need to be filled. And still relatively backward are the equipment and installations of the woolen textile industry, the jute textile industry and the knitting industry. A problem which has generally existed in textile machines of all types is that machines have too many cast-iron parts, machines are crudely and clumsily manufactured, in addition to inferior precision of crucial spare parts and components, short service-life of machines, low per-unit output, no

significant improvement in 20 to 30 years, and relatively poor reliability of electronic and electric accessories. Moreover, the textile equipment also lags far behind needs in quality and variety. It is, therefore, necessary to further strengthen the textile machinery and equipment industry, thus enabling it to meet the needs of development of the textile industry. This is also an important issue requiring solution in the course of improving the technological structure of the textile industry.

/5. It Is Necessary To Improve the Structure of Localities of the Textile Industry and Bring Into Fuller Play the Superiority of the Various Localities./

China is a country of vast territory. It is a country of great differences in geological conditions, characteristics of resources, foundation of industries and technological level. In developing the textile industry, it is necessary to tailor measures to suit local conditions, to bring the superiority of the various localities into full play, to magnify superior features and reduce defects, and to develop the most appropriate industrial branches and products so that better economic results can be achieved.

The slow development of raw materials is an important factor hindering a speedy development of the textile industry. Therefore, in the layout of the textile industry, it is necessary to give full play to the superiority of raw materials in the various localities, to combine into one monolithic entity the development of the textile industry and the development of raw materials, to achieve mutual promotion and uninterrupted enhancement. For instance, in the provinces of Jiangsu and Hubei, where cotton production is increasing at a much faster pace, the cotton textile industry should be developed with greater emphasis; in the northwest provinces and in Nei Monggol, where the animal husbandry industry possesses appropriate conditions of development, the woolen textile industry should be developed with greater efforts; in Zhejiang which produces jute, in Hunan which produces ramie, in Heilongjiang which produces flax, as their special products, the linen textile industry should be developed more extensively. In Sichuan, Zhejiang, Jiangsu and Guangdong, where silkworm cocoons are produced in relatively large quantities, the silks and satins industry should be developed in a much greater dimension. This reduces the costs of transporting raw materials and whips up the enthusiasm of these localities in developing raw materials. The localities which possess the conditions of developing textile raw materials but have not fully utilized their conditions should be urged to accelerate the speed of developing the production of raw materials. And it is also necessary to guard against an unrealistic development in localities that are short of raw materials, so that the outlay of the textile industry will become a more reasonable one.

In areas where chemical fibers are produced, all the chemical fiber plants that are placed under the state unified allotment of principal raw and processed materials must turn in the chemical fibers they have produced to the state for unified distribution and must appropriately meet the needs of the local areas. The chemical fiber plants which were built with local funds and which are responsible for their own supply of raw and processed materials may keep the chemical fibers they have produced for their own use locally. This also helps to bring into play the enthusiasm of the various localities in developing the production of chemical fibers.

The areas possessing a sound textile industry foundation and a high level of technology, such as Shanghai, Beijing, Tianjin, the cities of Wuxi and Changzhou in Jiangsu, must bring into full play their technological superiority and develop in the direction of high-quality products, export products, new technology and new skills. Shortage of raw materials can be solved through the measure of "cutting one's coat according to one's cloth." In the days to come, the longstanding bases of the textile industry, especially the bases in big cities, must not overexpand their productive capacity. They must concentrate more of their forces on quality and variety, on new technology and new skills, and on exports, thereby fully enabling their technological superiority to play a more important role in developing the textile industry of the whole nation.

/6. It Is Necessary To Improve the Structure of Investment, To Handle Correctly the Relations of Proportion Between Productive Construction and Nonproductive Construction as Well as the Relations Between Bone and Flesh, and To Repay All Debts Step-by-step./

For a long period of time, as a result of undue emphasis on development of production and indifference to the well-being of the masses of staff and workers, the relations of proportion in investment between productive construction and nonproductive construction have been seriously damaged. In the period of the First 5-Year Plan, the proportion of the productive construction of the textile industry constituted 78 percent of the total investment in the industry, and the proportion of nonproductive construction comprised 22 percent, of which 17 percent was for building of residential houses. From the beginning of the Second 5-Year Plan, the proportion of nonproductive construction of the textile industry dropped by a big margin. By 1975, the proportion of nonproductive construction plunged to 4.3 percent, of which 2.1 percent was for building of residential houses. In the years following 1976, there was a slight increase in the proportion of nonproductive construction, but the growth rate was still negligible. In 1979, the proportion of nonproductive construction rose to 15.6 percent, with the building of residential houses accounting for 8.8 percent, which was still much lower than the percentage in the period of the First 5-Year Plan.

Indifference to nonproductive construction is a common phenomenon, but the consequences resulting therefrom are serious. A prominent issue today is shortage of living quarters for staff and workers. For example, the bases of the textile industry in Xi'an and Xianyang, Shaanxi, the new bases built after the Liberation, were developed rapidly and expanded quickly, but many of their facilities of life could not catch up, and they were mostly in debt. In the enterprises under the Shaanxi Provincial Textile Corp the average housing floor space for each individual was only 2.5 $m^2$, and in some plants the average per capita housing floor space was merely 2.1 $m^2$.

The situation of the old industrial bases was even much worse. In the municipalities of Shanghai and Wuxi, for example, a protracted and undue emphasis on "unearthing the potentialities of production" has resulted in a situation of considering more of development but less of comprehensive balance, more of production but less of the well-being of life. Because of fast production growth,

production sites and plants have not been expanded and reformed correspondingly. This has created a situation of "production crowding out livelihood, production crowding out subsidies, subsidies crowding out warehouses, warehouses crowding out roads," thus gradually worsening both production conditions and labor conditions. This is characterized by a continual rise in the proportion of hazardous plants to as high as 16 percent of the total building floor space of plants of the textile industry in some cities, or even to more than 30 percent of the total building floor space of some plants of the industry. Also failing to meet the needs of development of production and increases in the number of staff and workers are living facilities and welfare benefits, such as, living quarters, mess halls and bathrooms. Shortage of warehouses is also a salient question. Some plants have to pile up their raw materials and finished products in hallways and mess halls because there are no other places to store them. In recent years, as a result of tapping the latent power of production, many plants have installed additional machinery and equipment in their workshops, thereby upgrading machinery precision and accelerating machinery speed, yet driving up the temperature of workshops, because of lack of a timely installation of air-conditioning. The health of staff and workers is affected, because the workshops of fine yarn have an average room temperature of 37 to 38°C, and temperatures in the workshops of weaving looms reach over 40°C on hot days. In some localities production is affected because water and power and gas are not adequately fitted out with complete sets of equipment. Nor has the work of environmental protection been able to catch up. Especially noteworthy is the rapid growth of the productive capacity of printing and dyeing, whose polluted waters are drained off untreated to create pollution of rivers. As a result of long-term accumulations, all bases of the textile industry, new and old bases, are heavily in debt. Over the past 2 years, this problem has started to attract attention in the various localities, but it would still take a relatively long period of efforts to repay the debts. In addition, the structure of prices and the structure of economic makeups are still beset with quite a few problems that require a solution in the period of adjustment of the national economy. Specifically the unreasonable structure of prices has produced unfavorable effects on development of production. To reform the system of economic management, to carry into effect an integration of planned adjustment with market adjustment, and to use profits as a yardstick for measuring the achievements of enterprises, it is completely necessary that the problems be solved.

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## CHAPTER VIII

## THE ENERGY STRUCTURE

By Sun Shangqing [1327 1424 3237]; original text pp 261-294; portions within slantlines in boldface in original text.

[Text] After the Third Plenum of the 11th party Central Committee, the question of the energy structure attracted the broad interest of the people and stimulated discussion as the economic structure was adjusted. This is not a chance happening. It is because the energy structure is an important part of the economic structure, and in a certain sense, the energy structure serves importantly to limit the function of the economic structure.

The economic structure we are talking about includes the structure of productive forces and also the structure of productive relations. There are quantitative restrictions and qualitative restrictions. Therefore, an anlysis of the economic structure must be studied from the point of view of the dialetic relationship between productive forces and productive relations, and from the point of view of the dialectic relationship between quantity and quality and they should not be treated in isolation. This method of study, of course, is also suitable for studying the energy structure which is a component of the economic structure.

Generally speaking, the study of the energy structure can be divided into two aspects. One is to study its economic aspect and the other is to study its technical aspect. We will study the problems of energy structure from the economic aspect. Concretely speaking, we will explore the developmental relationship between energy and the economy. The production structure and the consumption structure of energy mainly limit industrial development in the various sectors of the national economy, and according to the concrete situation in our nation, the question is how to adjust and arrange the productive structure and the consumption structure of energy to adapt to the needs of building the four modernizations. Needless to say, to explain these questions, we must analyze the historical evolution and the current situation of our nation's energy structure and the main conflicts that exist, and at the same time, we must contrast these with related situations abroad.

## I. The Productive Structure and the Consumption Structure of Energy

The energy structure mainly involves the productive structure and the consumption structure of energy. The productive structure of energy refers to the output within a fixed period and the proportional relationship among the various kinds of one-time energy sources (petroleum, natural gas, coal, hydroelectricity, nuclear power, solar energy, geothermal energy, wind energy and tidal energy, etc.). It reflects the quantity of equipment for producing various kinds of one-time energy and its efficiency. The energy consumption structure refers to the quantity of energy consumed by the whole society and all its sectors and the mutual relationship among various kinds of energy. It reflects the social, economic and technical conditions and results of utilizing energy. Generally speaking, the productive structure of energy determines the consumption structure of energy. Because first, only the energy produced can be consumed. Second, the quantity of various kinds of energy finally determines the amount of consumption. Third, the ratio between the output of various types of energy determines the ratio between energy consumption in the society. Of course, the energy consumption strucutre in turn also exerts an important influence upon the productive structure. Under certain situations, the energy consumption structure will stimulate a rapid change in the productive structure. In some other situations, it can delay changes in the productive structure. In a nation, the addition of the factor of energy imports and exports makes the situation not so simple. Even so, in general, we can still say that the consumption structure is different because the energy production structure is different.

In view of the actual situation at present, the energy consumption structure of each nation can generally be divided into the following three basic types. One is the type that relies on the nation's own energy resources, using whatever is exploited. This can be called the natural type structure of energy consumption, for example, certain economically backward nations and petroleum exporting nations, and the Soviet Union. The other type is that the nation's own energy resources are scarce, and the energy needed almost entirely relies on imports. This can be called the dependent type or import type structure of energy consumption, such as Japan. Another type is that domestically produced energy cannot meet the needs in quantity and varieties, and to make up for the shortage and to exchange varieties, more have to be imported. This can be called the regulatory type structure of energy consumption, such as the United States. As the economy develops, the number of nations having the natural type structure of energy consumption tends to decrease, the number of nations of the import type will slightly increase steadily, while the number of nations of the regulatory type will increase.

In the world, changes in the productive structure and the consumption structure of energy are a slow process. It is limited by man's understanding of the nature of energy and the level of development of the economy and technology. After new energies are discovered, they will be developed rapidly and utilized only when they can adapt to the demands for elevating the level of social productivity, and thus the productive structure and the consumption

structure of energy will correspondingly change. The discovery and the large-scale utilization of a new type of energy can also stimulate productivity to jump to a new level. Before the middle of the 19th century, firewood and straw were man's main energy sources, and they once had a history of several thousand years. In manual labor, besides such professions as manual smelting, the energy problem still could not form any direct and close relationship with productive forces. By the end of the 19th century, the situation changed drastically. Along with the success of the first industrial revolution, the steam engine became popular, and coal became the main energy source for industry. After the middle of the 20th century, as the automobile industry and the petrochemical industry rapidly developed, new demands were made upon liquid energy--petroleum. The proportional consumption of petroleum gradually rose year by year, and the world's economy enjoyed unprecedented prosperity. In 1950, the total consumption of energy in the world was 2.7 billion tons of standard fuel[1], and petroleum and natural gas constituted 39.1 percent. By 1975, the total consumption of energy rose to 8.7 billion tons, an increase of 2.2 times, and the percentage of petroleum and natural gas rose to 66.5 percent. This change in the energy consumption structure caused the economy to develop rapidy. The index of the world's industrial production, taking 1970 as 100, was 27 in 1950 but reached 126 in 1975.

But for a nation, the changes in the productive structure and the consumption structure of energy may not necessarily be slow. People can start out from their own country's actual situation, follow the laws of economic development and the laws of technological progress, to create various conditions to hasten the progress of change in the energy structure. This point has already been proven in practice by many nations. Therefore, if we can recognize clearly the transformations in energy structure, grasp the opportunity, implement measures of policy, legislation, capital and technology to stimulate the rapid transformation of one's own nation's energy structure, they will exert an active and profound influence upon the nation's economy. For example, during the latter period of the 1950's, Japan foresaw that the key energy in the world would change from coal to petroleum and natural gas, so it imported a massive amount of petroleum, developed large-scale heavy oil power plants, realized full-scale electrification of state-owned railroads and the use of internal combusion engines, greatly developed petrochemistry, and followed this by developing automobile manufacturing and the production of household electrical appliances. In this way, the total energy consumption in Japan and the consumption of petroleum all increased by a large scale. In 1955, Japan's total energy consumption was 65.5 million tons of standard fuel, and the percentage of consumption of petroleum constituted 20.2 percent. In 1970, its total energy consumption increased to 345.5 million tons, an increase of 4.3 times over 1955. The percentage of consumption of petroleum also increased dramatically to 70.8 percent. During the same period, the rate of economic development was above 10 percent. Cheap and abundant petroleum caused Japan's economy to develop at a high speed. The major changes in a decade made Japan suddenly an economically developed nation.

The productive structure of energy in our nation in the 1970's, as seen by the portion of the various kinds of energy as a percentage of the total amount of

standard fuel produced was over 70 percent of raw coal, over 20 percent of crude oil, over 2 percent of natural gas, and over 3 percent of hydroelectric power. (See Table 1)

Table 1 -- The Structure of Fuel Production in China

| | As a percentage of the total amount of standard fuel produced | | | |
|---|---|---|---|---|
| Year | Raw Coal | Crude Oil | Natural Gas | Hydroelectricity |
| 1950 | 96.8 | 0.9 | | 2.3 |
| 1960 | 95.7 | 2.4 | 0.5 | 1.4 |
| 1970 | 81.8 | 13.9 | 1.2 | 3.1 |
| 1979 | 70.6 | 23.1 | 3.0 | 3.3 |

The consumption structure of energy in our nation is the natural type. Almost whatever is produced is consumed, the percentage of exported and imported energy is very small. Since 1975, the amount of petroleum exports visibly increased, but in the highest year, it only constituted about 15 percent of oil output. The year 1979 was the year with the highest amount of petroleum exports in our nation, but it was only some 16 million tons. Although the potential for coal exports is very large, the present amount of export is very small. At the same time, our nation basically does not import energy at present.

If stalks and firewood are included in our nation's energy consumption, then at the beginning of Liberation, firewood was the main source of energy. It still constitutes about one-third at present, still higher than the percentage of petroleum and natural gas. If we talk about mineral energy, then coal has always been the main source. In 1953, coal constitued 94.4 percent, and petroleum constituted 3.73 percent. As the petroleum industry developed, the percentage of consumption of petroleum and natural gas rose. In 1965, the percentage of petroleum and natural gas reached 10.7 percent. The consumption of coal dropped to 86.64 percent. At the time, our nation's economy had just undergone 3 years of adjustment, some leftist mistakes were corrected, industrial production was prosperous, and the nation's output of crude oil. If we can carry out economic construction further with active efforts on such a foundation, and if we do not repeat those leftist mistakes and do not engage in political movements, do not practice isolationism, our nation may share the economic benefits brought about by the world's cheap petroleum in the 1960's. But as the economy improved, we again launched poltical movements, and especially the 10 years of the cultural revolution caused us to miss a good opportunity. Even though during this period our nation's petroleum industry developed rather rapidly, changes in the productive structure and consumption structure of energy were still not large. In 1979, the percentage of petroleum and natural gas rose to 24.6 percent, the percentage of coal dropped to 71.3 percent, and the percentage of hydraulic power geneation was 3.6 percent. (See Table 2).

Table 2 -- China's Fuel Consumption Structure

| Year | As a percentage of the total consumption of standard fuel | | | |
|---|---|---|---|---|
| | Raw Coal | Petroleum | Natural Gas | Hydroelectricity |
| 1953 | 94.4 | 3.7 | 0.02 | 1.9 |
| 1960 | 94 | 4 | 0.5 | 1.5 |
| 1970 | 81.1 | 14.4 | 0.9 | 3.5 |
| 1979 | 71.3 | 21.8 | 3.3 | 3.6 |

It can be seen from the above that a visible characteristic of our nation's productive and consumption structure of energy is that coal is the main source. Coal is solid fuel and, compared to petroleum, it involves a series of problems: it is difficult to mine, the thermal value is low, the amount to be transported is large, use is inconvenient and its environmental polution is serious. The thermal efficiency of medium and small boilers fired by coal is 10 to 25 percent lower than boilers fired by oil. The thermal value consumed in the production of 1 ton of synthetic ammonia and methanol and such ordinary chemical raw materials using coal as the raw material is 20 to 30 percent higher then using oil and gas as raw material. When directly burning coal, the cost of treating pollution is very high.

In 1979, the output of coal in our nation had already reached 635 million tons, ranking third in the world. Except for the small amount of several million tons exported each year, the rest is all consumed domestically, and environmental pollution is very serious. In view of the trend of development of coal, the transportation problem will also be a very great hindrance. In 1978, the amount of railroad cargo in our nation reached 1,075,000,000 tons, an increase of 7 times over 1952, and the amount of coal transported increased 7.8 times. The amount of coal transported by railroad constituted 37 percent of the total amount of railroad cargo. The mileage of railroads in 1978 increased only 1.1 times from that in 1952, the number of locomotive engines increased 1.35 times, and the number of freight cars increased 3 times. Because of the insufficient transport capacity, the supply of coal could not meet the demand, and coal accumulated and was lost because of spontaneous combustion. Facing the characteristics of our nation's energy structure, we must meet these problems head on, and implement active measures to gradually solve them.

