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CHINA REPORT
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PEOPLE'S REPUBLIC OF CHINA

NATIONAL POLICY AND ISSUES

PRC JOURNAL ON DECENTRALIZATION OF STATE OWNERSHIP

HK120939 Beijing JINGJI YANJIU in Chinese No 12, 20 Dec 84 pp 30-32, 15

[Article by Huang Taiyan [7806 3141 1484], postgraduate student of the Political Economy Department of the China People's University: "Model of Decentralization of State Ownership and the Reform of Economic Structure"--written in September, 1984]

[Text] According to a longstanding traditional viewpoint, Marx and Engels held that only the model of a high degree of centralization of state power is applicable to socialist state ownership. This viewpoint negates the possibility of many specific models of socialist state ownership. I consider the model of centralization of state power is not the only model of state ownership envisioned and proposed by Marx and Engels. They also put forth another tentative idea of state ownership. Within certain limits and for certain periods of time, the right of ownership of the means of production can be separated from the power to control and use them. I call this tentative idea the decentralization model. The model of decentralization of state ownership must be clearly expounded; only thus can we correctly handle the relationship between the state and the enterprise, and only thus can we implement various reform measures such as leasing small state enterprises, or handing them over under contract, to the collective or individuals. Thus, the reform of the overall economic structure, with urban reform as the focus, can be quickened, and ideological obstacles can be eliminated.

I.

Marx and Engels put forth the decentralization model in the course of establishing the theory of cooperation in production. As early as the 1860's, Marx had shown enormous interest in the experimentation taking place in the continent of Europe in cooperation in production. He held that these experimental measures, developing within the realm of capitalism, could lead to the collapse of the capitalist system. (Footnote 1) (Marx: "Selected Works of Marx and Engels: Declaration of the Founding of the International Workers' Association," Vol 2, pp 132-133) He held that if capitalism was to be brought to an end and the working masses were to be liberated, cooperation in work must be developed throughout the whole country. By the 1870's, in summing up the experience of the Paris Commune, Marx and Engels were highly praising the economic measure, adopted by the Paris Commune, of handing over those enter-

prises which were shut down by factory owners to the worker cooperatives, to be operated by them. Thus, they also held that after seizing overall state power, the Proletariat must "extend the cooperative to existing production." (Footnote 2) (Engels: "Collected Works of Marx and Engels: To A Bebel (20-23 January, 1886)," People's Publishing House, 1975 edition, Vol 36, p 416; same edition referred to in subsequent quotations) Marx and Engels discussed two different forms of cooperative: first, peasant cooperatives, including small peasant cooperatives and larger ones, which were basically characterized by their methods of production and their ownership; and second, worker cooperatives, including industrial workers' cooperatives and agricultural workers' cooperatives. The state would seize from the capitalists and big landowners what would be the means of production in worker cooperatives; therefore, the means of production in worker cooperatives would be owned by the state. However, the worker cooperatives would not be operated by the state; the state would put the means of production it owned under the control of the worker cooperatives. The model of decentralization of state ownership was thus put forth.

The decentralization model put forth by Marx and Engels was an indispensable part of the Marxist theory of state ownership. I consider the model of decentralization of state ownership to have the following characteristics:

First, the putting forth of the decentralization model was geared to the period of transition from capitalism to socialism. Engels regarded the worker cooperative as an "intermediate link" that could be used during the transition to socialism. (Footnote 3) (Ibid) In "On Housing," Engels also clearly said that factories owned by the working people would be leased to individuals or cooperatives for their use during the transition period.

Second, the state would enjoy the right of ownership of the means of production. In discussing the handing over of the means of production by the state to the cooperatives for their use, Engels clearly said: "Things must be handled in such a way that society (that is, the state in the first place) maintains its right of ownership of the means of production." (Footnote 4) (Ibid) This is a basic point concerning the model of decentralization of state ownership, because only if the means of production were owned by the state could the nature of the state ownership of the means of production be clearly determined. Otherwise, if the state relinquished the right of ownership of the means of production when it handed over them to the cooperatives for their control and use, the means of production would inevitably be devoid of the nature of state ownership.

Third, the state as the owner of the means of production would not directly control and use the means of production in production and operation, but would hand over the means of production that it owned to the cooperatives for their control and use. Elsewhere in the works of Marx and Engels, it is also said that the state-owned means of production would be handed over to the cooperatives for their use. In this context, control and use are synonymous.

Marx and Engels also held that not only would the state hand over the state-owned factories to the worker cooperatives for their control and use, "just

as the Paris Commune required the workers to operate, by way of cooperation, those factories which had been shut down by the factory owners," (Footnote 5) (Engels: "Collected Works of Marx and Engels: To a. Bebel (20-23 January, 1886)," Vol 36, pp 416-417) but the state would also, "under society's supervision, hand over the major land property which had been returned to society, to those agricultural workers who currently were farming that land and who would organize cooperatives." (Footnote 6) (Engels: "Selected Works of Marx and Engels: The Problem of the France-German Peasants," Vol 4, p 315) The state would first hand over the state-owned factories and major land property to the cooperatives through leasing. Thus, the state would still enjoy the right of ownership of the means of production after leasing them to the cooperatives, but it would lose the right to control and use the means of production during the terms of the leases.

Fourth, after the state had leased the means of production to a cooperative, the cooperative would enjoy the right to temporarily control and use the means of production during the term of the lease; although the state would not relinquish the right of ownership of the means of production during the term of the lease, it would forego the power to control and use the means of production for organizing production and exchanging products. Therefore, it was possible that, using the power of controlling and using the means of production in pursuit of its own specific interests, the cooperative would deviate from or undermine the state's overall interests, so that contradictions arose between the cooperative's power of controlling and using the means of production and the state ownership of the means of production. Thus, Engels stressed that the state had to use its right of ownership of the means of production to safeguard the overall interests of society. It should be noted that Engels did not stress here that the cooperatives had to be operated according to overall state plans in order that the overall interests of society could be safeguarded. I think this was not due to some accidental negligence of Engels, because in "principles of Communism" and "Anti-Duhring," Engels consistently stressed that national production must be organized according to overall state planning. The fact that Engels did not stress the necessity for the cooperatives to organize production according to state plans was mainly related to the model of decentralization of state ownership which was geared to the transition period.