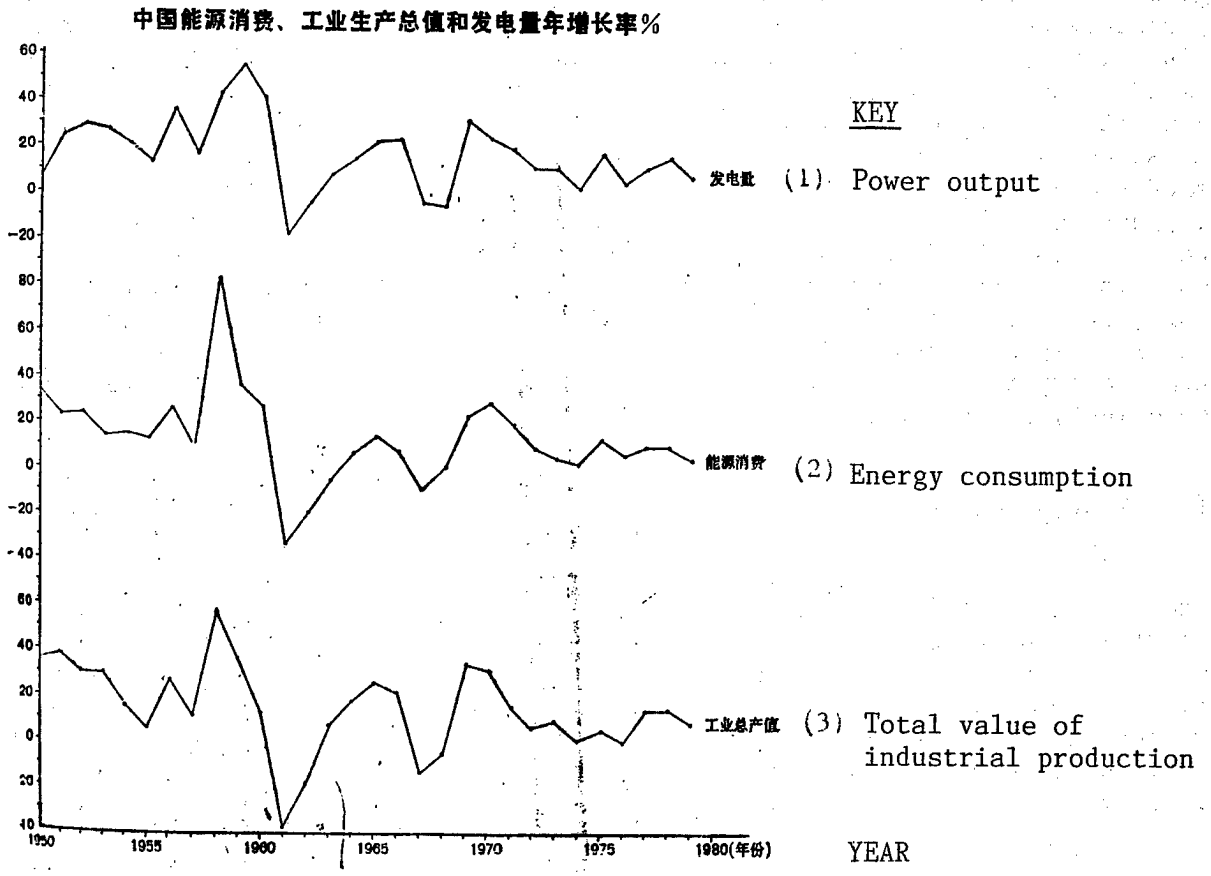
We should adjust the fuel oil power machinery and fuel oil boilers developed en masse beginning from the early 1970's to adapt to the characteristics of our nation's energy structure. During the period since 1970, the blind optimistic estimates of petroleum production caused a relatively quick development of our nation's fuel oil power machinery, but we quickly encountered a problem, the increase in petroleum products could not satisfy the need, and thus the average amount of oil products per horsepower dropped from 130 kg in the 1970's to 75 kg in the 1980's. It is estimated that by 1985, this may even be lower. This forcefully hindered the full utilization of fuel oil power machinery and even terminated its operation. At present, the amount of petroleum used as chemical raw materials in our nation constitutes 4 percent of the total output of petroleum. After the petrochemical and chemical

fertilizer projects signed with foreign firms in 1978 are completed and begin production, we need to increase the output of various types of oil products by several million tons. But in the next 5 years, the output of crude oil will not increase greatly. We will have to consider terminating the construction of these imported chemical and chemical fertilizer projects or delay the progress of construction. It can be seen here that our nation's present energy structure has limited our nation's economic development. There are two possible ways to break away from this difficult situation. One is to either rapidly increase the ratio of petroleum consumption, or to develop massive quantitities or to import massive quantities. The other way is to implement measures in two aspects, energy and economy, so that economic development and energy development are coordinated. In our nation, the first way is obviously impractical. We can only pursue the latter. This requires us to do well the work of comprehensive balance in the use of energy, adjust and reorganize the consumption structure of petroleum, and use the limited amount of petroleum for transportation and chemical raw materials, fully develop its advantages and realize the maximum economic results as much as possible. At the same time, every fuel that can be replaced by coal should be changed to coal-fired as quickly as possible.

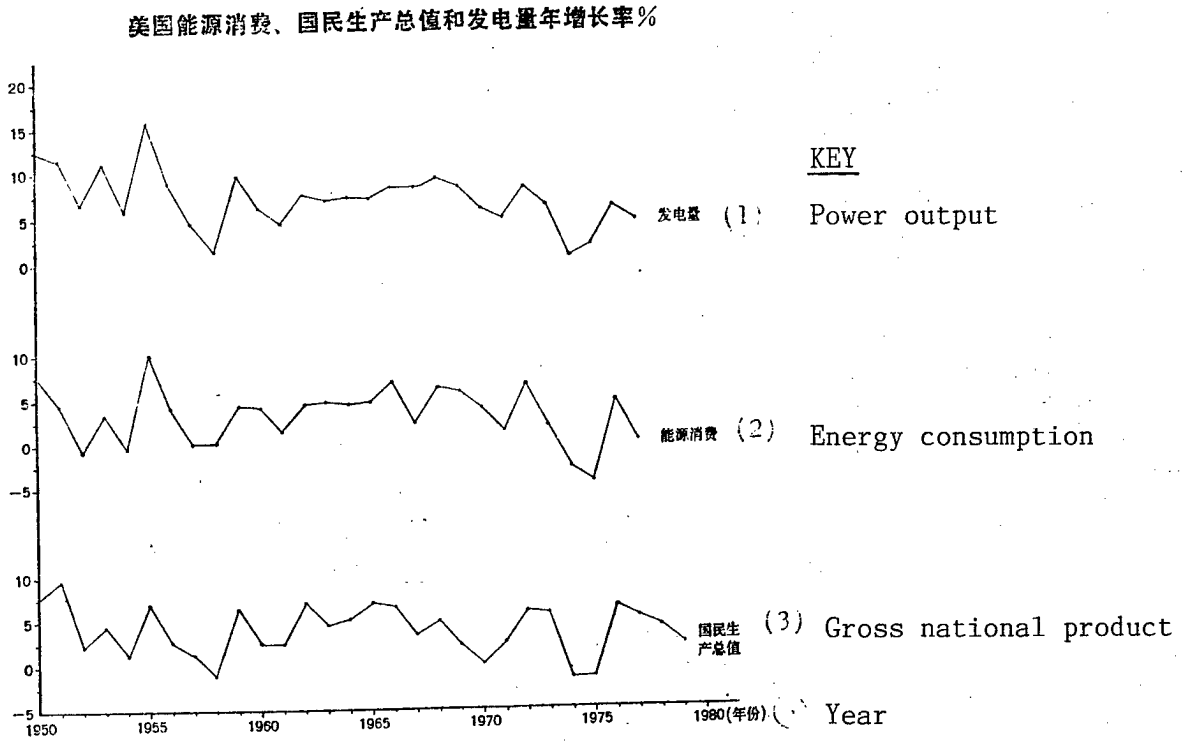
## II. Energy and Economic Growth--Elastic Coefficient of Our Nation's Energy

Energy and economic growth are closely related. The energy situation is an important factor in modern social and economic growth. At some times, it is even the decisive factor. If the energy structure is suited to the needs of national economic development, the national economy will be able to develop rapidly while the energy consumption continues to grow. But the growth of the national economy will also provide an economic guarantee for the rationalization of the energy structure.

The Annual Percentage Growth Rate of China's Energy Consumption, Total Value of Industrial Production and Power Output



Annual Percentage Growth Rate of America's Energy Consumption, Gross National Product and Power Output




Let us take a look at the relationship between our nation's energy development and industrial growth.

Our nation's industrial production value constitutes about 60 percent of the gross national product. The energy consumption of the industrial sectors contitutes about 80 percent of the total consumption of energy throughout the nation. Therefore, it is very important to analyze the relationship between the growth in energy and industrial growth. (See the above graphs)

It can be seen from the above graphs that the growth of energy consumption is closely related to industrial development. As energy consumption grows, power and industry also grow. When energy consumption drops, the growth of power and industry also drops. Although the three lines have different ratios of rising and falling, the wave form and the years are generally consistent. The graph of the growth rates of the economy and fuel and power from 1950 to 1977 in the United States is also similar to our nation's graph. This shows that the dependence of the growth of the national economy upon the prior growth in fuel and power is a common law. At the same time, we can also see that there is a quantitative relationship between the growth rate of energy consumption and the national economic growth rate. In 1953, the total industrial production

value of the whole nation was 44.7 billion yuan. The total consumption of one-time energy was 54 million tons. In 1979, the total industrial production value reached 459.1 billion yuan, and the total consumption of energy was 586 million tons. In 26 years, the growth rate of industry was 11.2 percent, and the annual growth rate of energy consumption was 9.6 percent. The ratio between the rate of growth of industry and the rate of growth of energy consumption was 1:0.86. From 1953 to 1965, the industrial growth rate was 10.9 percent, and the growth rate of energy consumption was 11.0 percent, the ratio between the two was 1:1. From 1965 to 1979, the ratio between the growth rate of energy consumption and the industrial growth rate was 0.83.

But, in recent years, the elastic coefficient of energy dropped drastically. For example, it was 0.68 in 1978, but only 0.33 in 1979, and in 1980 it dropped further to 0.17. We know that the elastic coefficient of energy is limited by many factors. In a short period, changes in the factors related to energy consumption and economic growth will produce an abnormal situation in the elastic coefficient are: 1) the change in the energy consumption structure, or a rise in the percentage of petroleum and gas, or a rise in the percentage of coal; 2) changes in the industrial structure, such as the adjustment of the ratio between light industry and heavy industry, and an increase in high-grade products and products with a high added value; 3) the level of business management and technological reforms cause a change in the energy consumption of products and the energy utilization rate; 4) the degree of substitution for energy by the labor force and by animal power.

In the past 2 years, our nation's energy consumption grew slowly while the rate of industrial growth was over 8 percnet. The main reason was that reorganization of industrial enterprises and adjustment of the economic structure were strengthened. According to preliminary estimates, the comprehensive energy consumption per 10,000 yuan of the industrial production value in 1979 was 5.8 percent less than that in 1978. Energy consumption dropped by an equivalent of a total of 31.5 million tons of standard coal. Improved efficiency of utilization of energy accounted for 48.6 percent and changing the industrial structure and the product mix for 51.4 percent of the total amount conserved. These two almost constitute one-half each. In 1980, the percentage of light industry and heavy industry continued to rise and fall by 3.8 percent. This structural change has a very large influence on the elastic coefficent of energy.

The above situation shows that the potential for conserving energy in our nation is very large and it also shows that the drastic drop in the elastic coefficent of energy is a special phenomenon that has emerged during the period of economic readjustment and reorganization of the enterprises. When light industry and heavy industry reach a more suitable percentage, the industrial structure will tend to stabilize, and changes in the product structure will slow down. The improvement in the management standard and the progress of technological reform will not be as fast as during these 2 years, therefore, it is expected that after a period, the elastic coefficient of energy will rise again. The scale of the rise will be determined by the results of energy conservation in each section. (See Table 3)

Table 3 -- The Relationship Between Industrial Growth and the Growth in Energy in Our Nation from 1953 to 1979

| Historical Period | A. Growth rate of industry (%) | B. Growth rate of energy consumption (%) | B/A |
|---|---|---|---|
| 1953-79 | 11.2 | 8.6 | 0.86 |
| 1953-65 | 10.9 | 11.0 | 1 |
| 1965-79 | 10.1 | 8.4 | 0.83 |
| First 5-Yr Plan | 18.0 | 15.5 | 0.86 |
| Second 5-Yr Plan | 3.8 | 11.4 | 3 |
| 1963-65 | 17.9 | 2.7 | 0.15 |
| 1957-65 | 8.9 | 8.8 | 0.99 |
| Third 5-Yr Plan | 11.7 | 9.1 | 0.78 |
| Fourth 5-Yr Plan | 9.1 | 9.1 | 1 |
| 1976-1979 | 12.1 | 7.2 | 0.6 |

Looking at each historical period, we see that except for the Second 5-Year Plan and the readjustment period when the growth of the total industrial production value and the growth of energy consumption deviated from each other (but in general, they still differed not too much), during the other periods, the growth rate of energy consumption and the growth rate of total industrial production value were close. When considering the elastic coefficient of the relationship between this growth in energy and industrial growth, we should take into consideration that the energy consumption of a unit product was high and the waste was large because our nation's industry was technologically backward, and we should also take into consideration that our nation's growth in energy cannot satisfy economic growth and the people's needs.

## III. Selection of the Energy Structure

The selection and determination of the energy structure must be based on the nation's energy resources, the existing energy production structure and consumption structure, the technical progress in energy production and utilization, and forecasts of the development of energy, before they can be correctly solved.

Our nation's energy resources are relatively abundant. We have a rich coal reserve and a definite scale of petroleum reserves. We also have hydraulic resources that rank first in the world. Over the past 30 years since founding of the nation, one-time energy resources have developed rather quickly. The total output increased from an equivalent of 48.7 million tons of standard coal in 1952 to 643 million tons in 1979, ranking third in the world.

Coal is our nation's first major energy resource. In 1978, the actually measured resreves of coal amount to 600 billion tons. Over 60 percent of the counties throughout the nation have coal resources. The reserves of coal concentrate sutiable for building coal shafts amount to 30 billion tons. From 1949 to 1979, the national output of coal increased from 32 million tons to 635

million tons, an increase of 18 times, or an average annual growth rate of 10.4 percent. The distribution of coal was also improved greatly. The coal industry in the southwest, the northwest or the nine provinces south of Chang Jiang that lack coal developed by varying degrees. The resources of our nation's coal industry are reliable, the foundation is sizable, as long as the work in transportation, use and the treatment of the three wastes catch up correspondingly, we do have the conditions for producing increased output and using more coal. But we should say that in the past we did not handle the question of coal well for a long time, and we chose a crooked path in energy structure.

The period of construction to develop coal is relatively long and difficult. Generally, it takes about 10 years to build a mine of more than 1 million tons of output from construction of the shaft to the time it reaches the designed capacity. Therefore, as the depth of the mines continues to increase, and as the amount of construction gradually increases year by year, the percentage of investment in coal has to increase slightly while stability is maintained in order to guarantee that the output of coal continues to increase. In fact, this was able to be achieved. During the First 5-Year Plan, investment in coal constituted 12.3 percent of the total amount of industrial investment. During the Second 5-Year Plan, it constituted 13 percent. During these 10 years, the percentage of investment in coal basically remained steady. A total of 213 million tons of newly added coal production capability was addded, an average annual increase of 21.3 million tons. During the Third 5-Year Plan, the percentage of investment dropped to 9.2 percent. During the Fourth 5-Year Plan, it was 9.6 percent. During these 10 years, the percentage dropped 3 percent from the previous 10 years. A total of 149 million tons of newly added coal-producing capability was added, an average annual increase of 14.9 million tons. Although the percentage of investment from 1976 to 1978 rose slightly, reaching 10.4 percent, debts were too large and with the number of old and abandoned mines each year that reduced the productive capability, the newly added capacity did not show a visible increase. The annual average growth was 14.2 million tons. Because the percentage of investment dropped, the scale under construction shrank. In 1970, the scale of construction of mines was 158 million tons. This dropped to 130 million tons in 1978 and again to 100 million tons in 1980. Such a scale under construction can provide only a newly added annual capacity of more than 10 million tons. Deducting the several million tons not being produced anymore by abandoned old mines, the increased output was even less and it could not satify the current year's needs. To ease this conflict and meet the needs of consumption, a campaign to develop the potential and double the output from mines was launched in a big way. After 1965, the output of coal remained at an annual growth rate of 30 million tons, surpassing the newly added capacity by more than onefold. Because of the unilateral pursuit of output, the ratio between the newly added capacity each year and the growth in the output of coal was irrational, and the assets acquired during the previous 10 years were exhausted. The ratio between the capability of new shafts that began production and the increase in output during the First 5-Year Plan was 1:1. It was 1:0.6 during the Second 5-Year Plan, 1:1.8 during the Third 5-Year Plan, 1:1.58 during the Fourth 5-Year Plan and

it reached 1:3.18 between 1976 and 1978. The output of some relatively large coal mines throughout the nation already doubled or nearly doubled their original design capabilities, and it was not too easy to further increase the scale of increase in output.

According to the present scale of construction of coal mines and the progress in readjusting the producing mines, I estimate that before 1985, the rate of growth of coal will be about 2.5 percnet, an average annual increase of 17 million tons in output. By that time, the output of coal will be 720 million tons. From 1985 to 1990, the growth rate of coal will be about 4.6 percent, an average annual increase of 36 million tons, and the output of coal in 1990 will be 900 million tons. It is expected that by the end of this century, the output of coal will reach 1.4 billion tons, an average annual increase of 4.5 percent.

Our nation's petroleum resources are far less abundant that coal. The known reserves are mainly concentrated in the northeast, northern China, the coastal regions and Xinjiang. The reserves in the south central part and the southwest are very scarce and the distribution is very uneven. Since founding of the nation, our nation's petroleum industry has developed very quickly. Right after liberation, the nation only had two small oil wells at Yumen in Ganxu and Yanchang in Shaanxi, and one dry distillation furnace for shale in Fushun. The output of crude oil was only 120,000 tons. After 30 years of construction, the petroleum industry underwent a huge change. Now, 19 provinces and regions produce petroleum and natural gas. In 1979, the output of crude oil reached 106.13 million tons, ranking ninth place in the world. But, because the growth in crude oil output in recent years has been far quicker than the growth in the reserve, the problem of a serious deficiency in reserve resources emerged. In 1979, the exploitable reserve of surplus petroleum throughout the nation did not promote optimism, and the ratio between reserve and extraction dropped fourfold from 1965.

In view of the history of the development of the petroleum industry in our nation and the world's nations, the key to guaranteeing a persistent and stable growth in petroleum output is to insist on first conducting geological prospecting, grasp reserve resources that can provide increased output. But for a long time we did not have a sufficient understanding of this question. In particular, after we obtained a definite reserve, we became blindly optimistic, and the trend of emphasizing exploitation and extraction and neglecting prospecting was serious.

Practical experience of the past 30 years proves that as prospecting work continues to deepen without any major breakthroughs, the general law is that the geological structures change from being simple to becoming complex, natural conditions change from being good to bad, and the main target for development shifts from land to the ocean, and the prospecting wells change from being shallow to deep. Thus, the difficultly in prospecting becomes greater and the results of prospecting lessen.

In the 8 years from 1949 to 1957, a total of 823,000 meters of prospecting wells were drilled. During the Second 5-Year Plan, petrogelogical prospecting

work was strengthened, and the investment in prospecting constitued 46.2 percent of total investment in petroleum. During this period, we discovered the large Daqing and Shengli oilfields. A total of 2,727,000 meters of propecting wells was sunk. The results of finding know reserves of petroleum per meter of prospecting wells was three times the national average. During the 3 years of readjustment, the percentage of investment for prospecting dropped to 28.8 percent, 749,000 meters of prospecting wells were sunk, and the results of prospecting wells dropped. Druing the Third 5-Year Plan, the percentage of investment for prospecting rose to 57.9 percent, the footage of prospecting wells advanced 3,599,000 meters, but the results from prospecting wells dropped further. A comparison of the Third 5-Year Plan and the Second 5-Year Plan shows that although the percentage of investment for prospecting increased 11.7 percent and the footage of prospecting wells increased 32 percent, more large oilfields were not found. The known reserves were less than a half of that during the Second 5-Year Plan. After the 1970's, investment for capital construction of the petroleum industry and crude oil output grew very quickly to hasten the development of petroleum. But because emphasis was placed only on construction for production and petroleum prospecting work was neglected, the percentage of investment for prospecting dropped from 57.9 percent during the Third 5-Year Plan to 38.1 percent. And without continuing to discover oilfields with high reserves such as Daqing, the results of prospecting were far from ideal, and the known reserves were about the same as that during the Second 5-Year Plan. This caused petroleum prospecting to lag seriously behind development and an imbalance in the ratio between reserves and extraction.

After the 1970's, the big development in our nation's petroleum industry greatly stimulated national economic development, and at the same time, problems emerged. At the time, the estimate of the petroleum resources was too optimistic, thus there was a definite blindness in the development and use of oil and gas. In 1970, the whole nation produced 350 million tons of raw coal, 18 million tons of steel, only 87,000 vehicles, the petrochemical industry had just emerged, and the industrial foundation was still relatively weak. Under this situation, hastening the development of petroleum necessarily brought about a situation where the increase in petroleum could not be sustained because of insufficient capital for prospecting backup reserves. And because transportation and the petrochemical industry were backward, precious petroleum could not be fully and rationally utilized. From 1965 to 1978, the output of crude oil throughout the nation increased eight times, the amount of oil used for burning increased nine times, but the exploitable reserve only increased onefold. Now, the cumulative amount of extracted crude oil as a percentage of the known exploitable reserves is getting larger. In order to maintain the present intensity of extraction, much work was done to develop water injection in the oilfields and much capital was spent, even though results were realized, this still did not stop the decrease in the output of the oilfields. According to estimates, to maintain the present output of crude oil, 300-400 million tons of geological reserves of crude oil must be added each year, and about 10 million tons of crude oil producing capability must be built, otherwise the output of crude oil will drop.

Because the time of finding additional known reserves in the future and the scale of increase are very difficult to predict, the output of petroleum can only be forecast on the basis ofthe already known reserves. The preliminary estimate of petroleum output in 1985 is 110 million tons, basically maintaining the output of 1980. After 1985, oil wells in the sea will continue to serve their function. In 1990, oil output is expected to reach 150 million tons, and in the year 2000, we should try to reach 230 million tons, an average annual increase of 8 million tons, and the average growth rate over 15 years is 5.1 percent.

Natural gas resources are mainly concentrated in Sichuan and Guizhou. Also, each large oilfield has some associated gas. The present cumulative exploitable reserves are few, and the surplus exploitable reserves are also limited. In 1979, the output of natural gas was 14 billion $M^3$. The Sichuan gas field produced 6.52 billion $M^3$ and the oilfields produced 7.48 billion $M^3$ of associated gas. Because the growth of crude oil in the future is not good, it is more difficult to estimate the growth of gas from oilfields. And last year, the rate of decrease in gas from the Sichuan gas field had already reached 15 percent, therefore the growth of natural gas will not be too large. Preliminary estimates show that in 1985, 15.5 billion $M^3$ of natural gas will be produced, and the annual average increase over 5 years will be 300 million $M^3$. In 1990, 20.5 billion $M^3$ of natural gas will be produced, and the annual average increase over 5 years will be 1 billion $M^3$. In the year 2000, 34.5 billion $M^3$ will be produced, and the annual average increase over 10 years will be 1.4 billion $M^3$.

Our nation has the richest hydraulic resources in world. The theoretical reserve is 600 million kW. The resources already being utilized and the hydroelectric power stations being built now have a total capacity of 27.2 milion kW, constituting 4.7 percent of the theoretical resources. The potential of hydraulic power generation is very large. But because our nation's main rivers mostly flow from west to east, and they originate in the west and flow into the East China Sea, therefore over 80 percent of the hydraulic resources are concentrated in the remote southwest and the northwest regions.

At the end of 1978, the nation had a total installed capacity of 52.77 million kW. In 1979, the actual power output was 278.9 billion kWh. The average installed capacity power 100 million kWh of electricity generated was 19,000 kW. The installed capacity of hydroelectric power was 15 million kW, constituting 28.3 percent of the total installed capacity. Hydraulic power output consitituted about 17 percent. France and Italy are nations with a higher percentage of hydroelectricity. The installed capacity consitutes 40 to 45 percent. To prevent power shortages during the dry season, some thermal power capacity is used to make up the shortage in capacity during the dry season. Therefore, their average installed capacity per 100 million kWh of electricty generated is 28,000 to 29,000 kW. The installed capacity per unit of power output is 1.5 times that in our nation. If we calculate according to the situation in France and Italy, for each increase of 1 percent in the percentage of installed capcity of hydroelectric power in our nation, we will have to increase the average installed capacity to generate 100 million kWh of electricity by 590 to 750 kW.

Hyrdaulic power is renewable energy. Developing hydroelectricty more can conserve mineral resources and also prevent environmental pollution. In the long-range consideration, we should develop hydroelectricity more. But, hydroelectricity is strongly seasonal. To prevent power shortages during the dry season, we must also provide some supplementary thermal electricity, and this increases the investment in the power industry. On the other hand, the percentage of forest coverage in our nation is low, silting in the reservoirs is very serious. According to a survey of the nation's 33 large and medium reservoirs conducted in 1978, large-scale silting occurred in 16 reservoirs. The average silting as a percentage of the reservoir capacity reached over 50 percent. The useful life of these reservoirs averaged on 13 years. Also because the southwest and northwest regions are remote, the transmission of power still must rely on the development of our nation's power transmission and transformation technology. Therefore, the future development of hydroelectricity must be closely combined with tree planting and afforestation, and it must insist on suiting measures to local circumstances and the principle of economic rationality. Hydroelectricity should be developed in a key way in regions rich in hydraulic resources. We should develop as much as the locality can use, and we should build as much as can be transmitted out. As our nation's economy and technical levels rise, we should gradually increase the percentage of hydroelectricity. In constructing hydroelectricity, we should also pay attention to the question of developing shipping. Our nation lacked an overall plan for the construction of water conservancy and hydroelectricity, and thus the navigational channels lessened by 30,000 km.

According to the above analysis, the forecast of our nation's energy structure is as in Table 4.

While unable to import large amounts of petroleum to adjust and change our nation's original energy structure, and before solar energy and nuclear fusion and such new energy sources are widely utilized, coal will always be our nation's main energy source, and the percentage will constitute over 70 percent. But, direct combustion of coal is the main cause of environmental pollution. At present, 600 million tons of coal are produced annually. Complete combustion produces more than 10 million tons of sulfur dioxide and several million tons of nitrogen and oxygen compounds. When they meet rain, they produce an equivalent of 20 million tons of strong acid. The generation of electric power produces more than 10 million tons of coal dust a year. This has caused the pollution in all large and medium cities throughout the nation to surpass the standard. In long-range consideration, we should concretely strengthen the rational development of coal, improve regional distribution, and strengthen research work in gasification and liquefaction.

Table 4 -- Forecast of Our Nation's Energy Structure

| | Total | Coal | Petroleum | Natural gas | Hydroelectric power |
|---|---|---|---|---|---|
| 1979 | | | | | |
| Commodity (10,000 tons) | | 63,500 | 10,615 | 14 billion $m^3$ | 50.1 billion kWh |
| Converted to standard coal (10,000 tons) | 64,411 | 45,357 | 15,143 | 1,862 | 2,049 |
| Composition (%) | 100 | 70.42 | 23.51 | 2.89 | 3.18 |
| 1985 | | | | | |
| Commodity (10,000 tons) | | 72,000 | 11,000 | 15.5 billion $m^3$ | 70 billion kWh |
| Converted to standard coal (10,000 tons) | 72,005 | 51,429 | 15,714 | 2,062 | 2,800 |
| Composition (%) | 100 | 71.4 | 21.82 | 2.86 | 3.89 |
| 1990 | | | | | |
| Commodity (10,000 tons) | | 90,000 | 15,000 | 20.5 billion $m^3$ | 90.0 billion kWh |
| Converted to standard coal (10,000 tons) | 91,952 | 64,286 | 21,429 | 2,727 | 3,510 |
| Composition (%) | 100 | 69.91 | 23.30 | 2.97 | 3.82 |
| 2000 | | | | | |
| Commodity (10,000 tons) | | 140,000 | 23,000 | 34.5 billion $m^3$ | 150.0 billion kWh |
| Converted to standard coal (10,000 tons) | 142,846 | 100,000 | 32,857 | 4,589 | 5,400 |
| Composition (%) | 100 | 70.01 | 23.00 | 3.21 | 3.78 |

## IV. Exploring Several Questions

### /1. Our Nation's Shortage of Energy and Its Causes/

It can be seen from the following that our nation's energy shortage is also very serious.

First, the people used 29.98 million tons of coal for living in 1953, an average per capita consumption of 50 kg. The average per capita consumption in the cities was 194 kg and the average per capita consumption in the rural areas was 29 kg. As production developed and as the people's standard of living rose, the national consumption of coal for living in 1965 rose to 75 million tons, an increase of 45.2 million tons over 1953. The per capita average consumption was 103 kg, an increase of 1.1 times over 1953. The average urban per capita consumption was 381 kg, and the rural average per capita consumption was 58 kg. After the 10 years of upheaval, the growth in the consumption of coal for living was slow, and with the rapid increase in population, the average per capita consumption of coal almost did not increase. In 1978, the total national consumption of coal for living reached 100.63 million tons, but the average per capita consumption of coal was only 105 kg. In the 13-year period, the per capita average increased 2 kg. The urban per capita average consumption was 409 kg, and the rural per capita average consumption was 61 kg (See Table 5). According to surveys, about 30 percent of the urban population throughout the nation basically relied on firewood for fuel. There were 40 percent of farmers who suffered a serious shortage of firewood and they could not even guarantee three hot meals a day.

Second, in industrial production, the shortage of fuel power brought about a great loss to economic development. According to the present level of production, each year, there is a shortage of more than 10 million tons of standard fuel, a shortage of 10 million kW of installed capacity for power generation, and about 20 to 30 percent of the capability of the equipment through the nation cannot be fully utilized because of a shortage of fuel and power. In 1 year, more than 70 billion yuan in industrial production value are lost.

It should be pointed out that after Liberation, the rate of growth of energy consumption in our nation was relatively fast. The absolute amount also increased greatly. For example, from 1953 to 1965, the amount of standard fuel increased an average of 11 million tons a year. From 1965 to 1979, the amount of standard coal increased an average of 28.37 million tons a year. But, why is there such a shortage in energy resources, and even up to 1985, why will it be difficult to ease this shortage? I believe the following are the reasons:

(1) The energy policy wavered and was not consistent.

For a long period, our nation did not have a steady energy policy. It wavered among coal, petroleum, natural gas and hydroelectricity. Decisions were made lightly, they were repetitive and they changed frequently, and they created serious consequences. In 1958, the policy of "taking hydroelectricity as the key and thermal electricity as supplementary" was proposed. Hydroelectricity

Table 5 -- Changes in Coal Consumption by the People for Living Purposes

| Year | National | | Urban | | Rural | |
|---|---|---|---|---|---|---|
| | Total consumption (10,000 tons) | Per capita average consumption (kg) | Total consumption (10,000 tons) | Per capita average consumption (kg) | Total consumption (10,000 tons) | Per capita average consumption (kg) |
| 1953 | 2,998 | 50 | 1,575 | 194 | 1,483 | 29 |
| 1965 | 7,500 | 103 | 3,878 | 381 | 3,622 | 58 |
| 1975 | 9,350 | 102 | 4,704 | 421 | 4,646 | 58 |
| 1978 | 10,063 | 105 | 4,914 | 409 | 5,149 | 61 |

was developed in a big way. Later, it was changed to "developing hydroelectricity and thermal electricty simultaneously." Many hydroelectric power projects that began in a hurry had to be terminated. At the beginning of the 1970's, we blindly wished to hasten the transformation of the fuel structure because of the overly optimistic estimate of petroleum resources. In 1973, we again proposed the policy of simultaneously developing coal, oil and natural gas and hastening the development of oil and natural gas. At the same time, the nation spent about 200 million yuan to convert some coal-fired power stations to oil-fired, and we also built some new oil-fired power stations, thus about one-third of the oil output was burned as ordinary fuel. Now, we are forced to convert oil-fired power stations to coal-fired ones. In the 30 years, our nation's energy policy changed back and forth many times, creating serious economic loss. According to estimates, to change existing oil-fired facilities into coal-fired ones would require an additional 3 to 4 billion yuan, and the originally designed oil-fired power stations are technically difficult to change to coal-fired ones.

(2) There was an insufficient understanding of the important place energy occupies in the national economy.

The energy industry is an industrial sector that should be developed first, and it is one that requires much investment, that requires a long period of construction, that is very difficult to develop, and that is necessary to all industries and professions. Therefore, we should start out from the long-range strategic goal, determine a relatively persistent and balanced investment ratio to guarantee that new oil wells and new oilfields can catch up and the old wells and old oilfields can be replaced when their output decreases and when they are continuously being abandoned at the same time that the need for more oil gradually increases in order to satisfy the needs of economic development.

But, because in practice over a long time we did not have a sufficent understanding of the importance that energy must be developed first, we frequently lacked a strategic view of investment in energy, and the investment ratio in one-time energy was suddenly large and suddenly small. From 1952 to 1978, the investment in coal and petroleum constituted 19.2 percent of the total amount of industrial investment. During the First 5-Year Plan, it constituted 19.1 percent, and during the Second 5-Year Plan it constituted 18 percent. During the Third 5-Year Plan, it again dropped to 16.4 percent. And during the Fourth 5-Year Plan, it was 18.8 percent. From 1976 to 1978, it suddenly increased drastically to 22.8 percent (See Table 6).

Table 6 -- Investment in Energy as a Percentage of Industrial Investment(%)

| | Petroleum and coal | Coal | Petroleum |
|---|---|---|---|
| First 5-Year Plan | 19.1 | 12.3 | 6.8 |
| Second 5-Year Plan | 18 | 13 | 5.0 |
| 1963-1965 | 19.7 | 11.9 | 7.8 |
| Third 5-Year Plan | 16.4 | 9.2 | 7.2 |
| Fourth 5-Year Plan | 18.8 | 9.6 | 9.2 |
| 1976-1978 | 22.8 | 10.4 | 12.4 |

During the 26 years, the investment ratio was higher or nearer the average level in 11 years, and lower than the average level in 15 years. The highest and the lowest years varied by about 10 percent. In the investment of separate projects, the investment ratio in petroleum rose, and the investment raio in coal dropped but rose again after 1976. The long period of unstable investment ratio necessarily caused the ratio of development between the energy industry and other industries to be uncoordinated.

(3) There were too many small, indigenous and mass enterprises, technology and management were backward, and wastefullness was serious.

As scientific technology and the electric power industry developed day by day, energy continued to become more abundant, it became more rationally utilized, its thermal efficiency gradually rose, and thus the amount of energy and electric power per unit of production value correspondingly changed. The general trend was that the amount of electric power per unit of production value gradually increased year by year while the energy per unit of production value gradually decreased. (See Table 7).

Table 7 -- Amount of Energy per Unit of Production Value and Change in Power Output

| | China | | United States | |
|---|---|---|---|---|
| Year | Energy (kg)/yuan of industrial production value | Power (kWh)/yuan of industrial production value | Energy (kg)/$1 of industrial production value | Power (kWh)/$1 of industrial production value |
| 1950 | 1.61 | 0.24 | 11.6 | 3.9 |
| 1953 | 1.21 | 0.21 | 9.4 | 4.0 |
| 1958 | 1.61 | 0.25 | 9.3 | 4.9 |
| 1962 | 1.94 | 0.54 | 8.4 | 5.1 |
| 1966 | 1.20 | 0.49 | 7.6 | 5.0 |
| 1975 | 1.41 | 0.62 | 6.5 | 5.5 |
| 1978 | 1.34 | 0.61 | - | - |

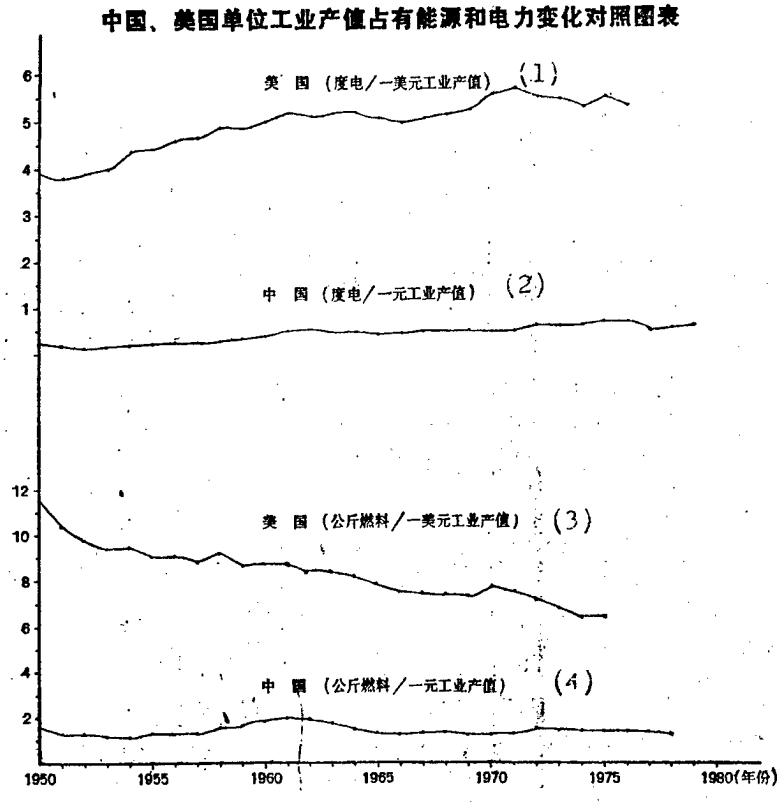
In 1950, the amount of electric power per yuan of the toal value of industrial production was 0.24 kWh in our nation. In 1966, it increased to 0.49 kWh. In 1978, it reached 0.61 kWh. But the amount of energy per unit of industrial production value did not drop visibly, and in some years, it even increased. This is directly related to the changes in our nation's economic policies and

and the general backwardness in industrial production technology and the low managmentment level. Just after Liberation, production equipment was broken and old, management was chaotic, and consumption was high. The amount of standard fuel per yuan of industrial production value was 1.61 kg. After 3 years of restoration, the amount of energy per unit of industrial production value in 1953 dropped to 1.21 kg. In 1958, small steel enterprises began one after the other because of the campaign to develop steel in a big way. These enterprises did not have complete sets of equipment, the production techniques were backward, and they created a serious waste of energy. In 1960, the amount of energy per unit value of industrial production rose to 1.83 kg. After readjustment in the 1960's, a number of small steel enterprises were shut down, terminated, combined and converted. The technical equipment of some small enterprises was improved, and the technical standard of industrial production and the standard of management throughout the nation visibly improved. By 1966, the amount of energy per unit value of industrial production dropped again to 1.2 kg. During the years of upheaval, the labor production rate dropped by a large scale because of the interference and sabotage by Lin Biao and the gang of four. The amount of energy per unit value of industrial production again rose. Especially after the system was implemented in the rural areas in 1969, the localities used a large part of the capital controlled by the region to build small synthetic ammonia and small steel mills and such small enterprises to satisfy the needs of the localities. In 1975, the percentage of steel output from small steel mills was 11.5 percent, and the percentage of the output of ammonia by small synthetic ammonia plants reached 58.3 percent. The amount of energy per unit value of industrial production again rose to 1.41 kg. In view of the present situation, if we do not change the structure of the large, medium and small enterprises, it will be difficult for the unit energy consumption of some products to reach the advanced levels of the past. For example, in 1966, the percentage of the output of synthetic ammonia of medium synthetic ammonia plants in our nation constituted more than 80 percent, and the comprehensive energy consumption per ton of synthetic ammonia averaged 2.2 tons. In the 1970's, our nation imported a 300,000-ton large synthetic ammonia plant that saved energy and rapidly developed the 3,000-ton small synthetic ammonia plant. In 1979, the percentage of ammonia produced by small synthetic ammonia plants was 54.1 percent, and the percentage produced by large and medium plants was only 45.9 percent. If we only calculate the comprehensive energy consumption by large and medium synthetic ammonia plants, the production of 1 ton of synthetic ammonia consumes an average of 2 tons of standard coal, a drop of 9.1 percent from 1966. If we add the consumption of energy by small synthetic ammonia plants, then the production of each ton of synthetic ammonia consumes an average of 2.8 tons of standard coal, showing an increase of 27.3 percent over 1966.