Fifth, there could be many different models of decentralization of state ownership. As mentioned above, Engels held that under the decentralization model, the form to be adopted first would be the leasing of the means of production. Of course, he did not negate the possibility of the creation of other forms in subsequent practice.

The handing over of the means of production by the state to the cooperatives for their control and use would not alter the nature of state ownership. This was because: 1) The cooperatives had to acknowledge the state's right to own the means of production; this would be the primary condition for the handing over of the means of production. 2) To a certain extent, the state would enjoy the power to control and use the means of production and the products, so that the realization of the right to own the means of production would be ensured. The state's power to control and use the means of production would be

reflected in the fact that it had the power to lease the means of production to the cooperatives and also had the power to take back the leased means of production when necessary. Therefore, the ownership right had to be reflected in some definite power to control and use the means of production. In order that the right of ownership of the means of production could be realized, the state would also possess the power to distribute the products, an example of which being the power to collect from the cooperatives land rent, rent for the means of production, and so on. Moreover, only if the state enjoyed some definite power of control, utilization and distribution could the overall interests of society be safeguarded, as according to Engels, through the exercise of the state's right of ownership of the means of production. 3) The separation of the power to control and use the means of production from the right to own them would not alter the nature of ownership of the means of production. In "Das Kapital," in discussing capitalist land ownership, Marx said that the separation of the right to own land from the power to control and use land was a basic characteristic of capitalist land ownership. However, this separation did not determine the capitalist nature of land ownership. Under the capitalist mode of production, landowners could either undertake operation on their land or completely dissociate themselves from such operation. However, whether they undertook such operation or not did not affect the capitalist relation of exploitation or the nature of capitalist land ownership.

II.

Although the model of decentralization of state ownership put forth by Marx and Engels was mainly geared to the transition period, this does not imply that this model can only exist in the transition period. Engels said: "'The working people' will become the collective owners of all houses, factories, and work tools. The completely gratuitous handing over of these houses, factories, and so on to the individuals and cooperatives for their use may be impossible, at least during the transition period.... Therefore, in any case, the actual possession of all work tools by the working people will not preclude the continued practice of leasing and renting." (Footnote 7) ("Selected Works of Marx and Engels: On Housing," Vol 2, pp 544-545) Here Engels clearly said that the model of decentralization of state ownership was applicable to the transition period, and by using the expression "at least" he implied that the model may be applicable to socialist society.

The practice of socialism in the contemporary era has proved not only that is the model of decentralization of state ownership applicable to socialist society, but that the state's right of ownership can also be appropriately separated from the enterprise's power of operation. In our country, over many years in the past, the model of a high segree of centralization of state ownership has been practiced, a rational division of power between state and enterprise has not been effected, though this is necessary, and the enterprises have enjoyed neither the economic status of being relatively independent units nor decisionmaking powers over operation and management; consequently, the enterprises have "eaten from the same big pot" provided by the state and the development of social productive forces has been gravely impeded. Now, in order that the enterprises' vitality can be increased and the attainment of national macroeconomic equilibrium can be ensured, a rational division of power between

state and enterprise must be effected according to necessity, economic relations between state and enterprise must be correctly handled, and the status of the enterprise as a relatively independent economic entity must be established. This is a basic point concerning the reform of our country's economic structure.

The reform of our country's economic structure is a great practice of upholding and developing, under socialist conditions, the Marxist model of decentralization of state ownership. This is mainly reflected in the following two things:

First, in accordance with Engel's ideas, we have handed over the power to control and use the means of production through leasing. However, in this period of socialism, we have not fully applied, without any modification, the leasing method put forth at that time by Engels for use in the transition period. The basic characteristics of socialism differ from those of the transition period. In socialist society, the large and medium-sized state enterprises, by virtue of the higher degree of socialization they attain, can influence the major proportional relations of social production, and their products are important to the national economy and the people's livelihood. Therefore, these enterprises must comply with centralized state planning, so that disruptions of the major proportional relations of social production can be avoided. However, in the case of small state enterprises, the level of socialization of production is low and production is characterized by the local nature of production, flexibility, small output, great product variety, and so on; thus, control through state planning is both unnecessary and impracticable. Therefore, the state can lease the small state enterprises to the collective or to individuals for operation; taxes must be levied, a charge must be made for the use of capital funds, and the enterprises must assume sole responsibility for profits and losses; the method of leasing is only applicable to small state enterprises. Moreover, during the term of a lease, the lessees can control and use the state-owned means of production by themselves. Because the socialist economy is a planned economy, the state must also manage the leased enterprises through guidance plans. This is also a characteristic that distinguishes the method of leasing under socialism from the method of leasing during the transition period.

Second, many varied ways by which the state hands over the power to control and use the means of production have been put forth, so that the Marxist model of decentralization of state ownership has been greatly augmented and developed.

The handing over of enterprises, under contract, by the state to the collective or to individuals for them to operate is a new way in which the state hands over the power to control and use the means of production. In contracting, the state and the party that will undertake operation under contract sign a contract which stipulates the responsibilities, powers, and interests of both parties; once a contract has been signed, the party undertaking contractual operation will carry out operation independently and assume sole responsibility for profits and losses under the guidance of state planning.