In the United States, the average thermal efficiency of one-time energy in 1885 was only 8 percent. It rose to 12 percent in 1900, and 30 percent in 1947. Through the 1950's, the percentage of oil and gas surpassed coal for the first time to rank first and in the past 20 years, the great development in technology in industrial production caused the average thermal efficiency of energy in the United States to reach over 40 percent. This caused a change in the amount of energy and electric power per unit value of industrial production. In 1950, the amount of standard fuel per dollar of industrial

production in the United States was 11.6 kg. In 1962, it dropped to 8.4 kg. In 1975, it continued to drop to 6.5 kg. Correspondingly, the amount of electric power per dollar of value of industrial production was 3.9 kWh. It rose to 5.1 kWh and and to 5.5 kWh. The comparison between China and the United States is shown in the following figure:

Comparison Chart of Energy Per Unit Value of Industrial Production and the Change in Electric Power in China and the United States




KEY

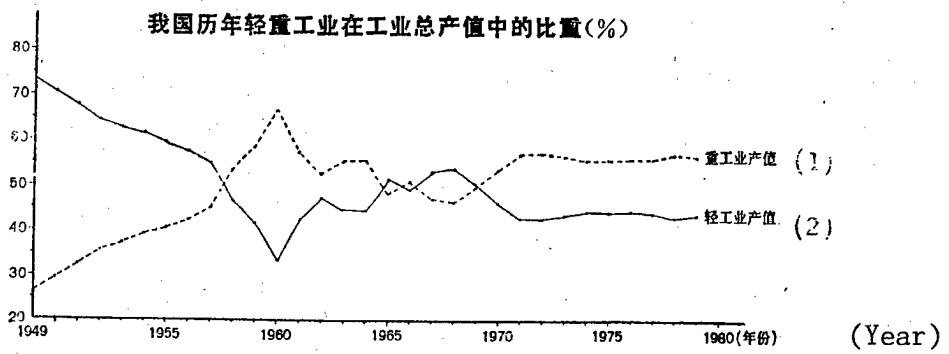
1. United Staes (kWh/$1 of industrial production value)
2. China (kWh/1 yuan of industrial production value)
3. United States (kg of fuel/$1 of industrial production value)
4. China (kg of fuel/1 yuan of industrial production value)

(Year)

(4) The percentage of heavy industry was too large.

Our nation's heavy industry developed quickly and the percentage of heavy industry was high. This is also an important reason for the shortage of energy. In 1949, the production value of heavy industry as a percentage of the total value of industrial production was 26.4 percent. After the First 5-Year Plan of developing heavy industry in a key way and the great leap forward in 1958, the percentage of heavy industry in 1960 reached 66.7 percent, the highest in history. After 3 years of adjustment, the rate of development of heavy industry slowed, and in 1966, the percentage of heavy industry dropped to 52.3 percent. During the cultural revolution period, we again quickened the development of heavy industry, and in 1978, it reached 57.3 percent (See the following figure).

The Percentage of Light and Heavy Industries in the Total Industrial Production Value Over the Years in Our Nation (%)




KEY

1. Production value of heavy industry
2. Production value of light industry

According to rough estimates, in 1978, the whole nation's industry consumed an amount of one-time energy equivalent to a total of 412 million tons of standard fuel. Heavy industry consumed 363 million tons creating a production value of 242.5 billion yuan. One yuan of the value of production of heavy industry required 1.5 kg of energy. Light and textile industries consumed 49 million tons of energy, creating a production value of 180.6 billion yuan. One yuan of the value of production of the light industry required 0.27 kg of energy. The amount of energy consumed by a unit value of production of heavy industry was 5.56 times that of light industry. In 1979, under the four-point policy of readjustment, restructuring, reorganization and upgrading, light and textile industries developed more quickly. In 1979, their growth rate reached 9.6 percent, surpassing the 7.7 percent growth rate of heavy industry. The production value of industry rose from 42.68 percent in 1978 to 43.12 percent in 1979; the perduction value of heavy industry dropped from 57.32 percent to 56.88 percent, respectively rising and dropping 0.44 percent. The change in the structure of light and heavy industry of less than 0.5 percent enabled us to reduce energy consumption more than 3 million tons in 1979 over 1978.

In summary, energy is the important material for mankind to engage in economic activity, it is also a prerequisite to realize modernization. To enable the development of energy to meet the needs of economic development so that the limited amount of energy can be fully developed to create more wealth, we must have current policy. Our mistakes in policy affected the proper development of energy production and created many irrational problems in the use of existing energy sources, creating serious waste, and worsening the shortage of energy supply.

/2. What is the Solution to the Shortage of Energy?/

In the long-range view, mankind must continue to develop and expand new energy sources. But in view of the concrete situation in our nation at present, within the 20th century, it is not possible to make long strides in development in this aspect.

New energy sources are mainly solar energy, geothermal energy, nuclear fusion, tidal energy, etc. Theoretically speaking, these new energies are almost inexhaustible. When appropriate economic and technical conditions are available, only a very small part of them need to be utilized to satisfy all the energy needs of mankind. For example, the energy sent by the sun to the ground surface by radiation each year is equivalent to 20,000 times the total output of various types of commercial energy in the world at present. The thermal energy hidden inside the earth at the bottom part of the crust has a temperature that can reach 800° C, and it can reach 3,000 to 6,000° C at the center of the earth. Subterranean volcanic geothermal energy alone is enough for several hundred throusand years of use. But, under present technical conditions, the production and utilization of these new energy sources are still in small-scale experimentation. Large-scale industrialized production and widespread use must require much scientific research work, and their technical and economic feasibility must be proven. It is expected that perhaps by the middle of the 21st century, better achievements could be realized.

Since the first small-scale power plant using atomic energy began operation in 1956, all major nations of the world are developing atomic energy for power generation in a big way. By 1980, about 238 nuclear power plants were operating at various places throughout the world. The total installed capacity can reach 123 million kW. In 1978, atomic power plants generated 7 percent of the total amount of electric power of the world. The United States generated 11.2 percent, Japan generated 5.6 percent, Britain generated 12.9 percent. To free themselves from the confines ofthe oil crisis, all nations are now thinking of ways to increase the percentage of nuclear power. For example, the nine nations of the Western European Common Market proposed that by 1990, solid fuel and nuclear power generation must reach 70 to 75 percent of the total amount of power generation.

Our nation also studied the technology of using atomic power for generating electricity early. Over more than 20 years, we found a definite quantity of uranium resources, and we also built a preliminary foundation for the system of scientific research in atomic energy and a system for a nuclear fuel industry. But, our nation still has some technical and monetary difficulties in building atomic power plants. Even by importing foreign technology, it is expected that the percentage of nuclear power generation by the end of this century will not be too high.

Starting out from the present situation, the most practical and most effective way to solve our nation's problem of energy shortage in the near term is to conserve energy. Energy conservation has been symbolically described by people as the "fifth energy." This has its reasons. By eliminating the ineffective utilization and the inefficient utilization of energy we can create

more wealth. In this sense, conservation is a special form of energy supply. The final result of energy conservation is to maintain a definite economic growth rate while not increasing or increasing less the consumption of energy in society. This is the economic result of improving the utilization of energy. Therefore, energy conservation is not simply a type of passive reduction of energy consumption, it signifies the economic result of using various effective measures and the active improvement of utilizing energy. There are three main ways to realize this goal: One is to strengthen the management of enterprises, avoid waste created by backward business managment. The second is to strengthen technical reform, promote new technology, new technological processes, reduce energy consumption of products. The third is to change the industrial and product structure so that the economic structure can develop toward an energy-conserving type.

It is expected that the total output of one-time energy in 1985 in our nation will be 720 million tons of standard fuel and this will reach 1.428 billion tons in the year 2000, an increase of 700 million tons of standard fuel in 15 years. This is even greater than the total increase in one-time energy over the 30 years since Liberation. The average annual increase is 45 million tons of raw coal, 8 million tons of crude oil, 1.3 billion $M^3$ of natural gas, 5.3 billion kWh of hydroelectricity, equivalent to a total of 46.7 million tons of standard fuel, and an average annual growth rate of 4.7 percent.

In the 15 years after 1985, although the growth rate of one-time energy will be lower than that of the past 30 years, the absolute amount of the annual increase is more than onefold higher. In view of our nation's currently available technology and future development, an annual increase of more than 40 million tons of standard coal is not little, and to increase it further, there will be many difficulties that will be very difficult to overcome. This also requires us to exert efforts in comprehensively utilizing energy and in conservation.

Our nation's rate of energy utilization is very low. The potential for conserving energy is very great. According to estimates, in 1978, the effective rate of utilization of energy in our nation was only 28 percent, generally equivalent to the world's level of the early 1950's, and much lower than Japan and Western Europe. The low effective rate of utilization of energy reflects the poor economic results of energy utilization. From 1975 to 1977 in our nation, the gross national product generated by each ton of energy was $308, only 24 percent of the $1,299 of Japan and 46 percent of the $664 of the United States.

The economic results of energy utilization in our nation are also lower than the level once reached in the past. The amount of energy consumed to generate 100 million yuan of the total industrial and agricultural production value during the First 5-Year Plan was 72,800 tons. This rose to 100,000 tons in 1978. If it reaches the level of the First 5-Year Plan, 27 percent of the energy can be conserved.

At the same time, the variation in the results of energy utilization in each locality is also very great. For example, in 1979, the generation of 100

million yuan of industrial production value consumed 37,000 tons in Shanghai, 77,000 tons in Beijing, and 267,000 tons in Shanxi. In 1978, the amount of energy consumed to generate 100 million yuan of production value by light industry was 11,000 tons in Shanghai, 26,000 tons in Tianjin, 79,000 tons in Heilongjiang, and 90,000 tons in Guizhou. This was of course related to the industrial and product structure, for example, in industrial structure, the percentage of light industry in Shanghai's industrial structure constituted 49.86 percent, but the percentage of heavy industry in Lisoning is large, constituting 72.34 percent and light industry constitutes only 27.66 percent. In product structure, Shanghai has more products that consume less energy and that have a high productive value than other provinces and cities. But the above situation still reflected that the difference in the result of energy utilization is still very large, and the level of business managment and technology are very uneven.

The energy consumed by our nation's industrial production constitutes over 80 percent of the total amount of energy consumed. Each industrial production sector is the key sector of energy utilization and it is also the key sector of wasting energy. At present, there are 180,000 industrial boilers throughout the nation. The average thermal efficiency of the boiler is only about 55 percent, lower than the advanced levels abroad by 20 to 30 percent. The average thermal efficiency of thermal power generation is 29 percent but the foreign advanced level has already reached 35 to 36 percent. In our nation, the comprehensive consumption of energy per ton of steel is equivalent to 2.3 tons of standard coal. It is 0.8 tons in Japan, 0.9 tons in West Germany, 1.03 tons in the United States, and 1.2 tons in the Soviet Union. Our nation's figure is more than onefold higher than those of the above-mentioned nations. All of these show that the potential for energy conservation is very great.

At present, the waste of energy in our nation is large, newly added energy sources are very limited, therefore, using energy conservation to seek increased output is the main measure at present to solve the shortage of energy. But, whether we improve the management level, improve the technology and technical process, or change the economic structure to realize the goals of energy conservation, they all require a definite time and a fairly large amount of capital. Therefore, the conservation of energy is gradual and long term. After the rate of utilization of energy reaches a definite level, continued increase will have to depend on major breakthroughs in technical processes and technology. In view of our nation's present situation, it is possible to conserve about 10 percent of energy within 5 to 6 years by spending a definite amount of investment and effort.

/3. How Do We Solve the Rural Energy Problem?/

In 1979, there were more than 170 million farm families throughout the nation. The rural population was more than 840 million. At present, the source of energy for living in the rural areas is still mainly stalks and firewood. According to estimates, the farm families throughout the nation need a total of 540 million tons of firewood a year, equivalent to nearly 300 million tons of standard coal and half of the one-time energy consumed throughout the nation. Yet, some of the stalks of crops produced each year still must be used as

animal feed, industrial raw materials and for accumulation to make fertilizer and be returned to the fields. The amount of stalks that can be used as fuel is only more than 300 million tons. Although the state provides some coal to the rural areas each year, it cannot solve the problem of shortage of rural fuel. Now, about 40 percent of the farm families have a serious shortage of firewood. The problem of energy used for rural living should attract our special attention.

The masses of the rural population in our nation completely rely on the coal supplied by the state to solve their problem in fuel for living. This is not practical. It seems that the main way to solve the problem of energy for rural living is to greatly develop marsh gas.

Marsh gas is a hopeful bioenergy source. Directly burning stalks can only utilize 10 percent of their energy. If stalks of crops are separated by type, the stalks animals like to eat are fed to the animals, and the rest are mixed with human excrement, weeds and tree leaves and together are placed into a marsh gas pit for fermentation and the water and sediments in the marsh gas pits are used as fertilizers, then, the stalks of crops can simultaneously be used as feed, fuel and fertilizer. The economic results can be greatly improved.

At the end of 1979, the whole nation's rural area had built 6.6 million marsh gas pits. Practice proved that building marsh gas pits requires simple equipment, the investment is small, communes and brigades and commune member families can all build them and the results are visible. This is not only the most economical way to solve the problem of rural fuel, it is also an important measure to increase the source of organic fertilizers. It greatly benefits agricultural production and the standard of living of farmers. Marsh gas can also be the source of energy for preliminary processing of agricultural sidelines products. Last year, some localities in Shandong used marsh gas to cure yellow tobacco and dry yams and achieved good results. Coal was conserved and the quality of the products was imporved. Popularization of marsh gas also benefits changing sanitary conditions in rural areas. It is estimated that if 70 percent of the farm families throughout the nation use marsh gas, the shortage of rural fuel can be changed. Although this question has been mentioned for many years, there were many general slogan but little necessary help in concrete measures, materials and capital, thus popularization was poor. In 1979, only 4 percent of the farm families built marsh gas pits and only one-half of them could be used normally. A craze of building marsh gas pits in a big way just to pursue quantity without regard to techniques, without regard to quality, and with poor managment cannot realize actural results. Farmers in some regions gave a bad reputation to marsh gas. We should learn this lesson.

Solving the rural energy problem cannot be done by one single method. Although popularizing marsh gas is an important way, at the same time, we must also appropriately develop firewood forests in the rural areas. The state must also have plans to supply some coal. The rural need for coal should also be included in long-range plans and be given consideration and be arranged. We should strive to realize the minimum goal of enabling farmers to have hot meals every day by 1985,and by 1990,the average per capita annual consumption of coal should reach 100 jin.

/4. The Question of Importing and Exporting Energy/

As the global petroelum resources gradually become deficient and an oil crisis emerges, the world's nations are all restudying and drawing up their own energy policy. The general trend is as follows: First, they are increasing the percentage of consumption of coal and atomic energy and lowering the percentage of consumption of petroleum. Second, they are importing diversified energy soruces to avoid being confined by local regions and individual nations. Third, they are intensifying the study and the development of new energy sources. Fourth, they are studying and developing new techniques to conserve energy in a big way, and implementing strict energy-conserving measures. According to estimates by Americans, the whole world consumed 3.1 billion tons of petroleum in 1979. If this present rate of consumption continues, the already known world petroleum reserves can only continue for slightly more than 27 years. No wonder coal that has given way to oil for 20 years is again being emphasized by each nation. But, coal has its inherent shortcomings. In the developmental viewpoint, it will sooner or later by replaced by such new energy sources as nuclear fusion and solar energy. Therefore, it can almost be said that coal is a kind of transient fuel passing from an era of new sources of energy. Under this situation, our nation's policy of importing sources of energy should be studied again.

In 1979, our nation produced 106 million tons of petroleum and exported 16.46 million tons, constituting 15.5 percent, a large percentage of exports. According to our nation's situation, and in the long-range consideration, the prerequisite should be to satisfy the basic domestic needs. Sine the increase in the output of petroleum is not large, we should gradually decrease the export of petroleum, continue to increase the export of coal, and gradually change the export structure of energy. According to estimates, in 1979 alone, our nation's export of crude oil realized $820 million less than the revenue gained from domestic use. At present, the world's major coal-exporting nations are the United States, Poland, Australia, the Soviet Union, West Germany, Canada and South Africa. The total trade is 200 million tons. In the total coal trade, the United States has 25 percent, ranking first, Poland 20 percent, Australia 18 percent, the Soviet Union 13 percent. Each year, these nations earn over $1 billion in foreign exchange from coal exports. Since 1973, each nation has paid more attention to coal trade. The total trade increased from 170 million tons to the present 200 million tons, and as the source of petroleum becomes scare, coal trade undoubtedly will further expand, and it is expected to increase to 580 million tons by the year 2000. Although our nation's output of coal ranks third in the world, export coal constitutes less than 2 percent of the world trade. Our nation should develop the coal industry in a big way, produce as much good coal for export as possible, export it to Japan and Southeast Asia as a priority, strive to establish a stronghold in the Asian coal market and earn more foreign exchange for the nation.

To quickly develop the coal industry, expand coal exports, the further development of coal should--following the principle of doing the easy tasks first and then the difficult tasks, first developing those large coal mines that require less investment and that can produce quick result--first concentrating strength to develop the coal resources of Shanxi Province. The foundation of

heavy industry in Shanxi Province is better, the history of the coal industry is long, the total scale has reached about 100 million tons. In 1979, it produced 107.43 million tons of coal, constituting 18 percent of the whole nation's coal output. The favorable conditions for developing Shanxi's coal are as follows: First, coal is found in 68 of the 105 counties throughout the province, the reserves constitute one-third of the nation's total reserves. Second, the varieties of coal are complete, the quality is good, the heat output is high. The raw coal of Datong has a heat output reaching 8,000 kilocalories/kilogram. Third, coal seams are close to the surface, the seams are stable, the structure is simple, the angle of inclination is small, and development is easy. Fourth the geographic positions are relatively appropriate, and it is convenient to ship coal and electric power everywhere in the nation. Therefore, we should have the determination to use 10 to 15 years to build Shanxi into a heavy industry base of steel, electric power, chemical industries and new types of materials with a capacity to produce 300 million tons of coal a year.

If we want to enter the international coal market, we must note that coal-importing nations are making stricter demands on the quality of imported coal because of the limitations of environmental protection laws. Coal that does not meet the stipulated standards in the contract is fined. Therefore, in expanding coal exports, we must change the traditional method of producing raw coal, the use of raw coal and the export of raw coal, strengthen washing and screening coal, pay attention to increasing the varieties and improving quality.

In 1979, our nation exported 5.5 million tons of coal, mainly to Japan and Korea. We tentatively plan to export 10 to 20 million tons of coal in 1985. To realize this goal, we must do the following four aspects of work well.

(1) We must build coal-sorting plants and increase coal-washing ability.

The main measure generally implemented by the United States, Western Europe and Japan to improve the rate of utilization of coal is to wash and screen raw coal and provide different specifications of coal according to the need of the users. At the same time, they have built power stations at coal mines and poor-quality coal is used for power generation locally. The ash content of raw coal of the United States is 14 percent. and the sulfur content is 3 percent. All raw coal is washed or screened. Each year, the amount of waste rock released by the coal-screen plants amounts to over 110 million tons. This can reduce the amount of shipment by about 30 percent. In 1978, the amount of coal that underwent the sorting process in our nation constituted 15 percent of the amount of raw coal produced. The rest of the raw coal was directly used. According to estimates, coal dust escaping via smokestacks and stoves is no less than 5 percent. This creates a great waste in the use of coal and in transport. Therefore, we must strengthen the construction of coal-sorting plants, improve th percentage of washed coal, and gradually realize the separate management of coal and ash, separate sales and separte utilization. We should grasp the favorable opportunities in the international market, first quarantee and satisfy exports, then ship superior-quality coal to other places to reduce the amount of shipment, use mud coal, intermediate coal and poor-quality coal locally for generating electricity, and transmit the power to load centers.

(2) We must improve the transport capacity.

The question of transport is an important condition that influences the normal development of the coal industry. Often, the slow growth in the output of coal is not due to the problems of the coal mines themselves, but because transportation cannot catch up, and the output of coal has to be reduced. Therefore, we must get a good grip on the construction and technical reform of railroads.

(3) We should build special docks for the export of coal.

Without modernized harbors, it is very difficult to expand the export of coal. The United States has seven major ports for the export of coal. Our nation's main harbors for coal export are Qinghuangdao and Lianyun harbors. Qinghuandao can only accept 25,000-ton class ships, the annual loading capacity is only 10 million tons, and it is not a specialized harbor for coal. Lianyun Harbor has an annual loading capacity of only 2.2 million tons, and it can only accept ships under the 18,000-ton class. Therefore, we must get a good grip on the expansion and rebuilding of harbors to adopt to the needs of exporting coal. Otherwise, even if the question of coal production and domestic transport are solved, it is difficult to increase coal exports.

(4) We should build coal export bases.

The main types of export coal of our nation at present are the washed coal concentrate of Kailuan in Hebei and the high thermal valued raw coal of Datong in Shanxi. We should continue to perfect the production and transport facilities of these two coal mines and quickly build a coal export base. In addition, we should also build one or two new coal export bases in northeastern and eastern China near the coast where coal resources are more abundant and quality is better to establish a reliable foundation for increasing coal exports in the future.

We should implement forceful measures in all aspects to open up the situation for coal exports so that the structure of our nation's energy resources can be more versatile and can better suit the needs of modernization. This is because exporting a large quantity of coal can earn more foreign exchange and in certain situations we can even import a certain quantity of petroleum, without eliminating adjustments, so that the fuel oil facilities imported some years ago by us and the facilities of th chemical industry using petroleum as fuel can begin operation. This will greatly improve the economic results of the entire situation.

/5. Forecasting the Need for Energy/

The average per capita consumption of energy is an important measure of the economic level of a nation. The course of economic development of several developed nations shows that when they basically realized industrialization, the average per capita energy consumption all surpassed 1 ton of standard fuel. When the gross national product reached $1,000 per person per year, the per

year, the per capita average energy consumption was generally over 1.6 tons of standard coal. Also, as the economy further developed, as the level of modernization rose, the per capita consumption of energy also gradually increased. In 1977, the average per capita consumption was 11.6 tons in the United States, 5.4 tons in the Soviet Union and the world average was 2 tons. (See Table 8).

Our nation has proposed to realize the goal of establishing a middle class society by the end of this century. To realize this goal, how much energy will be needed?

The method of analyzing this question should start out from the concrete situation in our nation. But this is not to say that the general trend of progress in modernization of each nation of the world is absolutely of no value to us. It is to say that the general trend will manifest various differences in a concrete nation. For example, when the gross national product of Great Britain reached a per capita average of $1,000, the per capita consumption of energy was as high as 4.9 tons, but when Japan reached the same economic level, the per capita energy consumption was only 1.94 tons. Of course this does not negate the general trend, on the contrary, it actually enriches this general trend. Of course, the concrete situation in particular nations generally will not deviate too much from the general trend. The question is that each nation reaches a certain economic level in different years, and thus scientific and technological levels are also very different. The goal to be reached by the end of this century in our nation had already been realized by some developed nations as early as the 1950's and 1960's of this century. In this way, it is possible for our nation to utilize science and technology that are even more sophisticated than in those years in some developed nations to realize econmoic modernization, thus favoring energy conservation. The population in each nation also varies greatly. The actual eocnomic level when our nation's per capita gross national product per year reaches $1,000 obviously will differ greatly from that of the small nations with a small population, and the amount of energy needed will also be different.

Why is it that when the per capita gross national product of large nations reaches the same level, their actual economic level and eocnomic strengths are superior to small nations? First, large nations can concentrate relatively large amount of capital, develop and build certain projects in a key way, and can partially realize achievements of a higher level. Second, a large nation has a greater leeway for economic regulation, and can realize a higher economic and living standard than small nations. Third, a large nation's national defense capability and the ability to resist natural disasters are also stronger. Fourth, a large nation generally has better resources and conditions, and the ability of self-reliance is stronger, thus it is less influenced by foreign economic fluctuations. At the same time, we should note that it is more difficult for a large nation with a huge population to reach a certain level in the per capita gross national product than a small nation.

It is expected that in 1980, our nation's per capita gross national product will reach $268. By the end of this century, the population figure, based on a single-child birthrate of 50 percent in the rural areas and 70 percent in the

Table 8

| Nation (region) | Average energy consumption at time of industrialization | | Energy consumption when average is $1,000 | | Energy consumption in 1977 | |
|---|---|---|---|---|---|---|
| | Year | Energy consumption (ton)/person, year | Year | Energy consumption (ton)/person, year | Per capita production value ($) | Energy consumption (ton)/person, year |
| Britain | 1860 | 2.93 | 1955 | 4.9 | 4,365 | 5.1 |
| United States | 1900 | 4.85 | | | 8,715 | 11.6 |
| Germany | 1900 | 2.65 | 1957 | 3.77 | 8,315 | 5.8 |
| France | 1900 | 1.37 | 1953 | 1.99 | 7,145 | 4.3 |
| Soviet Union | 1932 | 1.18 | 1960 | 2.83 | 2,760 | 5.4 |
| Japan | 1942 | 1 ton (about) | 1966 | 1.94 | 6,005 | 3.8 |
| Hong Kong | | | | | 2,640 | 1.6 |
| Yugoslavia | | | | | 1,680 | 2.0 |
| Rumania | | | | | 1,450 | 4.1 |
| Taiwan Province | | | | | 1,167 | 2.1 |
| Mexico | | | | | 1,122 | 1.3 |
| South Korea | | | | | 944 | 1.2 |

cities, the nation's population by that time would be about 1.155 billion. To realize a per capita gross national product of $1,000, the gross national product must increase 3.4 times over 1980, an average annual growth rate of 7.7 percent. Correspondingly, if in the next 20 years, our nation's agricultural growth rate is about 4 to 5 percent, and calculating at an average growth rate of 9 percent for the nonmaterial production section, the annual growth rate of total industrial production value must reach 9 to 10 percent.

From 1952 to 1978, the energy consumption per 1 percent of growth in the average industrial production value was 0.89 percnet. In 1979, the whole nation's total energy consumption was 586 million tons of standard coal, an average of 1.29 kg of energy per yuan of industrial production value. It was estimated that in 1980, the energy consumption basically remained at the 1979 level. In the future, as the economic structure is improved and as the technological level continues to improve, results will be gradually realized in energy conservation, and thus the elastic coefficient of energy will drop. But because our nation's energy structure is based mainly on coal, and the rate of utilization of coal itself is lower than that of petroleum and natural gas by 10 to 20 percent, and because our nation's currently available technological foundation is weak, we do not have sufficent confidence to enable our nation's elastic coefficient of energy to be lower than industrially developed nations. If we calculate at 1:0.6 which is close to that of the developed nations, the growth rate of energy should be about 5.4 to 6.0 percent. By the year 2000, the energy per yuan of industrial production value should reach 0.63 to 0.68 kg, about 50 percent lower than that in 1979. By that time, the whole society will need 1.69 to 1.89 billion tons of energy, a per capita average of 1.46 to 1.64 tons of energy.

Is the above amount of energy needed too much? The U.S. Department of Energy compiled and analyzed statistics of 84 of the world's developing nations in 1975 and proposed that when the per capita average gross national product reaches $1,000, the corresponding per cpaita annual average energy consumption will be 1.5 to 1.6 tons of standard coal. If the per capita annual average energy consumption is 1.2 to 1.4 tons of standard coal, the corresponding per capita annual average gross national product would be $800 to $900 while the level of energy consumption for survival is 0.4 tons of standard fuel. America's Karl E. Steinhart proposed in his book "Energy-Resources Utilization and Their Function in the Service of Mankind," in modern society, the minimum per capita average energy consumption is 1.6 tons. This index was calculated according to the consumption of the final product--clothing, food, housing and transportation. These data can be used as reference. In 1979, our nation's average per capita energy was only 0.78 tons (including firewood). By the year 2000, it will reach 1.46 to 1.64 tons, an increase of only onefold from now, but the per capital average gross national product will increase 2.7 times over 1980. The amount of energy needed as proposed above, whether in reference to the amount of energy needed in developing nations or the amount of energy needed in moderized society, or in view of the ratio between our nation's per capita average energy consumption and the growth in the gross national product, is not too much. Even though the waste of energy is serious, the potential for energy conservation is great. If there are no technological breakthroughs in energy conservation, to use a growth of onefold in

energy in the next 20 years to support a growth of 2.7 times in the gross national product is still a question mark! The policy of placing emphasis on both energy conservation as the main task in the near term is correct. At present we can only place our hope in energy conservation.

The present energy crisis covers the entire earth. People often become confused in a crisis, hold a pessimistic view of the future. This is not unusual. But, in various different types of social systems, the influence and significance of the energy crisis differ greatly. Although the energy shortage has brought about similar difficulties to the national economy, the ways of solving the problem are also not too different. The socialist nation in which the public ownership system of productive materials takes the lead as a much greater superiority than capitalist nations in readjusting and changing the economic structure so that it can adopt to the energy structure. State plans and guidance can be used to enable the top and bottom and the left and the right to act in coordination and to realize the expected goals in a relatively short time, and this can avoid the great loss brought about by the conflict between private capital. Therefore, when an energy shortage occurs in a socialist nation, and if things are done well, if the superiority of the economy of the public ownership system is developed, economic loss can be reduced to a minimum.

The energy crisis is not the necessary accompaniment of economic development of socialism. On the one hand, we can deelop our own energy resources according to scientific processes and concrete work and, on the other hand, we can coordinate economic development and the economic structure with the growth in energy, and at the same time greatly conserve energy. In this way, even when a global energy crisis attacks, we will not suffer from such a blow as the capitalist nations have suffered.

In nations where the energy consumption structure is different, the influence and significance of the energy crisis are also different. The nations that have been most critically troubled and most severly striken by the energy crisis are those nations that rely on foreign energy soruces or imports. Japan has already built a large oil tanker of 560,000 tons as a seafaring oil depot. Our nation's natural or self-sufficient type energy structure although it cannot completely divest itself of the influence of the world energy crisis, it is fundamentally different from the nations relying of foreign sources, and the difference between our structure and the regulatory type nation is also very visible.

We believe the energy supply of mankind in the future is hopeful. Mankind can create huge productive forces in the course of extracting energy from nature, and can utilize the productive forces already obtained (including science and technology), continue to advance in depth and width toward the development of energy, thus, there is no reason to say that in the future people will not be as good as their ancestors. In the past 20 years, the rate of development of nuclear energy and its use in economic construction and people's standard of living should be said to be relatively fast. Even though it still has not become the main source of energy of any country up to now. The sun which hangs above us smiles at us every day, and the utilization of solar energy will one

day realize a brand new horizon. The geothermal energy under our feet should not be left sleeping there for a long period. Isn't the devlopmental research of tidal energy and wind energy etc. being carried out? Scientists are also exerting efforts to explore energy-conserving technology, let alone the petroleum not yet found. Of course, blind optiminism is not right, but if we do not even have confidence, then how can we progress toward a beautiful future?

The task facing us is to scientifically analyze and forecast our nation's energy structure, establish a correct strategic goal and policy, hasten the development of energy and push forward the construction of the four modernizations.

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## CHAPTER XII

## THE TRANSPORTATION STRUCTURE

By Wang Derong [3769 1795 2837] and Gao Zhenfan [7559 2182 5400]; original text pp 383-410; portions within slantlines in boldface in original text.

[Text] I. The Present Conditions and Problems in the Transportation Structure.

In the 30 years since the founding of the People's Republic there have been great developments in China's transportation. The transporation structure has experienced great improvements compared to the period before 1949. Initially it changed the backward appearance of few routes, a low level of transportation capability, irrational distribution and incomplete categories that were left over from old China.

First, transportation lines and the means of transportation have increased greatly. In 1979, the total length of the nation's transportation and communication lines exceeded 1.2 million km. The amount of communication and transportation lines built in the past 30 years is more than 5 times greater than the length of transportation lines constructed in the over 70 years before that in old China. Among the increases, the total length of railways developed from 22,000 km in 1949 to over 51,000 km, a 1.3-fold increase. The total length of roads has increased more than 10-fold, from 80,700 km to 876,000 km. The total length of inland waterways extended from 73,600 km to 108,000 km, a 50 percent increase. The total length of pipeline started from nothing and developed to nearly 10,000 km, and civil aviation routes increased from 11,000 km to 160,000 km, a 13-fold increase. (see Table 1)

Transport by motor vehicle, ship, aircraft and other means of transport increased respectively many times over, and improved our transportation capabilities to a great degree. Within the last 30 years, the number of railroad locomotives has increased 1.5-fold, passenger cars 2.8-fold and freight cars 4-.6-fold. The number of passenger-motor vehicles increased 16.4-fold, and freight-carrying vehicles increased 34.2-fold. The capacity of ships that carry passengers increased 2.3-fold, the loading capacity of barges increased 45-fold and the number of civil aviation

Table 1: The Circumstances for Development of Each Transport Line.
unit of measure: 10,000 km

| Item | 1949 | 1957 | 1965 | 1979 |
|---|---|---|---|---|
| Length of railways[1] | 2.20 | 2.99 | 3.74 | 5.15 |
| Length of roads | 8.07 | 25.46 | 51.45 | 87.58 |
| Length of inland waterways | 7.36 | 14.41 | 15.77 | 10.78 |
| Length of civil aviation routes | 1.14[2] | 2.64 | 3.94 | 16.00 |
| Length of pipelines | -- | -- | 0.02 | .91 |

1. The length of railways does not include local railways.
2. Amount in 1950.

aircraft increased 30.5-fold. Moreover, the efficiency of transportation has improved based on the continually improving quality of the means of transport. Within the past 30 years, the efficiency of railway transportation has improved nearly 100 percent, the efficiency of road transportation has improved 2.8-fold, and the efficiency of water transportation directly under the Ministry of Communications increased 33.3 percent.

Second, there have been fairly large improvements in the overall situation of the transportation network. Before 1949, China's transportation network was not at all balanced. It was concentrated along the coastal areas, the southwest and northwest regions, which compromise 60 percent of China's total land area, were inaccessible. After Liberation, the total length of railways in the southwest and northwest regions increased from 5.4 percent of the nation's total in 1949 to 24.9 percent in 1979. The amount in other regions decreased from 94.6 percent to 75.1 percent. Except for Tibet, each province, municipality and autonomous region in the nations is connected by train. The length of roads in the southwest and nortwest regions increased from 24.6 percent of the national total in 1949 to 31.9 percent in 1979. Except for Moshui County in Tibet and Derong County in Sichuan Province, every county in the country is reachable by motor vehicle, and 90 percent of the rural people's communes are reachable by automobile. With the development of pipelines for coordinating the transport by pipeline is equivalent to 10 percent of the total amount of freight borne by railroads. China has set up an ocean fleet that is beginning to take shape. It possesses more than 900 10,000-ton ships, and has contact with more than 100 nations. There are 159 civil aviation domestic air routes, and more than 80 cities are connected to Beijing. There are 15 international air routes, and we are connected to 14 nations. The changes in the distribution of each type of transportation route according to region are as follows: (Table 3)

Third, the technological structure of transportation has improved. There have been initial reforms in the type of power used to draw railway transport. At present, diesel locomotives and electric locomotives are used in 20 percent of all railway transportation. On 85 percent of our railways

Table 2. Transport Lines by Type and Area

| Mode of Transport | Railroad | | | | Road | | | | Inland Waterway | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Unit of Measure | Length (km) | | Percentage | | Length (km) | | Percentage | | Length (km) | | Percentage | |
| Year | 1952 | 1979 | 1952 | 1979 | 1952 | 1979 | 1952 | 1979 | 1952 | 1979 | 1952 | 1979 |
| Region | | | | | | | | | | | | |
| Nation | 22,876 | 51,511 | 100 | 100 | 126,675 | 875,794 | 100 | 100 | 95,025 | 107,801 | 100 | 100 |
| Southwest | 789 | 5,930 | 3.5 | 11.5 | 16,711 | 171,345 | 13.2 | 19.6 | 9,802 | 10,014 | 10.3 | 9.3 |
| Northwest | 456 | 6,915 | 2.0 | 13.4 | 16,139 | 108,115 | 12.7 | 12.3 | 3,296 | 829 | 3.5 | 0.8 |
| South | 4,034 | 8,577 | 17.6 | 16.6 | 25,928 | 227,370 | 20.5 | 26.0 | 34,563 | 34,747 | 36.4 | 32.2 |
| East | 3,691 | 7,237 | 16.1 | 14.1 | 26,128 | 160,530 | 20.6 | 18.3 | 32,267 | 52,609 | 34.0 | 48.8 |
| North | 4,927 | 10,855 | 21.5 | 21.1 | 14,374 | 112,967 | 11.4 | 12.9 | 3,801 | 1,174 | 4.0 | 1.1 |
| Northeast | 8,979 | 11,997 | 39.3 | 23.3 | 27,395 | 95,467 | 21.6 | 10.9 | 7,510 | 6,021 | 7.9 | 5.6 |

n.b. The figure for the distance of inland waterways does not include the distance of the Yangtze River under the Ministry of Communication.

we have installed automatic block signaling and semiautomatic block signaling. The highest permissable speed on railways has improved from 90 km/hour during the early period of the People's Republic to 120 km/hour at present. Three-fifths of the ships that ply inland waterways are power-driven vessels. The freight volume borne by power-driven boats and ships has increased from 68 percent in the early period of the People's Republic to 95 percent. We have basically realized a mechanized transportation system. There are 1.55 million civilian passenger and cargo transport vehicles. The proportion of transport volume for which transportation has had to depend upon man-drawn and animal-drawn carts has decreased from 70 percent in the initial period of our People's Republic to 2 percent at present. Transportation by motor vehicle has replaced transportation by manpower and animalpower.

Fourth, we have completed the task of doubling and redoubling passenger and freight transportation. In 1979, the volume of passenger transport totaled 2.88 billion persons, and the turnaround volume of passenger transport amounted to 196.6 billion passenger-km, a 20-fold and 11.7-fold increase respectively compared to 1949. In 1979, the volume of freight transport totaled 2.48 billion tons, and the rotation volume of freight transport amounted to 1,089,800,000,000 ton-km, a 14.4-fold and 41.7-fold increase respectively compared to 1949. A comparison in the turnaround volumes of each mode of passenger and freight transportation, and the change in the proportion of the total turnaround volumes of passenger and freight transportation respectively from 1949 to 1979 can be found in Table 3 and Table 4.

In short, in the past 30 years we have achieved great results in the construction and production of transportation. We have already established a framework for a transport network that is beginning to take shape. It is composed of five modes of transportation, namely: railway, road, waterway, pipeline and civil aviation. We have linked up relations between the city and the country, between industry and agriculture, between different regions, and between home and abroad. This has created a link in our national economy and it has played an important role in developing our national economy and strengthening our national defense.

However, for a long time past, due to our blindly pursuing economic planning at a high speed, we put undue emphasis upon developing heavy industry, and not only did we ignore agriculture and light industry, but we ignored the leading role of bringing transportation into play. We went against the requirements of both developing the national economy in proportion in a planned way and achieving an overall balance. Although we had slogans about giving precedence to transport, in reality our actions did not conform to this principle. This has brought about a serious disproportion in the relationship between China's transportation and the production of its industry and agriculture. Transportation has become a prominent weak link in the development of the national economy, and its structure is not at all rational.