Some of the large and medium-sized state enterprises are the key enterprises in our national economy. They must be run according to state plans. However,

they must also be correspondingly given some powers to carry out independent operation within certain limits, so that they can become relatively independent economic entities and their vitality can increase. Increasing the enterprises' decisionmaking power means that within certain limits, the state assigns power over the control and use of the means of production, as well as corresponding power over the control and use of products, to the state-owned enterprises; division of power between the state and the enterprises is achieved through reform of the distribution relations. When the state hands over certain power over the control and use of the means of production to the enterprises, this implies a contraction of the state's power, and a growth of the enterprises' power, over the control and use of the means of production. Within the scope in which the enterprises exercise their power of control and use, the state in some sense loses its power of control and use. Correspondingly, the scope of directive state planning must diminish, and the scope of guidance planning must expand. The extent to which the scope of directive state planning diminishes must equal the extent to which the decisionmaking powers of the state-owned enterprises increase. If all the activities of the enterprises are arranged through directive state planning, the enterprises will not have any decision-making power. Therefore, abolishing directive planning within the scope in which the enterprises exercise the power of control and use is a basic requirement for the institution of the decentralization model.

To sum up, in the reform of our country's economic structure, the modification of the model of centralization of state ownership, and the institution of a model of decentralization of state ownership, whereby the state enjoys owernship and many varied forms of operation are adopted, make socialist state ownership in the initial stage of socialism more concrete and perfect, rather than serving to negate socialist state ownership. The institution of the decentralization model will certainly enormously mobilize the enthusiasm of the state, the enterprise, and the individual, thus liberating the social productive forces.

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NATIONAL POLICY AND ISSUES

PRC JOURNAL DISCUSSES SOCIALIST JOINT STOCK COMPANIES

HK130955 Beijing JINGJI YANJIU in Chinese No 12, 20 Dec 84 pp 33-36, 40

[Article by Yan Simao [0917 2448 5399] of the Political Education Department of the Zhejiang Teacher Training College: "On Socialist Joint Stock Companies"--written in June 1984]

[Text] In recent years, enterprises in the form of joint stock companies have appeared in many localities in our country. Though still in an embryonic stage of development, this new form of economic organization has already shown great vitality. This article will present some tentative views on the nature and characteristics of this economic form and on the inevitability of its birth and development.

The Inevitability of the Birth of Socialist Joint Stock Companies

The joint stock company, being a form of economic combine, is established through the issuing of shares to raise capital funds. It differs from ordinary administrative companies and from loosely integrated forms of economic combines. The joint stock companies already established in various localities in our country and some other enterprises similar to joint stock companies can be roughly divided into the following categories: first, joint stock enterprises whose capital funds are contributed by individuals, like the Zhongyuan Joint Stock Company Limited and the Yamei Joint Stock Shop in the city of Zhengzhou in Henan; second, joint stock companies whose capital funds are contributed by people originally operating industrial or commercial undertakings, like the Shanghai Aiguo Jianshe Company; third, joint stock companies jointly financed by domestic capital and foreign capital, fourth, some integrated agricultural-industrial-commercial enterprises in the form of joint stock companies; fifth, joint stock companies formed in some cases of combination of enterprises under ownerhsip by the whole people, such as the Huzhou paper pulp factory, which is operated on a joint stock basis by the paper-making industry of Shanghai and Wuxing County in Zhejiang; and sixth, state enterprises which issue shares on a small scale to their staff members and workers, like the Liaoning heavy machinery factory. Despite differences in their specific conditions, all these enterprises are characterized by the raising of capital through the issuing of shares and by joint operation, and can thus be classified as economic combines in the form of joint stock companies.

The birth of this economic form is objectively inevitable.

First, in the present stage, commodity and money relations still exist in our country. The importance of these relations is growing, not diminishing. Agriculture has begun to develop from self-sufficient or semi-self-sufficient production toward specialized and large-scale production of commodities. There are now over 25 million households doing specialized jobs, accounting for over 13 percent of the total number of peasant households in our country; they have achieved a commodity rate of 70 percent. In industry, means of production have formally become commodities and are circulated as such. With the development of the circulation of commodities, the scale and speed of circulation of money has also increased. All this has created a most extensive basis and most general precondition for the birth of joint stock companies, because these companies are formed on the basis of pooling of capital funds.

Second, joint stock companies are a product of a high degree of development of credit facilities. Therefore, the existence of credit facilities also amounts to an essential precondition for the birth of joint stock companies. There is no exception to this rule at the present stage of socialist society. Also, between various sectors and between various enterprises in the socialist economy, the movement of funds is also not balanced; some sectors and enterprises have surplus capital funds which are temporarily lying idle, while others lack capital funds. How can surpluses and shortfalls be regulated? One method is to use bank loans. However, lending money for use as capital funds is subject to limitations of time and interest; but an enterprise must have its own funds, which cannot be made available through bank loans. Thus, setting up joint stock enterprises has become a feasible method for an enterprise to raise its own funds.

Third, aside from the general conditions mentioned above, there is also a specific condition leading to the birth of joint stock companies in our country, namely, the existence of a multilevel ownership structure. In our country, because of the imbalance in the development of the productive forces, not only are there different forms of ownership system, such as ownership by the whole people, collective ownership, and individual ownership, but each ownership system incorporates many different levels of ownership; for example, within the system of ownership by the whole people, there are enterprises at various levels; some enterprises are directly under the central authorities, some are under provincial or municipal authorities, some are under prefectural or county authorities, and so on; moreover, each enterprise is a relatively independent producer of commodities. This multileveled economic structure, with public ownership as its basis, results in differences in economic interests. Under this condition, the problem of imbalance and rationality in the distribution of capital funds cannot be solved by gratuitous fiscal allocation of funds. Practice since the founding of the PRC has proved that the gratuitous allocation of funds and labor is not only harmful to the system of collective ownership, but is also impracticable for enterprises under ownership by the whole people. This problem of "eating from the same big pot" in fund allocation has helped lead to poor economic results. However, if capital is raised by setting up joint stock companies, both changes in the ownership of capital funds and harmful effects of gratutious allocation can be avoided,

while small and scattered amounts of idle funds can also be converted into huge sums of pooled and moving funds.