Table 3. Increases and Changes in Freight Transportation
unit of measure: 100 million ton-km

| | Year | All modes of transport combined | Railroad | Road | Waterway Inland | Waterway Ocean | Pipeline | Aviation |
|---|---|---|---|---|---|---|---|---|
| Turnaround volume of freight transport | 1949 | 255.47 | 184.00 | 8.14 | 63.12 | -- | -- | 0.21 |
| | 1979 | 10,898.37 | 5,588.68 | 268.26 | 1,390.40 | 3,173.80 | 476.0 | 1.23 |
| | Increase | 41.7-fold | 29.4-fold | 32-fold | 21.1 fold | -- | -- | 4.9 |
| Percentage | 1949 | 100 | 72.0 | 3.2 | 24.8 | -- | -- | -- |
| | 1979 | 100 | 51.3 | 2.5 | 12.8 | 29.1 | 4.3 | -- |

Table 4. Increases and Changes in Passenger Transportation
unit of measure: 100 million passenger-km

| | Year | All modes of transport combined | Railroad | Road | Waterway | Aviation |
|---|---|---|---|---|---|---|
| Turnaround volume of passenger transport | 1949 | 154.98 | 130.00 | 7.96 | 15.17 | 1.85 |
| | 1979 | 1,966.00 | 1,213.7 | 603.3 | 114.01 | 34.99 |
| | Increase | 11.7-fold | 8.3-fold | 74.8-fold | 6.5-fold | 17.9-fold |
| Percentage | 1949 | 100 | 83.9 | 5.1 | 9.8 | 1.2 |
| | 1979 | 100 | 61.7 | 30.07 | 5.8 | 1.8 |

/1. Within Transportation the Development Between Different Modes of Transport Is Uncoordinated./

For a long time past the state has not had a unified plan for the different modes of transport within transportation, and it has lacked a comprehensive balance. In construction, "each does things in his own way." For example, in the transport of crude oil, the relationship between the construction of railways and waterways is not correctly handled. In order to develop the Daqing Oilfield, we first built 421 km of through-express rail lines and added more than 10,000 new oil tankers. But after the construction of more than 2,500 km of pipeline, we utilized only one-third of the transport capabilities of the through-express rail lines, and several thousand oil tankers lay idle. In order to develop Shengli Oilfield, at Jiaozhouwan we constructed an oil port on an island of the Yellow River, built corresponding pipelines and added new tankers. We then constructed the 870-km Luning Pipeline. This gave rise to a situation where the coastal oil ports and tankers did not receive full use, and only half of the capacity of the Luning Pipeline was utilized. This type of redundant construction creates an excessive capability in the transportation of oil. Also, the development of railway and waterway transport is not coordinated; their construction is not synchronized. There is no coordination between the construction of coastal ports and the transformation of their links to railways. We are unable to effectively improve the comprehensive transport capabilities between railways and coastal regions. For example, because the upgrading of the Qingdao-Jinan Railway lagged behind construction at Qingdao Harbor, the result was that Qingdao Harbor could not fully utilize its capacity for freight traffic. In the management of transport, we do not handle well the relationship between railways and waterways. For instance, six steelworks, five oil refineries and seven chemical plants were built on the banks of the Yangtze River. Some of their raw materials, fuel and finished products had to be transported by land instead of by water, and the capabilities of the Yangtze River were not fully utilized. There are serious deficiencies in the capability of transportation between regions and southern China and the interior of the country, such as the southern stretch of the Beijing-Guangzhou Railway (from Hengyang to Guangzhou), and the potential of Shanghai's transportation has not been fully brought into play.

/2. In Every Aspect the Development of Each Mode of Transport Is Not Coordinated./

For a long time past the phenomenon of a few great disproportions within each mode of transport has arisen. First, within railway transport we have not correctly handled the proportionate relationship between the construction of old and new lines. Since 1958, in railroad construction there has been particular emphasis laid on the construction of new lines, and the upgrading of old lines has been neglected. The increase in the transport capability of the main railroad lines has fallen more and more behind the development of industrial and agricultural production, and there has been a gradual increase in "congested" regional stretches of railway which restricts installation and transport. Second, within the water transport sector the proportionate relationship between the construction of ports and the purchasing of ships is not handled well. Since 1958, in the construction of waterways, the purchasing of ships has been emphasized, and the construction of ports has been ignored.

The increase in coastal ports' capacity for freight traffic is falling more and more behind the development of the national economy and foreign trade, and at present the ports' freight capacity is seriously deficient. Third, within the highway sector the proportionate relationship between the construction of highways and the increase in the number of the nation's motor vehicles is not being handled well. The increase in the length of roads and improvements in technological conditions is falling far behind the increase in the number of the country's motor vehicles. In the 30-year period from 1949 to 1979 the number of motor vehicles has increased 29.5-fold, but the increase in the total length of roads has increased only 9.8-fold. The volume of traffic on roads in large cities and suburbs has exceeded the capacity of the original design many times over, each different type of vehicle travels at different speeds, traffic becomes clogged up, and there is an increase in the number of accidents. All of the above has had a serious effect on improving the capability of transportation, and has had a serious effect on realizing returns on investements in transportation. For a long time this has put a strain on transportation.

/3. In Motor Vehicle Transport There Has Been an Unchecked Increase of Motor Vehicles in Noncommunication Sectors./

In the development of motor vehicle transport, the relationship between transportation sectors and the noncommunication sectors has not been handled well. There has been an unchecked increase in the number of vehicles in the noncommunication sector, an increase which greatly exceeds this sectors own needs. The development of the number of motor vehicles in the communications sector has been slow, and for a long time the communications and transportation sectors, in order to make up for the deficiencies of their transport capabilities, have depended upon participation in transport by vehicles of other organizational institutions and enterprises. In 1979, there were a total of 1.14 million civilian freight vehicles in the entire nation, of which the noncommunications sectors had 980,000, a 100-fold increase over 1949. The communications sector had only 160,000, a 6-fold increase compared to 1949. The proportion of the number of civilian freight vehicles that the noncommunications sectors possess has increased from 30 percent in the early period of the People's Republic to 86 percent at present. The number of vehicles of the communications sector has increased from 70 percent to 14 percent. The transport efficiency of the noncommunications sectors' vehicles is low. Ordinarily, three of their vehicles are required in order to perform the work of one specialized vehicle. Moreover, their fuel consumption is high, and they do not turn over profits directly to the state. As far as the state is concerned, the excess number of vehicles held by the noncommunications sectors has caused an over-expenditure of approximately 4 billion yuan for purchase of motor vehicles, each year they consume an extra 1 million metric tons of gasoline and diesel fuel, and each year the state loses 1 billion yuan in revenues. This type of irrational motor vehicle transport structure has prevented us from tapping the potential of motor vehicle transportation, and economically it has created a large amount of waste. At present 14 percent of short-distance transport (within 50 km) of goods and materials is performed by railway transportation. Of these goods and materials, the transport of a considerable number of industrial products, agricultural sideline products, articles of daily use, mineral construction materials and other items can be borne by motor vehicle transport. But with the present structure of motor vehicle transport, it is difficult to have coordinated development between railway and road transportation.

/4. The Needs of Passenger Transport and the People's Travel Are Not at all Suited to the Needs of the Development of Our Tourist Industry./

During the First 5-Year Plan the capacity of passenger trains increased 67 percent, the capacity of passenger vehicles increased 57 percent, and the capacity of ships increased 15 percent. Based on the potential that we developed, during this period we basically suited the needs of a 1.6-fold increase in the volume of passengers. Since 1958, because we emphasized freight transport and put less emphasis on passenger transportation, when freight transport was in short supply it pressed passenger transport. The more passenger transport was pressed the more it was in short supply, until we found ourselves in a passive situation where we were transporting only as many passengers as we happened to have the ability to transport. Freight transport is in short supply on the Beijing-Shanghai, Beijing-Guangzhou, Beijing-Baotou, Beijing-Lanzhou, Gansu-Qinghai, Zhejiang Province-Jiangxi Province and 25 other major railroad routes, and it is already difficult to add new passenger cars. The result is that at present, long-distance passenger cars are, on average, 30 percent overfilled. Long-distance and local passenger transport is in extremely short supply in Beijing, Tianjin, Shanghai, Shenyang and other cities. Passenger transportation in cities and suburbs is often more than 100 percent overfilled. The passenger ships on the Yangtze River and coastal regions are usually about 20 percent overfilled. Motor vehicles are also unbearably crowded, and it is extremely difficult for passengers to purchase tickets. Airports, are not well sited. Out of 39 tourist cities and scenic spots, 10 have no airport. Problems often arise with transportation when we are receiving foreign tourists. Since the smashing of the "gang of four" the state has been adopting measures to make positive improvements in the people's standard of living, yet we have still not aroused due attention and adopted feasable measures for certain aspects of "traveling."

/5. There Is a Serious Disproportionate Relationship between the Development of the National Economy and Transportation./

During the First 5-Year Plan, transporation played a leading role. The volume of freight transport increased an average of 20.6 percent each year. Not only is this higher than the average annual increase of 10.9 percent of the total output value of industry and agriculture, but it is even higher than the average annual increase of 18 percent of the total output value of industry for the same period. Unimpeded transport basically satisfied the needs of the national economy. Since 1958, the construction of transportation has not only not been in a leading position, but has been falling behind. Transportation's reserve capabilities have gradually become exhausted, the problem of transportation's insufficient capabilities has become daily more serious, the transport structure is not at all rational, and the "vanguard" has dragged behind the development of the national economy. At present, railway transport is in short supply and is passive. In the Beijing-Guangzhou, Beijing-Shenyang, Gansu Province-Qinghai Province, Beijing-Baotou, Baotou-Lanzhou, Zhejiang Province-Jaingxi Province, Hunan Province-Guizhou Province, Guizhou Province-Guangxi Zhuangzu Autonomous Region lines and in other key railroad routes there are 10 "congested" regional transport stretches which every day are only able to meet 50 to 70 percent of the needs of freight transport. Concerning water transport, the coastal ports' capability for freight transport

and to dredge waterways is not sufficient. The number of motor vehicles of the specialized transportation departments is insufficient; more than 40 percent of the freight depends on organized noncommunications and nontransportation sectors for transport. The number of motor vehicles used for agricultural purposes in the vast countryside is small. Residents mainly depend upon tractors, hand carts and animal-drawn carts for transport. In pipeline transport, mainly crude oil and natural gas are conveyed, and too few finished oil products are transported via pipeline. Due to serious deficiencies in the capability of transport, from 1958 to 1979 the average yearly increase of the volume of freight transport was only 5.2 percent. Not only is this lower than the average yearly 9.6 percent increase of the total ouput value of industry for the same period, but it is even lower than the 6.9 percent increase of the total output value of industry and agriculture. Thus, there is a serious disproportion between industrial and agricultural production and transportation. Coal is in very short supply in the eastern, southern and northeastern regions of China, and a large amount of coal cannot be transported from China's northern, northwestern and southwestern regions. In 1979, in Shanxi Province alone, over 10 million tons of coal was overstocked and waiting to be transported. According to preliminary calculations, because there is a shortage in the supply of coal, the increase in the nation's production is 2 percent to 3 percent lower.

In short, at present there is no coordination between the various modes of transport in China's transportation structure. We have an excessive capability to trasnport crude oil by pipeline, motor vehicle transport does not rationally lighten the burden of short-distance transport by railway, the potential of water transport is not fully exploited, railway transport's burden is too large, and airports are not well sited. Our transportation capabilities are seriously deficient, especially the capabilities of the major railroad lines, and the coastal ports' capacity for freight traffic. Passenger transportation is in short supply in every respect. The result is that transportation has become a prominent weak link in the development of China's national economy.

## II. The Evolution of Our Transportation Structure

For a long time, transportation has been a weak link in the development of our national economy. In the 30 years since the founding of our People's Republic, China's transportation has gone through a period when it was basically suited to the development of our economy. The result is that transportation has become a weak link in the development of our national economy. In reviewing and analyzing the changing situations of different historical periods, it is necessary that we further recognize the leading role of transportation, that we henceforth competently adjust the proportionate relationship between transportation and the development of the national economy, and it is necessary that we promote smooth implementation of the four modernizations.

### /1. Transportation in the Period of Economic Recovery and in the First 5-Year Plan Basically Suited the Needs of the Development of Our National Economy./

After the establishment of the People's Republic of China, the economy underwent 3 years of recovery, and then entered the period of the First 5-Year Plan. During the First 5-Year Plan the national economy developed relatively quickly.

The proportionate relationships between agriculture, light industry and heavy industry were comparatively coordinated. Transportation basically suited the needs of the people and of the development of industrial and agricultural production.

First, although the obsolete transport equipment left over from old China had been improved markedly after renovations during the 3 years of recovery, their quality was still a little substandard. Because of this we implemented policies for tapping potential and making improvements. Expenses for the overhaul of railroad equipment increased 1.5-fold from 1952 to 1957. This caused the rate of repair to locomotives to decrease from 17.9 percent in 1952 to 8.4 percent in 1957. The rate of repair to freight cars decreased from 9.4 percent in 1952 to 1.2 percent in 1957. Road transport's freight vehicles increased their maintenance and upkeep, and the rate of vehicles in operable condition improved from 67.3 percent in 1953 to 71.7 percent in 1957. There were also improvements made in the maintenance of ships. The rate of ships and boats subordinate to the Ministry of Communications that operated improved from 79.4 percent in 1952 to 82.7 percent in 1957. There was a clear improvement in the quality of transport equipment. On this basis, we exploited the potential of transportation and there was a relatively large improvement in the efficiency of transportation. Within 5 years the efficiency of locomotive transport improved 10 percent, the efficiency of railroad freight transport increased 20 percent, the efficiency of freight transport by motor vehicle improved 1.3-fold, and the efficiency of transport by boats and ships subordinate to the Ministry of Communications improved 60 percent. We thus suited the needs of an increase in transport. Second, within 5 years, basic investment in the construction of transportation amounted to 9.59 billion yuan, which is 17.4 percent of the total amount of investment in the nation's basic construction. Construction of communications was closely integrated with the demands of the construction of industrial and agricultural production, and the results of investments in capital construction were fairly good. For example, the rate of newly added liquid assets for railways and waterways made available to users reached 80 percent, and the capability of transport was strengthened. Within 5 years more than 500 locomotives, over 30,000 freight cars and more than 2,000 passenger cars were added to the railroads. The number of motor vehicles increased 60 percent, and both the deadweight capacity of ships and the number of civilian aircraft doubled. The total length of railways increased approximately 20 percent, the total length of waterways increased 50 percent, and the length of highways and air routes increased 100 percent. During this period we built railroad routes from Baoji to Changdu, from (Tianshui?) to Lanzhou, and from Lanzhou to Xinjiang. We built highways from Qinghai Province to Xizang Autonomous Region, and from Kangding to Xizang Autonomous Region, as well as other key routes. We strengthened the connections between China's southwest and northwest regions and the rest of the nation. This played a leading role in the development of the interior of the country and in consolidiating our national defense. Thirdly, in order to utilize transport capabilities in an economically rational way, we promoted in succession a reasonable transport system for the regional distribution and supply and marketing of coal, grain, oil, lumber and other important goods and materials, and we organized coordinated transportation between railroads and waterways. There was also a definite development of supplemental capability in the

nongovernmental, civilian conveyance and collection and distribution of goods along trunk lines; they bore approximately 80 percent of the freight volume of road transport and two-thirds of the volume of water transport. We implemented a policy whereby we combined the uses of modern means of transportation with nongovernmental means of transportation, and each mode of transport was relatively coordinated in completing its transport tasks. Fourth, we preserved a set amount of reserves of our transport capabilities, and we implemented a policy in which we planned to allow for certain unforeseen circumstances. According to calculations, in 1952 there was approximately a 20 percent reserve in the transport capability of railroad locomotives, and the reserve of our transport capabilities was even higher on the key railway lines, in coastal ports and on highways. In 1957, 620 million passengers were transported and for the 5-year period there was a 20.9 percent average yearly increase. The volume of freight transport was 900 million tons in 1957, and for the 5-year period there was a 20.6 percent average annual increase. Not only was this higher than the increase of the total output value of industry and agriculture, but it was even higher than the 18 percent increase of industry's total output value. It suited the needs of a huge increase in the volume of transport during the First 5-Year Plan, and allowed transport to play its "vanguard" role.

/2. During the Second 5-Year Plan, Transportation Did Not Suit the Development of the National Economy./

During the Second 5-Year Plan when we began to pursue high targets in our economic work, there was not a comprehensive balance, there was an imbalance in the proportions of agriculture, light industry and heavy industry, transport was in short supply in every respect and did not suit the needs of the development of the national economy. This is shown in the following points:

(1) The state supplied twice as much funds for capital construction in transportation during the Second 5-Year Plan than during the First 5-Year Plan. However, the economic results of investments in capital construction were not satisfactory, and the amount of newly added means of transportation and lines were not doubled. During the first 3 years the volume of freight transport doubled, yet there was only a 27 percent increase in the total length of railways, the number of locomotives increased only 50 percent, there was merely a 63 percent increase in the volume of highway freight transport, and although the deadweight capacity of steamer and barge transport increased 1.1-fold, the deadweight capacity of transport by junks increased only 27 percent. Obviously, the newly added transport capabilities were unable by a large margin to handle the demands of a large and rapid increase in transport at that time.

(2) In order to cope with the demands of transport that were doubling and redoubling, we merely concentrated our attention upon making an effort to quickly create new transport equipment, and we neglected the upkeep of the original transport equipment. For example, we disregarded the maintenance of old railroad cars in order to quickly build new cars. We inappropriately turned a few locomotive repair factories into manufacturing plants. The original locomotives which needed repair could not be repaired according

to schedule, the overdue bills increased, and there was a disproportion between repair and manufacturing. We did not build railroad cars quickly enough, so we imported 1,000 used steam locomotives from the Soviet Union, increased the task of repairing cars, and thus magnified the contradiction between building and repairing. Because the ration between building and repairing transport equipment was not coordinated, the result is that at that time, transport equipment fell into serious disrepair.

(3) The transport potential that we tried to exploit exceeded objective possibilities. For the first 3 years of the Second 5-Year Plan, after we depended upon newly added capabilities of capital construction in transportation, and after we utilized all of the reserve transport capabilities of the original equipment, the contradiction of insufficient transport capabilities was still extremely prominent. We did not tap transport's potential as we did during the First 5-Year Plan when we established a basis for guaranteeing the good condition of transport equipment. For example, drivers changed from a responsible crew system to a shift crew system. They were only concerned with transporting quickly, and neglected maintenance and upkeep. They exceeded the limit of vehicles' loading capacity, and the vehicles were seriously broken down.

(4) Because transport capabilities were seriously deficient, there was no overall consideration and all-around arrangement in the transport of goods and materials. We said that we would ensure giving consideration to all equally, but in fact we only ensured the transport of steel, and we squeezed out the transport of agricultural goods, light industry's goods and market goods. "Using transportation to limit production," and "using transportation to determine production:" was the result in transportation of the disproportion between agriculture, light industry and heavy industry.

(5) During the first 3 years of the Second 5-Year Plan, transport equipment operated with excess loads. We depended upon "piecing together equipment" to bear the burden of transport. According to calculations, in 1960 the freight volume of railroads exceeded its normal transport capabilities by 10 percent. The freight volume of motor vehicles and the volume of shipping's freight traffic exceeded the normal capacity for freight traffic by an even greater proportion. During the final 2 years of the Second 5-Year Plan, the serious disrepair of transport equipment was revealed. At that time one-seventh of all locomotives and one-fifth of freight cars were in disrepair, and one-fifth of the rails of railways were weak, old, defective and flawed, and they needed to be, but were not, replaced. The number of dangerous bridges and roads increased, the technical conditions of vehicles and boats deteriorated, and the rate of those in good condition decreased greatly. For instance, the proportion of motor vehicles in good condition decreased from 71.7 percent in 1957 to 58.6 percent in 1962, and there was a large increase in the number of third and fourth class ships. Thus, not only did this hinder the productive forces of transport, it also affected safety in the production of transportation. In short, transportation during the first 3 years of the Second 5-Year Plan was in a situation where we could not load, unload, or transport enough, and in every respect transporation was in short

supply. During the final 2 years, transport equipment was in serious disrepair, and coordination was in disarray. During this period transportation did not suit the needs of the development of our national economy.