Fourth, the development of socialized large-scale production is an important reason for the birth of joint stock companies. The development of cooperation between specialized units and the application of new technology and equipment necessarily help increase the organic portion of funds and the scale of production, so that the minimum amount of capital funds necessary for establishing and operating an enterprise also correspondingly increases. Very often, an individual enterprise by itself will find it too difficult to provide the huge amount of investment funds necessary for establishing and operating a large enterprise, but the funds needed cannot be made available through gratuitous allocation out of the state's fiscal funds, so that the raising of social funds through the setting up of joint stock companies emerges as a workable method.

Advantages of Enterprises in the Form of Joint Stock Companies

Joint stock companies as a form of economic organization have the following advantages:

1. They facilitate the pooling of funds and help speed up modernization construction. In our country's modernization, a lack of funds does exist, but on the other hand, funds are very seriously scattered; this is a contradiction. With the increase in unbudgeted capital construction funds raised by various localities on their own, with the drastic increase in the income earned by peasant households doing specialized jobs, and with the increases in idle funds in society, duplicate construction and the indiscriminate establishment of production units will appear in the absence of any control. This means that with the progress of socialist construction, we have already encountered the problem of the pooling of funds. How can we solve this problem? We must naturally continue to pool funds through fiscal channels, but this method has its limitations, because it does not provide for the pooling and distribution of unbudgeted funds. In capitalist countries, funds are pooled through competition and credit facilities. We must not use the method of competition and takeovers, but we can use the method of credit facilities. In our country, the level of development of productive forces is low; out of more than 300,000 industrial enterprises in our country, there are only several thousand large or medium-sized enterprises, while the majority are small ones. These small enterprises are marked by backwardness in production technology, a low degree of socialization, decentralization, duplicate production, and poor economic results. If they are combined into joint stock companies and then gradually modernized, our social productive forces will be considerably strengthened.

2. Joint stock companies are advantageous to the modernization of management. These comapnies are formed on the basis of socialized large-scale production. This form of economic organization will be advantageous if, in accordance with the requirement for socialized large-scale production, we want to undertake reforms of the mode of operation, institute economic responsibility systems, do a good job of scientific division of labor and specialized production, and achieve modernization of management. Lenin said: "Only those who know that we cannot create or practice socialism without learning from the organizers of trusts deserve to be called communists, because socialism is not a utopia;

socialism actually requires that the vanguard of the Proletariat, having seized political power, should master and use things created by trusts." (Footnote 1) ("Selected Works of Lenin: On 'Leftist' Naivety and the Class Character of the Petite Bourgeoisie," Vol 3, p 555)

3. Joint stock companies are advantageous to raising productivity. The combination of many scattered small enterprises into joint stock companies helps them to develop their good points, circumvent their shortcomings, make comprehensive use of the superiority of various parties concerned, and tap potentials. Thus, various production factors, like factory buildings, equipment, sites, raw and semifinished materials, labor, technology, funds, management experience, and so on, can be combined in an optimum way, resources can be fully utilized, and the composition of products can be rationally readjusted, so that new production capacity can be built up and the greatest economic results can be achieved with the minimum consumption of labor. This is one effective way of economizing on the use of labor and raising productivity.

4. Joint stock companies are advantageous to increasing the output of products in short supply, developing energy resources, and building transportation and communications facilities. Through the forming of joint stock companies, a large amount of idle funds in society remaining outside fiscal channels can be pooled, large amounts of funds can be used for expanded reproduction for developing products in short supply, energy resources, and transportation and communications facilities, and the achievement of the four modernizations can be promoted.

The Nature of Socialist Joint Stock Companies

There are different views concerning the nature of socialist joint stock companies. Some comrades will invariably link joint stock companies to capitalism upon the mention of such companies. This view is simplistic, one-sided, and unrealistic. They do not know that there are two categories of joint stock companies. In the first category are capitalist joint stock companies. They represent a form of organization of social capital. Because they are based on capitalist private ownership, they exist within the scope of capitalist production relations. Aside from these companies, however, there are socialist joint stock companies of a different nature. They are based on public ownership of the means of production. In the case of these companies, "property will no longer be private property owned by separate producers, but will be the property of producers who have become united." (Footnote 2) (Marx: "Das Kapital," Vol 3, p 495) The joint stock companies set up in various localities in our country are of this nature.

First, regarding the question of production relations, the overwhelming majority of the existing joint stock enterprises in our country are based on public ownership. Public ownership is a highly prominent characteristic for those enterprises operated on a joint stock basis by various units under ownership by the whole people, for those enterprises operated on a joint stock basis by collective units, and for those joint stock enterprises jointly operated by units under ownership by the whole people and collective units. China's shares in enterprises jointly operated by Chinese capital and foreign capital also embody socialist public ownership. Regarding joint stock enterprises established,

they do not represent a simple summation of individual ownership rights, but actually amount to a type of cooperative enterprise. As to the case of state enterprises which issue small quantities of shares to be purchased by staff members and workers of the units or localities concerned, the public-ownership nature of the enterprises will not be thereby altered, because the shares held by the individuals constitute a very small percentage of all the capital funds of the enterprises and because the dividend rate is only slightly higher than the interest rate on bank deposits.

Second, socialist joint stock companies also differ from capitalist joint stock companies in the nature of their activities. The activities of capitalist joint stock companies often involve speculation and risk-taking, because they are governed by the law of surplus value and laws of competition. "Because here property exists in the form of shares, its movement and transfer become purely a result of gambling in the stock exchange." (Footnote 3) (Marx: "Das Kapital," Vol 3, p 497) Moreover, what people risk is social property, not their own personal property. Although the shares of socialist joint stock companies are, similarly, certificates of property ownership, their movement and transfer must be governed by the basic economic law of socialism and the regulation of state policies and decrees; speculative activities such as buying long and selling short are illegal and will be rigorously prohibited; thus, the operation of joint stock companies will certainly proceed on a normal track.

Third, judged from the status of the workers in the enterprises also, socialist joint stock companies differ completely from capitalist joint stock companies. The latter are controlled by an extremely small minority of big shareholders, who not only control and use other people's property but also control other people's right to work, so that workers are divorced from the right of owning the means of production and are exploited and enslaved. However, in socialist joint stock companies, the means of production are jointly controlled and used by workers who have become united. This guarantees the workers' role as masters of the enterprises. A question arises: if someone holds a controlling portion of the shares of an enterprise and hence controls it, will the enterprise thus change in nature? I think this worry is not completely unfounded. Special attention must be paid to this possibility in the case of some small enterprises. However, we need not be afraid. The acquisition of control of an enterprise by some private individuals can be prevented if the proportion of an individual's shares in the total capital funds is restricted, if candidates for managers are carefully selected, and if the supervisory role of the enterprise party organizations and of the congress of staff members and workers is brought into play.

Several Specific Questions

Currently, the joint stock companies established in various localities of our country are merely in an embryonic and imperfect form. They have to undertake exploration as they advance in practice. A series of questions needs to be promptly resolved.

First, there is the question of conditions for the setting up of joint stock companies. There are at least two necessary conditions: first, their estab-

lishment must be economically rational; factors like scale, technological conditions, resources, product pattern, market, competitive ability, and so on must be considered. A company, once established, must be able to achieve a greater output and better economic results. If some loosely integrated bodies, which by their nature are only good for cooperation in some links of supply, production, and marketing, are unnaturally upgraded into economically unified joint stock companies, as with the cutting of the feet to fit the shoes, the results will not be good. Second, subjectively, good leadership forces, a good management standard, and so on are necessary; regarding the question of policies, due consideration must be given to those units which buy shares for investment, and the capitalization of land, fixed assets, and other resources in the value of shares must be as rational as possible; the capital and property of collective units should not be indiscriminately transferred, nor should state property be seized.

Second, there is the question of the issuing of shares. Shares of socialist joint stock companies are issued by banks on behalf of the companies and are purchased by financial bodies, enterprises, institutions, and individuals. In this capital-raising activity, the banks play the role of the hub; they not only act as agents for the issuing of shares, but can undertake long-term investment in the enterprises concerned by buying shares themselves. This involves a longer period of investment than the provision of medium-term and short-term loans for them to buy equipment. Moreover, organizing the circulation of shares by providing discounting facilities can also be considered. These activities will be advantageous to the banks' supervision of the enterprises. In a joint stock company, those shares which are publicly owned by the banks and other units should generally constitute an overshelming majority, so that the state and the collective are certain of having a controlling portion of shares; and this is particularly necessary for large joint stock enterprises. Similarly, for small joint stock enterprises financed by capital raised from individuals, no single individual must be allowed to possess a majority of the enterprise's shares. The method of "attaching shares to work" is most appropriate for these enterprises, because this will make the staff members and workers develop greater concern for production out of consideration of material interests.

In capitalist countries, shares can be circulated. They are openly quoted for buying and selling on the stock exchanges. This kind of buying and selling has the dual nature of investment and speculation. Should the circulation of shares be permitted in our country? How can shares be circulated? Should stock exchanges be set up? These questions must be specifically studied. However, one thing is certain: ours is a socialist country and speculation in shares must never be allowed. Nevertheless, we must not prohibit the transfer of shares, like giving up eating for fear of choking. In this connection, an important task is to explore, through experimentation, the laws and characteristics of the movement of shares under socialist conditions, and to formulate practicable and effective measures to guide the enterprises so that they will be compatible with the need for the "four modernizations."

Third, there is the question of distribution. The distribution of profits is a crucial question related to the interests of various parties concerned.

Currently, the two main methods of distribution adopted by joint stock enterprises in our country are the payment of dividends and the payment of bonuses. Dividends are paid at a fixed rate, whereas bonuses are paid on a per share basis out of net profits, less taxes, accumulation funds, and welfare funds for staff members and workers. Both methods can be adopted. Which one is used depends on specific circumstances.

Here, a theoretical question must be studied, namely, the nature of dividends or bonuses paid on privately owned shares. Do they represent exploitation? I think this question must be specifically examined in relation to some specific production relations. It has been mentioned before that in our country joint stock enterprises are socialist economic combines; capital funds represent social property commonly controlled and used by workers who have become united, and not means fo exploitation or capital proper. Therefore, dividends and bonuses should be a kind of material incentive or remuneration in return for the contribution of funds to support an enterprise. They resemble interest on bank deposits or the dividends paid by supply and marketing cooperatives. They embody the relation of cooperation and mutual assistance between socialist workers, instead of a relation of exploitation of man by man. Of course, distribution according to work done is the basic form of socialist distribution, while the source of dividends is surplus product value. Under distribution according to work done, remuneration varies with the quantity and quality of work done; however, dividends are paid according to the value of shares held. Therefore, the two things must not be confused.

Are there quantitative limits governing the payment of dividends under socialist conditions? There should be such limits, which not only should be reflected in the dividend rate, but, what is more important, should be reflected in the amount of dividends. If the value of shares is not limited and the amount of dividends is too great, so that dividends and bonuses take up an overly large proportion of profits, will this quantitative change cause a qualitative change? Will it become a thing of a different nature, namely, exploitation income? I think this possibility cannot be ruled out. In particular, the probability that this will happen will be greater if shareholders do not take part in work. Therefore, there must be restrictions on the amount of dividends and bonuses. A possible method is to levy a progressive dividends tax. This is another question which must be specifically studied.

Fourth, there is the question of management. A joint stock company is an economic entity carrying out independent accounting and operation and enjoying all the rights of an economic legal person. Regarding internal management, they can practice the system whereby managers assume responsibility under the leadership of the board of directors. People whose ideological standard and style of work are good, who are professionally proficient, and who have good organizing ability, courage and insight, can be selected or recruited through advertising to be managers in charge of the company's business. A management group which includes engineers, accountants, and representatives of staff members and workers can be formed. An economic responsibility system whereby duties and responsibilities are clearly defined must be practiced. Economic results must be vigorously enhanced and development of production must be promoted.