/3. From 1963 to 1965 There Was Not Yet a Complete Readjustment in Transportation, and the Contradiction of Insufficient Transport Capabilities Continued to Appear./

From 1963 to 1965, we implemented the policies that the party Central Committee raised in order to readjust, restructure, consolidate and improve the national economy, and the national economy received positive results. We dealt with the serious disrepair of transport equipment and the muddled coordination of transport of the previous few years by reconditioning transport equipment and reorganizing the order of transport. Restoring and improving equipment was a key point of the adjustment. The costs of repairing railroad equipment during this 3-year period were two times greater than the costs during the Second 5-Year Plan, and besides accomplishing the task of maintenance during this period, we also gradually repaid our maintenance debts, and the quality of locomotives was restored to the 1957 level, the highest level ever. There were also great improvements in the quality of road and waterway equipment, and the rate of motor vehicles in intact condition reached 86.2 percent in 1965, the highest level ever. The rate of boats and ships subordinate to the Ministry of Communications that were operable was restored to its regular level. We reorganized the transport order mainly by restoring a reasonable set of rules and regulations and by increasing the safety of transport production work. For instance, in 1962 the railway sector launched a movement for the safe and punctual running of trains, and in 1965 the total number of accidents decreased 75 percent compared to 1960, and was the least amount of accidents ever in 1 year. In 1965 the rate of punctuality for freight trains was restored to its highest level ever. With the readjustment of the national economy, however, the production of industry and agriculture developed and was restored, the long-distance transport of goods and materials increased, and the volume of transport between the interior regions of the nation and the coastal regions increased sharply. In 1965, to support the construction of three sectors, the transport of goods and materials to the interior increased 1.4-fold compared to 1957. The transport of goods from the north to the south also increased 2.5-fold from 1960 to 1965. Concerning the construction of transportation, however, the proportion of funds for transportation from 1961 to 1965 was inappropriately reduced from 17.4 percent during the First 5-Year Plan to 13.9 percent, and the increase in the capability of transportation was unable to suit the needs of the increase in the volume of transport. At that time, on four major railway lines, i.e., Guizhou Province to Guangxi Zhuangzu Autonomous Region, Baoji to Chengdu, Tianjin to Shanghai, and Beijing to Guangzhou there was often limited loading space and limited transport, and railroads did not satisfy needs. Because we changed direction and used coastal ports as the keystone for importing and exporting goods and materials, and because there was an increase in the volume of the import of grain and other foreign trade, in 1965 the volume of freight traffic in ports doubled compared to 1957. We had already reached a saturation point in our capability to handle freight traffic, and the phenomenon of the "three pressures" appeared, namely, pressure on ships, freight and vehicles. This

was a new situation and new problem that appeared at that time between transportation and the national economy. In transportation, the "congested" regional stretches of railway and coastal ports were revealed. Therefore, in this readjustment of the national economy, the proportionate relationships between transportation and the production of industry and agriculture had not been completely readjusted.

/4. Since 1966, Transportation Has Continued To Be in Short Supply, and It has Increasingly Not Suited the Needs of the Development of the National Economy./

During the 10-year period when Lin Biao and the gang of four ran wild, the national economy was seriously harmed, and we were on the brink of collapse. After the smashing of the gang of four, the national economy was restored and developed. But in order to solve the national economy's disproportionate relationships, we must still maintain a period of readjustment and continue to work hard. Besides the assault and harm it received from Lin Biao and the gang of four, in the ordering of construction work, transportation was not given its due priority; it was not developed in advance of other construction, did not maintain a certain amount of reserves of its transport capabilities or ensure a rational development in its transport structure, and thus was incapable of solving the contradiction of insufficient transport capabilities that had already surfaced by 1965. In 1965, 10 percent of the total length of railway lines had an 80 percent or higher rate of utilization of transport capabilities. Because of increasing transport volume and long time periods required for upgrading of routes, we should pay close attention to arranging upgrading by section in sequence. Yet in the construction of railroads we have stressed the construction of new lines, and have neglected the upgrading of old lines: we thus created a disproportion in the construction of old and new lines. Ten years later in 1975, after the party Central Committee had made a decision to increase work in railway transport, it then began to place the upgrading of old lines on the order of the day. The proportion of railroad construction funds for the upgrading of old lines increased from 24.8 percent during the First 5-Year Plan to 36.1 percent during the Second 5-Year Plan, then decreased to 19.4 percent from 1963 to 1965, decreased further to 10 percent during the Fourth 5-Year Plan and Fifth 5-Year Plan, and then rose again from 1976 to 1978. Concerning water transport, in 1965 the coastal ports' capability for handling freight traffic was already tight, and we were originally supposed to stress the construction of ports. But in the construction of transporation, we stressed an increase in ships and boats, and slacked off in the construction of ports. Eight years later in 1972, Comrade Zhou Enlai took up the matter personally, and he put forward an appeal to effect "a 3-year change in the appearance of ports." We then set up a program for the construction of ports. Out of the investments in capital construction for the entire nation, the proportion of investments in the construction of ports was 0.4 percent during the First 5-Year Plan, it decreased to 0.3 percent during the Second 5-Year Plan, and to 0.2 percent from 1963 to 1972, in 1973 it rose to 0.6 percent, and from 1974 to 1978 it rose to more than 1 percent. Because we missed the opportunity to transform old railway lines and to construct coastal ports, transport capabilities of the main railway lines and coastal ports will be increasingly ill-suited for the needs of the

of the development of the national economy. The proportion of railway lines with a rate of utilization of transport capability above 80 percent increased from 10 percent in 1965 to 30 percent in 1978. The number of "congested" regional areas of railway has increased from 4 in 1965 to 10 at present. These 10 "congested" areas affect the economic relations between 6 large regions, and they create bottlenecks to transport. Due to serious deficiencies in the coastal ports' capabilities to handle freight traffic, ships involved in foreign trade have had extended stays at their harbor berths, and in 1978 our losses amounted to more than $80 million, an amount which is equal to 40 percent of the investments in the construction of coastal ports for that year. In 1979, the losses exceeded $100 million. Because our ships and boats are insufficient for ocean transport, every year the foreign exchange that we expend to rent ships could be used to purchase 60 10,000-ton ships. In short, since 1966 not only has there been no relaxing of the tense transport situation, but it is becoming more serious.

## III. We Must Construct Modern Transportation That Is Suited To China's Special Characteristics

Transportation is a material production sector: it is both an important material base in the process of social circulation, and it is a leading sector in the development of our national economy. A convenient and highly efficient transport system can promote the development of both the rational distribution of production and production [itself]. It can reduce transport expenditures and improve the rate of production of social labor. As Marx pointed out: transportation is "the forerunner of modern industry."[1] Thus increasing the develpment of China's transportation and constructing a Chinese-type modern transport system are important tasks for China's socialist modernization and construction.

Although the transport systems of the world's economically developed nations are generally modern and well developed, yet there are great discrepencies within each nation's transport structure.

First, freight transport systems can roughly be divided into two categories. The first category includes Japan and Western Europe's freight transport system. The area of the territories is small, the proportion of natural resources that they themselves provide is low, most of their energy and fuel is imported from abroad, and many of their finished products are transported to the international market. With the new large-sized ships and boats, shipping costs have decreased greatly, the layout of industry has gradually shifted to regions with coastal ports, and each nation commonly possesses a developed port system and powerful transport fleets, which bear responsibility for ocean transport. In short-distance transport within the country, in order to keep abreast, compete in the markets and speed up the turnover of

1. "Selected Works of Marx and Engels," Vol 2, p 73.

floating capital, motor vehicle transport has become the main mode of transport on land. It carries approximately 80 percent of the volume of freight transport and 35 to 65 percent of the volume of the turnover of goods. Railroads do not hold an important place.

The second category includes the transport systems of the United States and the Soviet Union. Their territory is large, the proportion of natural resources that they themselves provide is high, the layout of industry is spread out, the domestic market is broad and each mode of transport is fairly well developed. In the domestic transport system, railroads assume responsibility for a large volume of transport, and pipeline transport has basically undertaken the transport of oil and gas. The difference between the two nations is that the climate of the Soviet Union is extremely cold: the rivers and streams are frozen over for long periods, the direction of their flow is not always completely identical to the direction of the flow of goods, and the development of road transport has been relatively slow. From early on, the Soviet Union has paid attention to technological changes that use improvements in transport capability as their key. They continually improve the utilization level of the fixed assets of their railroads, transport costs are fairly low, and domestically, railroads have become a leading mode of transport. In 1978, railroads shouldered 57.7 percent of the nation's volume of the turnover of goods. For the past 10 years, however, because the proportion of investment in railroads has been continually decreasing, they have neglected the construction of new routes, the reserves of transport capability have been exhausted, transport support targets have deteriorated, and the development of railroad transport has fallen behind the demands of the national economy. In the domestic transport system of the United States, although railroads assume responsibility for a great porportion of the volume of the turnover of goods, they do not hold a leading position. This is mainly because the conditions of U.S. waterways are excellent. The United States borders the Atlantic Ocean on the east and the Pacific Ocean on the west. There are five large lakes in the north, and the Mississippi River transverses the middle of the country. Excluding the northern regions, most of the rivers are ice-free the year around, and they have been maintained over the years. Basically, the United States has formed a water transport system linked by rivers, lakes and oceans. They also utilize a barge fleet for which transport costs are low. Water transport is responsible for 23 percent of the volume of turnover of goods within the country. Although railroad transport was the major mode of transportation at the end of the 19th and the beginning of the 20th century, it still developed extremely rapidly. By 1920 there were more than 400,000 km of railways. Later, however, with the development of the oil and motor vehicle industries, with the price of liquid fuel continually decreasing, and with the performance of vehicles improving daily, motor vehicles were not only responsible for short-distance transport, but also for middle-distance transport. The scope of use of railroads decreased daily and railroads had excess capabilities. Since 1916, 86,000 km of railways have been dismantled. In the past few years, because of the appearance of the oil crisis and because of a whole set of social problems brought along by motor vehicles, railroads have received renewed attention, and they hold a more prominent position in the transport system.

Second, concerning the passenger transport system, other than for the Soviet Union, motor vehicles bear responsibility for middle and short-distance passenger transport in most economically advanced nations. Passenger transport by motor vehicle accounts for 60 to 90 percent of total passenger transport. The proportion of passenger transport by cars is especially high. However, people mainly depend upon airplanes for long-distance passenger transport. Since the 1960's, Western Europe, Japan and other nations, with the emergence of superhighways, have used the high-speed and comfortable special characteristics of superhighways to play a larger and larger role in middle-distance passenger transport. The most important trend in the development of passenger transport to foreign nations is a development in the direction of highspeed, safety, comfort and convenience. Important extant problems include the high-speed development of motor vehicles and aircraft, especially in the excessive increase in the number of automobiles. The great consumption of liquid fuel (the United States alone consumes one-half), the high costs of building highway networks, the use of much land, the noise pollution and serious waste of gas, the clogged roads and the increase in traffic accidents have all already become serious social problems.

China is a developing nation. We must both use the experience of other countries for reference and study China's own special characteristics. This demands coordinated development between transportation and the national economy and between each mode of transport within transportation. Proceeding from this, we must calculate the most fundamental special characteristics of China's national conditions.

(1) China is a socialist nation. Socialist transport should suit the needs of society. This then demands coordinated development between transportation and the national economy and between each mode of transport within transportation.

(2) China is a country with vast territory, relatively abundant natural resources and a large domestic market. The distribution of natural resources, industry and population is not balanced, and the task of domestic transport is extremely arduous. Besides constructing a strong fleet of ocean transport and international air transportation, we must construct a suitable domestic transport system.

(3) At present, China's rate of accumulation should not be excessive. It is inconceivable that in the near future China's technical equipment in every respect according to the proportion of population could surpass the level of economically developed nations.

(4) After 10 years of upheaval, all unaccomplished tasks are still to be started, all industries are awaiting action. In a short period of time we cannot use a large amount of funds for construction. Under China's present transport system, the amount of transport equipment is small, the technical level is low and the outstanding bills of transportation construction are numerous. According to preliminary calculations, the investments necessary to clear up "congested" regions would be equal to approximately 60 percent of the investments in the upgrading of old railway lines since 1949. The

investments required to change the situation of overburdened shipping and freight, and to increase the number of berths would be equal to 70 percent of investments in new berths since 1949. With the development of the national economy, and with the improvement in the people's standard of living, there is not only a demand for a great increase in the volume of transport, but quality is in even higher demand. A group of new "congested" areas has appeared on railways, and the capabilities of ports are still not sufficient for the demands.

(5) At present China's energy resources are in relatively short supply. Mineral energy resources and natural resources are not abundant. Thus, in determining the direction of the pulling force of China's transport and in determining the scope of each mode of transport, and concerning the present upgrading of technical equipment, we must implement a policy to save energy resources.

The above situations determine the fundamental characteristics of the modernization of China's transport, as follows:

(1) Transportation must develop in coordination with the national economy. The technical equipment and capabilities of transportation must quantitatively and comprehensively satisfy the demands of the national economy, the travel needs of the people and the construction of our national defense.

(2) Each mode of transport within the entire transportation system must fully bring into play its respective superiority and achieve a comprehensive development and rational structure. For a long time railroads will continue to be the mainstay in China's domestic transport system.

(3) The modernization of China's transport will be a relatively long process, and for a very long time advanced and backward transportation equipment will coexist. Only in the major transport routes and major links should areas that are most urgent and having the greatest social results first make use of advanced technical equipment. We should then gradually expand the scope of its utilization. Our use of advanced technology must have as its goals improving the capability and efficiency of transportation, conserving resources, reducing investments, lowering transport costs, improving working conditions and improving work productivity. We must not disregard the conditions [of our work], or the results, or attempt across the board use of advanced equipment or try to immediately realize comprehensive automation.

(4) For a long time China will be depending upon railroads, highways and waterways as the keys for passenger transport. It cannot depend on a passenger transport structure which relies on aircraft for long-distance transport and automobiles for short-distance transport.

(5) We must have a system of transport management that is suited to China's national conditions, and we must have modern methods and measures for management.

In view of the above-mentioned points, the following are tentative ideas for the readjustment of China's transport structure.

There are still 20 years from now until the end of the 20th century, in this short period of history, with readjustment preceeding smoothly, with the superiority of each region and sector given full play, with a strengthening of the coordination among specialized production departments, and with a change in the structure of the economy, there will be a large development in the national economy, there will be a huge increase in tourism and foreign trade, and the standard of living of the people will continually improve. All of this will put even greater demands on transportation. It is estimated that at the end of the century the freight and passenger volume of each mode of transport will increase many times over compared to 1979. Thus, transportation must develop fairly quickly, and by the end of this century we must strive to establish a transport system using advanced equipment and high capacity as a framework to link up each economic center to main railway lines, coastal ports and the Yangtze River, and we must establish a comprehensive transportation system in which railways, inland waterways, highways, pipelines, aviation and other forms of transport are coordinated, linked up, extended in all directions, and suit the needs of the four modernizations and the people's standard of living.

In order to carry out the aforementioned goals, from 1981 to 1985 we must earnestly readjust the proportionate relationship between transportation and the national economy and the inner workings of transportation. We must transform and extend existing transport lines and ports, appropriately construct new transport lines and harbor berths, quickly improve transport capabilities, eliminate most of the railway's existing "congested" regions, cause improvements in the situation of pressure on shipping, and we must take initial steps toward reversing the passive situation of transportation.

From 1986 to 1990 we must use new technical equipment to continue to upgrade existing transport lines, while at the same time accelerating the construction of ports and new transport lines. We must induce China's economy to achieve fairly large results both quantitatively and qualitatively, and thus basically suit the needs of the people's standard of living and the development of the national economy. For the final 10 years of this century we must lay a foundation for the four modernizations and a modern transportation system. More specific details follow.

By the end of this century we should strive for a total length of railroad track of about 80,000 km, and the proportion of this that is multiple track should increase to about 30 percent. This will enable the transport capabilities on a few main lines to reach approximately 70 million metric tons on multiple track rail and approximately 25 million metric tons on single track. Electric and diesel-drawn locomotives will become the main type of locomotives to draw trains. We should construct a transport network using links between each economic center and the major rail routes and major harbors as a framework, with all lines linked together and with relatively advanced equipment. In the 1980's we must concentrate our strength to increase the upgrading of old lines and gradually increase the construction

of new lines. In 1990, the total length of railways should total approximately 60,000 km, the proportion of multiple track should improve to more than 20 percent, and the proportion of diesel and electric-drawn locomotives should amount to 50 to 60 percent of the total. We should clear up "congested" regions, improve the overall situation of the transportation network, and change the passive situation of railroad transport.

From a long-term point of view, we must establish a water transport network with the Yangtze River and Pearl River systems, the Huaihe River and the Beijing to Hangzhou Canal as its backbone, and lined by unimpeded rivers, lakes and the sea. And by 1990 we must stress the competent management of the Yangtze River and its important tributaries, the Xijiang River, The Jining-Chang Jiang section of the Beijing-Hangzhou Canal, the Huaihe River and other important channels. We must initially create a framework for a minor waterway network.

By 1990 we should basically have solved the problem of overburdened shipping and freight by developing ports. By the end of the 20th century we should have completed the construction of key ports in Shanghai, Tianjin, Qinhuangdao, Huangpu, Lianyungang and Dalian. We must combine the small, medium and large, have good conditions for dredging, have relatively advanced equipment and a modernized harbor system with relatively high efficiency, and we must thoroughly solve the problem of overburdened shipping and backlogged freight.

At the same time we must also establish a powerful ocean fleet with competitive ability and a coastal and inland waterways fleet that is able to satisfy needs.

In road transport, by the end of the century there should be 1.4 to 1.5 million km of roads, of which 160,000 km will be first- or second-class roads. We will create a road network linked up and extended in every direction, and using the nation's major routes as its backbone. We must connect the major routes between large and medium cities, strategic areas, industrial bases, grain and cotton bases, and important centers. We must change the situation of mountainous regions, base areas and minority areas that have few roads or no roads at all. Concerning motor vehicles, we must stress the development of vehicles with good technical performance and low fuel consumption. We must achieve a reasonable proportion between vehicles of large, medium and small tonnage, between diesel and gasoline vehicles, and between vehicles for special use and common use. We must gradually develop a modern and organized system of management and allocation for motor vehicles.

Concerning pipeline transport, with the development in the production of crude oil and natural gas, we must construct a corresponding network of oil and gas pipelines. In the next few years we should carry out technical upgrading of existing pipelines, and improve the transport capabilities and technical level of pipeline transport. In areas that need transport and are economically favorable, we should construct pipelines for transporting coal and other materials, and thus relieve railroads and highways of some of their burden.

There must also be a speedy development in air transport. We should reconstruct and construct a number of airports based on trends in the development of transport volume. We should vigorously open up international air routes, gradually develop an air transport system to five continents, and create a relatively complete air transport network. At the same time that we are fully giving play to our present aircraft potential, we must gradually increase the number of economically suitable aircraft, and guarantee that the demand for and increase in the volume of transport is satisfied.

## IV. Carrying Out a Technical Policy for Modernized Transportation

After the goals for modernized transportation are determined, we must formulate a technical policy that is both correct and suited to China's national conditions, and we must adopt positive measures. We must guarantee the reversal of China's passive transport situation as quickly as possible and using the least amount of fuel, and we must quicken our pace in modernizing transport.

Concerning the entire transportation system, in formulating the proper technical policy we must first properly determine the place each mode of transport has in our transportation system, and fully bring into play the superiority of each mode of transport. We must comprehensively utilize and coordinate the development of each mode of transport, and gradually achieve a rational transport structure. Thus:

1. We must fully bring into play the superiority of each mode of transport, and correctly determine a reasonable scale of utilization. A comprehensive analysis follows.

Railroad transport has great capabilities. At present, China's multitrack transport capabilities amount to 50 million metric tons (in some foreign countries it is nearly 100 million metric tons), and single track transport capabilities amount to 18 million metric tons (in some foreign countries it is more than 25 million metric tons). Transport costs are fairly low. In 1978, it cost 7.8 yuan for every 1,000 conversion ton-km, and in the flatlands on multitrack the transport cost for a large amount of goods is only 5 yuan. Energy consumption is fairly low. A steam-driven locomotive requires 24 KG of standard coal for every 1,000 conversion ton-KM, and many types of energy resources can also be used. Trains are not affected much by natural conditions and can pass through relatively complex geographical conditions, and thus ensure uninterrupted transport. The universality of railroads is also excellent. They are able to satisfy the needs of all types of passenger and freight transport, and in our transport system railroads can also shoulder a large amount of middle- and long-distance passenger and freight transport. It is estimated that in the years ahead railroads will still be the main force of China' transport, will assume middle- and long-distance passenger and freight transport, and will play a larger and larger role in the passenger transportation of the cities and suburbs.