The state should strengthen macroleadership over the joint stock companies but should not directly interfere with their actual daily operation. Aside from directly assigning directive targets for producing certain major products which are important to the national economy and the people's livelihood, the state should generally guide the operation and activities of the enterprises through economic levers such as pricing, taxation, credits, subsidies, penalties, and so on, so that they can be compatible with the requirements of state plans. Moreover, joint stock company laws must be enacted, which set forth clear regulations concerning matters such as examination, approval, and registration in connection with the establishment of companies, the rights and duties of enterprises, the issuing and circulation of shares, the handling of companies' debts, cases of bankruptcy, and so on; thus, the companies' legitimate rights and the investors' normal interests can be safeguarded, illegal acts such as speculation in shares can be prevented and banned, and the healthy development of the companies can be promoted.

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PROVINCIAL AFFAIRS

HUNAN FORUM DISCUSSES ECONOMIC DEVELOPMENT IN XIANGXI

HK160614 Changsha Hunan Provincial Service in Mandarin 0000 GMT 15 Feb 85

[Text] According to HUNAN RIBAO, provincial organs yesterday held a forum in Changshaon supporting economic construction in Xiangxi.

At the forum, (Yang Zhengwu), secretary of the Xiangxi Tujia and Miao Autonomous Prefectural CPC Committee, made a report on economic construction in the autonomous prefecture.

The Xiangxi Autonomous Prefecture achieved relatively good results in economic construction in 1984. Compared with the previous year, its gross industrial and agricultural output value increased by 12.3 percent and income increased by 14.3 percent. However, the per capita industrial and agricultural outupt value and the peasants' per capita net income are still much lower than the national and provincial averages. The problems concerning housing, drinking water, clothes, and food for some people have not yet been resolved, and poverty and backwardness have not yet been thoroughly changed in Xiangxi.

At the forum, responsible comrades of the provincial planning commission, the provincial science and technology commission, and provincial communications, education, public health, water conservancy, bank and other units delivered speeches.

They expressed their desire to enthusiastically help and further support the autonomous prefecture in developing economic construction in financial resources, material resources, technology, human resources, and information. Some comrades also put forth valuable suggestions on economic development in Xiangxi and immediately resolved some specific problems.

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PROVINCIAL AFFAIRS

ZHEJIANG, SHANGHAI PROMOTE ECONOMIC COOPERATION

OW192200 Hangzhou ZHEJIANG RIBAO in Chinese 7 Feb 85 p 1

[Dispatch by Reporter Xiao Minjian]

[Excerpts] A delegation from the Shanghai municipal government, led by Mayor Wang Daohan, visited Zhejiang Province from 3 to 6 February. Responsible comrades of the Zhejiang Provincial CPC Committee and the Zhejiang provincial government, including Wang Fang, Chen Fawen, Wu Minda, Shen Zulun, Luo Dong, Shen Guifang, Li Dexin, Ma Jilian, and Li Debao, met with the guests from Shanghai. Secretary of the provincial CPC Committee Wang Fang said to Mayor Wang Daohan: Welcome to Zhejiang! Let us do more to strengthen our ties in the future. Mayor Wang Daohan said: Shanghai and Zhejiang have very close economic relations. From now on, we will make still great strides in cooperating with each other.

Responsible persons of the departments concerned in Zhejiang briefed the delegation from the Shanghai municipal government on the work done in Zhejiang to develop the economy, promote economic cooperation, and reform the economic structure. The delegation gave briefings on Shanghai's economic growth. During the talks, the two sides discussed economic cooperation projects in which both were interested and exchanged opinions extensively about making advances through joint efforts in the future.

While in Zhejiang, the Shanghai municipal government delegation toured Shaoxing and visited the Hangzhou No 2 Traditional Chinese Pharmaceutical Factory.

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PROVINCIAL AFFAIRS

YUNNAN ECONOMIC, TECHNOLOGICAL COOPERATION MEETING ENDS

HK140359 Kunming Yunnan Provincial Service in Mandarin 2300 GMT 12 Feb 85

[Excerpt] Responsible comrades from 128 counties in 17 prefectures, autonomous prefectures, and cities, and from relevant provincial units, as well as personnel of the economic and technological cooperation office recently held a discussion meeting in Kunming. They reached an initial agreement on developing 200 cooperative items within the province, and also put forth some items involving cooperation with other provinces and regions, and items of assistance geared to each other's needs.

In 1984 the province achieved marked results in economic and technological cooperation and mutual assistance geared to each other's needs. Contracts were signed last year on some 2,000 items of cooperation within the province and cooperation with other provinces and regions.

To sum up experiences and further create a new situation in economic and technological cooperation and assistance geared to each other's needs, the provincial people's government recently held the provincial meeting on economic and technological cooperation and mutual assistance geared to each other's needs in Kunming.

On the basis of carrying out last year's cooperative items as put forth by the Provincial People's Government, the meeting implemented the policy of further opening up to the outside world and enlivening the domestic economy and treated supporting town and township enterprises and economic development in minority nationality areas as a focal point. The meeting raised a demand of continuing to carry out 2,000 cooperative items this year. The province will, in line with the spirit of developing cooperation in nearby areas as convenient as possible, strengthen economic ties between departments in various forms and discuss economic and technological cooperation items.

CSO: 4006/401

PROVINCIAL AFFAIRS

ECONOMIC CONDITIONS IN SHANDONG STUDIED

Beijing JINGJI DIAOCHA [ECONOMIC SURVEY] in Chinese No 3, 1 Oct 83
pp 147-163

[Article by Guo Fuyou [0948 1318 2589], Liu Zhongquan [0491 1813 3123] Gong Zhifeng [1362 1807 1496] and Tan Xiaopei [6223 2556 0271]: "Economic Conditions of Shandong Province Surveyed"; editor in charge: Zheng Youyun [6774 1635 0061]]

[Text] In 30 years and more since the founding of the People's Republic, Shandong has achieved great success in economic construction, although the course it has taken had twists and turns and its experiences were both positive and negative. One very important point is that we must have a comprehensive and correct understanding of the provincial conditions so that our understanding of and guidance over economic work will conform to objective realities. Now, based on the relevant data and typical investigations, let us tentatively sum up and analyze Shandong's economic conditions.