Concerning China's water transport, the coastline is 18,000 km in length. and there are 18,000 km of navigable inland waterways. South of the Huai He and Qinling, the river systems all have plentiful water, are navigable the entire year, and have favorable conditions for water transport. Transport capabilities, investments, costs, energy consumption and other economic indicators of the coast, the Yangtze River and other major transport routes are fairly good, and water transport takes up little farmland. The weaknesses of water transport are that it is greatly affected by natural conditions, it lacks continuity, it is slow, and it is appropriate only for transporting large amounts of goods and materials a long distance with no special time requirements. For many years, however, China has not fully utilized its favorable water transport conditions. The density of water transport on the Yangtze River is merely equal to the density of freight transport on railroads; the density of the freight transport of the coastal regions is only 1.3 times that of the railroads. Many rivers are still in their natural state. In addition, for many years the comprehensive utilization of water power resources has been inadequate; often we only consider hydraulic power and hydropower and neglect shipping, as a result traffic blocking dams and dikes have multiplied: at present there are 70,000 km fewer navigable waterways compared to 1961. Currently, the costs of inland water transport are still fairly high. Concerning the joint transport of large amounts of goods and materials, joint transport between water and land is advantageous only when the expenses saved by water transport exceed handling costs in transfers plus the costs of goods that are damaged and spoiled. Thus, accelerating the construction of ports and water channels, continually improving the level of technical transport equipment, improving management and administration, reducing transport costs and improving the quality of transport are the keys to fully bringing into play the superiority of water transport. Due to the development of inland waterway transport, in the initial stages we must expend larger investments to repair water channels. But producing navigable waterways is not the only goal of the renovation of rivers; we can often incorporate comprehensive benefits such as irrigation, preventing floods, generating electricity, and providing water for industry and agriculture. Concerning investments in inland waterway transport, we cannot merely settle accounts using transportation's beneficial results. Thus, the state must adopt supportive policies for river transport, integrate the comprehensive utilization of water resources to accelerate the construction of waterways, and induce river transportation to develop quickly.

Concerning road transport: although the costs, fuel consumption, labor productivity and other economic indicators of motor vehicle transport are not as favorable as other modes of transport's, yet motor vehicles require little investment, are expedient and flexible, can transport from door to door, can deliver goods quickly, can accelerate the turnover of funds, and they have a great superiority in short-distance transport and in the long-distance transport of some products. Because there are 800 million Chinese citizens in the countryside, medium and small enterprises are spread out in all areas, and motor vehicles can reach large and medium cities, the countryside and remote regions; this is something that the other modes of transportation are unable to replace. For many years we have not paid enough attention to the development of China's motor vehicle transportation, and the technical conditions of roads are substandard. Concerning the composition of different types of motor vehicles, we have many middle-sized and gas-powered vehicles, small transport

capabilities, high costs, high fuel consumption, and we do not give full play to motor vehicle transportation's superiorities. The state must pay attention and give support to motor vehicle transport in order to bring its superiorities into play. The state must accelerate the construction of roads, change the composition of the various types of vehicles, and continually reduce energy consumption and transport costs.

Concerning pipeline transport: investments are few, costs are low, it occupies little farmland, and it holds a definite superiority in the transport of gasous and liquid goods. Currently, the transport of China's crude oil is basically assumed by pipeline transportation. Due to the high costs of transporting finished oil products, there is a large amount of wastage, we are unable to utilize empty cars when they return, and this wastes the capabilities of railroads. For example, every day Shanhaiguan has three empty trains on return trips, and every year transports 2 million metric tons less than its capabilities. Thus, based on the development of crude oil, at the same time that we continue to construct crude oil pipelines, we must gradually develop the pipeline transport of finished oil products. In the past decade, foreign countries have transported solid materials via pipeline. There has been particularly quick development in the pipeline transport of coal, ore, and ore construction material. According to U.S. statistics, the investment required for the transport of coal by pipeline is 50 percent lower than by railway, and costs are one-third lower. Thus, as determined by set conditions for production and marketing, by a single product and high volume of transport, we should, after technical and economic appraisals consider constructing pipelines for transporting coal in order to relieve pressure on railroads.

Air transport is quick, it can surmount all types of natural obstacles, and it holds a special place in the long-distance and international transport of passengers. However, costs are high, and fuel consumption is great, especially now that China's oil prices are fairly high. We are still unable to manufacture a large-sized passenger aircraft, and within this short period of time we have been unable to bear a very large proportion of long-distance passenger transportation. With the development of China's aviation industry and with an improvement in management and administration, the range of utilization will gradually expand. With the especially busy long-distance passenger transport and with railroad transport in short supply, developing avaition transportation has a practical significance for easing the burden on railroads and on deferring investment in railroad upgradings. In the future, air transport must develop quickly in order to suit the needs of the people and the development of tourism.

2. In order to enable each mode of transport to develop comprehensively, for each region and each type of transport we must, after technical and economic comparisons, choose the rational mode of transport when there are many different modes to choose from. In the past not enough attention was paid to this aspect. For example, in the transport of large amounts of coal to the south, we did not fully utilize the potential of coastal transport. Until today we have put pressure on railroad transportation, and have caused railroads to assume this extra burden. In the development of China's transportation network, in the future there will be many questions which we must research. For instance, when using coal to generate electricity, should we transport coal or transmit electricity? In transportation along China's central coastal regions, while fully bringing coastal transport into play, should we construct

a new north to south railway line, and when should we build it? Should we build a railroad along the Yangtze River, and if so when? Between Jiangxi Province and Fujian Province, and between Jiangxi and Guangdong Province should a railroad be constructed between the cities of Ganzhou and Longyan, and Ganzhou and Guangdong, or should we build a canal between Jiangxi Province and Fujian Province, and between Jiangxi Province and Guangdong Province? Should coal be transported from southeastern Shanxi Province and western Henan Province to Jiangxi Province and Zheijang Province directly by train, or should it be transferred at Wuhan for transport on the Yangtze River? For our long-distance passenger transport, should we transform railways or rely upon aviation to assume a part of the burden? For the busy regional transport of passengers, should we transform railroads or build roads in order to bear the burden of short-distance passenger transport? We must determine these and other questions through technical and economic comparisons.

3. In composing transport lines from the many different modes of transport, we must coordinate the construction of each link to create comprehensive capabilities. Because we did not pay attention to this in the past, we were not able to coordinate the construction of all transport lines and create comprehensive capabilities, and we could not fully realize a return on investments. For example, although Qingdao Harbor and Yantai Harbor have abundant capabilities after their expansion, yet because the capabilities of the two harbors cannot be fully utilized. In the future we must carry out a comprehensive program for all transport lines, and we must coordinate construction.

4. For the transport conditions for large-scale industrial and mining industries, there must be many types of plans from which to choose. We must also adopt fairly specific resolutions. We neither should keep only railroads in mind nor should we duplicate construction. In the past, we did not pay enough attention to this problem in the construction of some factories and mines. For example, in the construction of the Huainan coal mine, the Yanzhou coalfield and the Dexing coppermine, we often lacked a comprehensive investigation of transport conditions, and the superiority of each mode of transport could not be given full play. Henceforth, the transport departments must participate in determining the siting of industries, and they must continually choose transport conditions to save money and reduce transport expenses.

5. In order to guarantee that the superiorities of each mode of transport are given full play, we must continue to adopt proper transport pricing policies, employ economic measures, and spur a reasonable division of labor between each mode of transport. For instance, currently in some areas the price of motor vehicle transport is too high, the price of railroad transport is too low, the price of pipeline transport is too high, etc. This is unfavorable for fully bringing into play the superiorities of each mode of transport.

Based on the above analysis of each mode of China's transport, we feel that we must consider a few aspects of the following technical policies:

1. Railroads

Based on China's special characteristics and using the experience of other countries for reference, we must consider the improvement of transport capabilities as the key, adjust the period for which upgrading old lines is essential, and correspondingly construct new lines simultaneously; we must put new technical equipment on the high volume main transport lines which play major roles in the exchange of the nation's goods and materials and which connect all large ports. We must greatly improve the transport capacities of trunk lines, and we must reverse transportation's passive situation. We must then lay emphasis upon new and old lines, strengthen the construction of new lines, and increase the density of the road network. In order to carry out these requirements we must do the following:

(1) We must speed up the change in the type of power used to draw trains. A few industrially developed nations have, for roughly 15 to 20 years, completed the change in the type of power used to draw trains, and they have achieved excellent economic results. Steam locomotives are still the main drawing power of China's railroads; diesel and electric locomotives pull only 20 percent of the volume of turnover of goods. However, the capabilities of steam locomotives are small. Their thermal efficiency is low (on average it is only about 6 percent). At present the fuel consumption of railroads amounts to 16.6 million metric tons of standard coal per year. The thermal efficiency of electric and diesel locomotives is high, and their pulling capability is great. Speeding up the pace of the change in the type of railroad's drawing power and gradually replacing the steam-drawn "coal eaters" with electric and diesel locomotives are keys to improving railroad transport capabilities and to reducing energy consumption. In initial calculations, with a 50 to 60 percent increase in transport volume in 1990 compared with today, and with 60 percent of all locomotives being diesel or electric, then the energy consumption of railroads can be maintained at their 1978 level.

(2) We must increase the proportion of large cars and continually raise the weight of trains. Both domestic and foreign experience has proven that raising the weight of trains is an effective measure for increasing the transport capability of a railroad line. Currently, the average weight of a Chinese train is 2,000 tons and on trunk lines is only 3,500 tons. In order to improve the transport capabilities of railroads, in the future we must rapidly increase the proportion of large cars, and quickly manufacture freight cars grossing 100 metric tons. In using these cars under existing conditions, the capability of railroad transport can improve more than 30 percent. For a single commodity with a large transport volume, a minimum of destinations and the right conditions, we could extend the railway station sidings to 1,600 meters of track, and then organize the running of large trains (10,000 metric tons); single track capabilities could total 30-40 million metric tons, and multiple track capabilities could reach 70-80 million tons.

In order to suit the needs of improved weight and speed of trains, we must lay 60 kg of heavier heavy-duty rail, increase the number of ties, and improve the capacity of bridges.

(3) In key places we must utilize automatic equipment. Utilizing automatic equipment is an important way to give full play to the efficiency of fixed assets. On multiple track lines with more than 100 paired passenger or freight trains, we must use automatic equipment to direct the movement of trains. On important route networks and train yards, using automatic hump-switching equipment can greatly increase the transport capability of each line and increase the capability of each trainyard to adapt.

(4) On the problems of constructing new lines: during the readjustment period, in order to eliminate "congested" regions, we must concentrate our strengths to completely transform old lines. But we must recognize that we have few railroad lines, and the main lines bear too large a burden. There will be serious consequences if we are too late in paying attention to arranging the construction of new lines. At present the proposals for new construction are few. It is estimated that by 1985 the total distance of railways will amount to 53,000 to 54,000 km, an increase of less than 10 percent. For the same period, the volume of freight transport could increase 20 percent, and the average density of the freight volume of railroads could amount to approximately 13 million metric tons. If, during the Sixth 5-Year Plan, construction does not start on a few new lines, then during the Seventh 5-Year Plan there will not be much new construction put into the transport industry. Even if we are able to put 5,000 km of new lines into operation during the Seventh 5-Year Plan, by 1990 the total distance of railways will not reach 60,000 km, and the total length of railways will only have increased 10 percent. Also, by 1990 railroad freight volume could increase 30 percent compared to 1985, and the density of freight transport could reach approximately 15 million metric tons per km of railway. We must still recognize that the distribution of the density of railroad freight transport is not balanced. Based on an analysis of data on current freight circulation, lines with a higher than average density of freight transport only constitute one-third of all lines, and they bear 70 percent of the volume of transport. Of these, the important lines such as Harbin to Dalian, Beijing to Shenyang, Beijing to Guangzhou, Tianjin to Shanghai, Beijing to Baotou, Shijiazhuang to Taiyuan, Gansu Province to Qinghai Province, and other eastern stretches take up only 6,000 km of railway and yet bear more than half the volume of turnover of goods. These few key lines assume responsibility for both the transport of a large volume of goods and materials and the flow of goods between the country's major regions. In the future, the task of transporting goods will be extremely burdensome. The capabilities of railways between large regions will be in even shorter supply. At the same time there are a few regions that even today have no railroad and easily exploitable resources are not being developed. The construction period for new railroads is long: if we do not arrange it early, then during the period after the Seventh 5-Year Plan and during the 1990's it will be difficult to change the passive situation of railroads. Thus in the 1990's, the construction of new lines must develop quickly, and the total length of railways should reach approximately 80,000 km by the end of the 20th century.

2. Water Transport

(1) We must speed up the construction of ports. With an increase in transport volume, and with the development in large ships and containerized and bulk transport, ports must act as the hub for joint water-land transport, and must develop speedily in volume and in technical equipment. In the near future, we must construct a group of specialized bulk cargo berths that are mechanized at a fairly high level, and we must construct a certain amount of containerized berths. We must continually adopt new loading and unloading technology and equipment, improve the efficiency of loading and unloading, and gradually carry out, based on our actual needs, the mechanized loading and unloading in the "three insides" (inside the vehicle, inside the hold and inside the warehouse). In key ports we should gradually adopt mechanized means to control, direct and manage operations.

(2) Shipping. Based on China's transport needs, not only must we manfacture large and specialized ships, but we must also manufacture medium and small ships, and thus suit the needs of middle- and short-distance coastal transport. Inland waterways must strive to develop barge transport. In the development of ships and boats, we must pay attention to the technical and economic certification of each type of ship and to the standardization of ships. Based on different transport plans and on the boat model's suitability for different harbors and waterways, we must carry out a comprehensive a technical and economical appraisal of each model.

(3) We must strengthen our overall use of water resources. Opening up waterways and constructing irrigation works which generate electric power are uses of water resources. The state must draft laws for water resources and waterways, and must establish an organization with unified control of water resources, with unified leadership, a comprehensive plan, and which will competently manage China's water resources. For each river we develop, in line with local conditions and to the best of our abilities, we must calculate the overall benefits of preventing floods, draining flooded fields, opening routes to navigation, generating electricity, acquaculture, and industrial use of water.

(4) Based on China's special characteristics, we must formulate standards for navigation channels and strengthen the construction of such channels. In construction we must emphasize dredging rivers with a water depth of more than 1 meter. In the upper reaches of main streams and in rivers in mountainous regions we must integrate the construction of irrigation works that generate electricity, and gradually bring about the channelization of navigation channels.

3. Road Transportation. We must stress solving the problem of roads and motor vehicles.

(1) The technical standards of China's roads are fairly low. Only 17.2 percent of the 876,000 km of roads are paved, and only 13.5 percent of roads are of a level above grade 3. On many roads, especially those roads

leading to big cities and large ports, the volume of traffic greatly exceeds the planned standard. Almost all roads have a mixture of fast and slow vehicles. This type of situation does not only not satisfy the needs of transportation, but it lowers the speed of traffic, and raises the cost of motor vehicle transportation. According to the findings of relevant departments, for vehicles that travel on paved roads, the speed can be raised 30 to 50 percent, fuel consumption can be reduced 10 to 20 percent, and costs lowered 15 to 40 percent. Based on the trend of development and capability for investment of China's motor vehicles, we must improve existing highway standards, first we must comprehensively construct the existing network of key routes and the sections of roads that come in and go out of big cities and large ports and the roads leading to tourist regions that are significant to the nation. We must cause main roads to reach a level of grade 3 or above, and we must increase the proportion of grade 1 and grade 2 roads. We also must, based on our needs and capabilities, construct roads within provinces, counties and communes, and for our national defense.

(2) One of the important problems of motor vehicles is the irrational makeup of different types of vehicles. There are now 1,144,000 freight vehicles in China, and most important are the 4-ton middle-sized vehicles, the general-use vehicles and gas vehicles, of which the Liberation brand vehicles constitute a great proportion. The second problem is that performance is substandard. In a comparison of a Liberation vehicle with the Soviet Union's Model 130 ZIL, the latter has a 6-ton carrying capacity and consumes 28 liters of fuel per 100 km, and China's Liberation vehicle has a 4-ton carrying capacity and consumes 29 liters of fuel per 100 km. If our Liberation vehicle could attain the technical level of the Model 130 ZIL, then we could reduce the number of vehicles by one-third and still carry the same volume of freight, and every year we could save about 1.5 million tons of fuel. Because the loading capacity of China's vehicles is low and the technical conditions of the roads are substandard. the cost of motor vehicle transport is high. The cost of the Liberation vehicles for every 1,000 ton-km ranges from 140 to 200 yuan, 20 times greater than the cost of railroads. In foreign countries the cost of motor vehicle transport is only one-sixth to one-eighth of China's. In addition, most foreign trucks use diesel engines, and according to foreign data, large diesel vehicles consume 30 to 50 percent less fuel per km than the average gas-powered vehicles. China's Yellow River vehicles also save 30 to 50 percent more fuel than Liberation vehicles, their costs are one-third less and they only cost approximately 100 yuan per 1,000 ton-km. We must now strive to upgrade existing vehicles, and eliminate some old cars and miscelleneous brands of cars. We must plan to produce new models, especially large vehicles and diesel vehicles. This is the key to our present development of motor vehicle transport, and it will have an important effect on lower fuel consumption and transportation costs.

If the transportation conditions on superhighways are good, then the transport capabilities will be great. According to foreign data, the volume of traffic could reach more than 10,000 vehicles per day, and could fully

bring into play the superiorities of motor vehicle transport. In light of the fact that in the near future China's funds will be limited, at present it is still difficult to strive for development. But we also must increase our research, build one or two items to gain experience, and construct step by step.

4. Aviation. Currently the main problem lies in the fact that our aircraft models are not completely suited to China's national conditions, and the siting of airports is not coordinated with the requirements of transportation. Henceforth, it is important that we competently arrange the siting of airports. Whether it be a Chinese-built aircraft or an imported aircraft, we must select a model based on the special characteristics of China's transport, and we must gradually modernize flight management and airport service.

5. Pipelines. Presently the main developments in the gas pipeline of foreign nations are the largeness of pipeline diameters (it has reached 1,500 milimeters) and the increase in the pressure (90-120 KG). Foreign countries have realized automated management of pipeline.

Because China now has an excess capability in its pipeline transport of crude oil, within a set period of time in the future it must place emphasis upon upgrading existing pipelines, continually improving pipeline technical conditions, and lowering transport expenses. At the same time, based on our needs, we must construct pipelines for the transport of finished oil products and coal.

To modernize transport we must have large amounts of manpower and material and financial resources. Thus, in the process of modernizing transportation, attaching importance to economic results is an extremely important problem.

In the past, due to the disruption and harm of Lin Biao and the gang of four, and because in our economic construction we did not sufficiently recognize the leading laws of transportation, we lacked a suitable plan for the development of transportation, technical policies changed many times, and although the state expended excessive funds, it did not receive favorable economic results. One fundamental reason that transportation has become a weak link in China's national economy is that we are not paying enough attention to economic results. What is worth noting is that after the smashing of the gang of four, in the construction of transportation some standards were too high, there was too much unusable construction, and in some projects we started construction before funds were secured and there was serious waste. Thus realizing modernized transportation not only depends upon the size of investments, but more importantly depends on how investments are used. We certainly must take the problem of paying attention to economic results and give it an important place. For every construction project we decide on and every technical policy we formulate, we must earnestly put forward a technical and economic appraisal, and we must strive to use a similar consumption of labor to achieve the greatest economic results, and quicken the pace of modernizing transportation.

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