I. Basic Conditions of Shandong's Economy

Shandong is located at the lower reaches of the Huang He, facing Huang Hai and Bo Hai. It consists of the peninsula and the hinterland portion, and measures more than 700 km from east to west and more than 400 km from north to south, with an area of 153,000 sq km, equivalent to 1.6 percent of the national territory. The province is divided into nine prefectures, four municipalities directly under the province, and 133 counties and municipalities (districts). There are 2,106 rural people's communes, 86,143 production brigades and 419,300 production teams. The total population of the province is 73.94 million, which ranks third in absolute number in the country after Sichuan and Henan, and second in density, after Jiangsu. In 1981, the gross industrial and agricultural output value of the province amounted to 47,604,000,000 yuan, the third highest in the country, and the per-capita income was 651 yuan, ranking 10th in the country. Viewed from its geographical location and natural conditions as well as its economic and technical foundations, conditions in Shandong are fairly good and the hidden resources are fairly abundant for national economic development. With these advantages, Shandong now occupies an important place in the country.

A. Fairly Superior Natural Conditions

Shandong lies in the warm-temperate zone with an average temperature of 11°C - 14°C. It has a frost-free period of 180 to 220 days, 2,290 to 2,896 hours of sunshine and a sunshine rate of 60 to 65 percent, which is below only that of North China and the northwest. It is one of those regions with rich solar resources in our country. Its average annual rainfall is 550 to 950 mm which is beneficial to crop farming and the growth of various types of trees.

The province has a land surface of 229.26 million mu, including 126.08 million mu, 55 percent, of plains, approximately half of which are alluvial plains of the Huang He. The land is flat with thick earth layers and rich deposits of calcium and potassium, and is suitable for agriculture, forestry and animal husbandry as well as mechanized production. The plains are mainly the northwest Lu plain, the Bohai plain, the Jiaolai plain and the Tailai plain. Hilly areas of 80.01 million mu account for 34.9 percent of its territory. The large mountains are Tai Shan, Lu Shan, Yi Shan, Meng Shan, Lao Shan, Culai Shan, Kunlunshan and Daze Shan. Lakes and rivers of 2.43 million mu cover 1.1 percent of territory. Among the rivers are the Grand Canal, the Yi He, the Shu He, the Tuhai He, the Majia He, the Xiaoqing He, the Dawen He, the Dagu He, the Wei He, and the Si He. Among the lakes are the Weishan Hu, the Dushan Hu, the Nanyang Hu, the Zhaoyang Hu and the Dongping Hu. Lowland of 20.74 million mu accounts for 9 percent of its territory. Of the total land surface, 47.1 percent, or 108.32 million mu, is farmland, and 9 percent, or 20.78 million mu, are forests. The planting of mulberry, fruits, tea and oak occupies 2.3 percent, or 5.21 million mu of land; saltfields occupy 0.3 percent or 650,000 mu; aquaculture, 0.8 percent, or 1.82 million mu; barren mountains and wasteland, 3 percent, or 6.8 million mu; and others, 37.5 percent, or 86.37 mu. The soil in the province can be classified into five major categories, namely, brown earth, red clay, ridal soil [chao tu 3390 0960], shaOjiang [4263 1203] black soil, and saline soil, in addition to a little rice soil. The present soil nutrient is generally of low organic contents with nitrogen deficiency, serious phosphate deficiency and partial potash deficiency. The disease of trace element deficiency is now slowly spreading.

Shandong has a coastline of more than 3,000 km, one-sixth of the national total. It is the third longest after those of Guangdong and Fujian. There are 296 large and small islands off the coast, and fairly good natural harbors with ideal conditions for building large ports. The coastal areas are good for developing marine production, salt production, sea transport and foreign trade. The beach areas (from the high-tide line down to a depth of 10 m under water) amount to 17 million mu including 3 million mu that is suitable for aquaculture. In the coastal sea area of 140,000 sq km, there are good fishing grounds in Laizhou Bay, Yanwei Shidao, Yushan and Haizhou. The quality of water along the coast is good and the temperature is suitable for breeding fish and shrimp. More than 200 types of fish and shrimp have migrated to this area; more than 70 types can be commonly seen and some 30 types are of economic value.

B. Fairly Large Varieties of Mineral Resources

As we understand, more than 132 types of mineral resources have been discovered in the country, 95 of them in Shandong. The deposits of 60 types have already been verified and many of them rank very high in the country. The coal deposit has been verified to be 15,133,000,000 tons, 2.35 percent of the total verified amount in thecountry. Although ranking 12th in the country, this deposit is fairly shallow and concentrated and therefore can be easily extracted. Besides, the coalfields are mostly spread out on both sides of the Jiao-Ji and Jin-Pu railways wtih good transportation facilities. Therefore, it is easy for the coal to be transported to the hinterland or to be exported. There are 15 coalfields whose deposits have been verified to be more than 100 million tons, and 7 of them have more than 1 billion tons each. Their deposits amount to 85 percent of the total deposit. The petroleum deposit has been verified to be more than 1.2 billion tons, 17 percent of the total national deposit.

Among the metallic minerals in Shandong are gold, silver, copper, aluminum, iron, lead and zonc. Gold and alumina are the two major items. The gold deposit here ranks first in thecountry, and alumina ranks fifth. There are also rich nonmetallic minerals. The deposit of diamonds has been verified to be 10.75 million carats and a reserve of 10,018,000 carats, 55.4 percent of the total national deposit, and ranks first in the country in both deposit and output. The graphite deposit is large in quantity and fine in quality. It can be easily extracted and 5,306 million tons have been verified, in addition to a reserve of 3,714,000 tons, 15 percent of the national deposit. It ranks fourth in the country. Prospecting has also forecast a fairly large deposit in Jiaodong Peninsula. The deposit of bentonite has been verified to be 38.06 million tons, 40 percent of thenational deposit; that od magnesite, 275 million tons, 10.1 percent of the national deposit; and that of barite, 9.98 million tons, 20 percent of the national deposit; these three items accounting for second place in the country. The deposit of gypsum has been verified to be 808 million tons, 12.8 percent of the national deposit, and ranking third in the country. In addition, there are refractory clay, quartz, natural sulphur, marble, talc, terra cariosa, pearlite, zeolite, limestonc, glass sand and so forth.

C. Fairly Rich Resources for Agricultural Products

Shandong produces abundant agricultural products which can be divided into five categories, namely, grain, cash crops, fruits, melons and vegetables, animal husbandry products and marine products. Among the grain crops are wheat, corn, gaoliang, millet, sweet potatoes, soybeans and paddy. In the past several years, grain crops took up about 80 percent of the total sown area of 150 million mu. Of the 120 million mu of grain crop area, wheat took up about 55 million mu, or 46 percent; corn, about 30 million, 25 percent; sweet potatoes, nearly 20 million mu, 16 percent; and soybeans, more than 10 million mu, 8 percent. The millet

of Jinxiang County (also called Jin millet) and the Mingshuixiang rice of Zhangqiu County (also called Quantou rice) are of national fame, since they were used as "tribute to emperors."

Among the cash crops are mainly cotton, peanuts, cured tobacco, hemp and beetroots. Shandong is one of the five major cotton-producing areas of the country. Most of the farmland, more than 40 million mu in area, in the northwest is suitable for cotton planting. The present cotton acreage in the province is about 15 million mu, according to a conservative estimate. It is also one of the main peanut-producing areas in the country. The huge tracts of sandy soil in Jiaodong and in the central southern areas of the province are suitable for peanuts whose acreage amounts to more than one quarter of the national acreage. It is about 10 million mu and ranks first in the country. The acreage of cured tobacco is some 1 million mu, and ranks seconds after Henan.

Conditions are also favorable for producing fruits, melons, vegetables and cocoons. It has a long history in the production of many varieties of fruits, both fresh and dried. There are about 90 different varieties of trees, either planted by people or growing wild, including more than 200 million fruit trees. The deciduous fruit trees of Shandong are mainly of eight types, namely, apple, pear, peach, grape, date, persimmon, walnut, and chestnut; there are also hawthorne, apricot and cherry. The apples of Yantai, pears of Laiyang, the dates with golden fibers of Leling, peaches of Feicheng, the delicious peach of Qingzhou, the mountain grapes of Daze, the hawthorne of Taiyi, the gengbing [5105 7399] of Caozhou, the ginkgo of Tancheng, the papaya of Heze, the pomegranate of Zaozhuang, and the large cherry of Yantai are special products well-known at home and abroad. The vegetables and melons are of more than 1,000 varieties, 60 or 70 of which are planted over large areas. Shandong is reputed as one of the three vegetable farms of the world. Among the well-known melons and vegetables are the Chinese cabbage of Jiaozhou, the scallion of Zhangqiu, the green turnips of Weixian, the ginger of Laiwu, the garlic of Cangshan and Jiaxiang, the water melons of Dezhou, the silver melon of Qingzhou, and the delicious water-melons of Changle. In the province, 4.3 million mu is planted to vegetables throughout the year. In each of the past several years, about 400 million jin of vegetables were transported out of the province to support other places. The amounts of cabbage and scallion transported out were the largest in the country. The cocoons produced here are mostly mulberry, tussah and castor cocoons. The province is one of the earliest cocoon-producing areas. At present, the output of mulberry cocoons ranks fourth, and that of fussah cocoons ranks third in the country.

In animal husbandry, the number of pigs raised here is the second largest in the country, second only to Sichuan. Among the large animals are cows, horses, donkeys and mules. Oxen, which account for more than 60 percent of all large animals, are mostly used as draught animals, with donkeys, accounting for about 21 percent, as the runner-up. Chickens account for about 85 percent of all domestic fowls, and most of the rest

are geese and ducks. There have been great developments in the raising of sheep, rabbits, martens and deers. The animals of fine breed in the province are the oxen of western Shandong, the donkeys of Dezhou, the pigs of Laiwu, the goats of Jining, the chickens of Shouguang and Langya, the ducks of Weishan and the geese of Wulong. More than 9 million mu of waste grassland can be used as herding areas in the province, and about 2 million mu is of fairly good quality. These areas are spread out in Huimin and Weifang prefectures along the coast, and are fairly good natural pastures.

Among the marine products, the more famous ones are abalone, kelp, oyster, prawns, dried shrimps and fish eggs as well as the carps, dao [knife] fish and turtles of the Huang He.

Forestry is still a weak link in Shandong. Although the forest cover has been increased from 1.9 percent in the early post-liberation period to the present 0.2 percent, it is still below the national standard of 12.7 percent. The timber reserve is only 28.35 million m^3, with a per-capita volume of 0.38 m^3, which is far below the national standard of nearly 10 m^3. In the last several years, 500 to 600 million m^3 of timber, about 44 percent of what was used in the province, were brought in from other places each year.

D. Fairly Abundant Manpower

According to statistics, up to the end of 1981, there were a total of 43.84 million able-bodied persons in the province, 59.3 percent of its total population; and 31.92 million laborers, 72.8 percent of the total number of able-bodied persons. Those engaged in agriculture account for 78.6 percent of the total labor force, and each of them has an average of 4.3 mu of farmland. There are 5.4 million workers, 7.3 percent of the provincial population, including 4.11 million in state-owned units and 1.29 million in collective units. Of the total number of workers, 65.4 percent are engaged in industrial and agricultural production, communications and transportation, and capital construction; 17 percent, in commerce, banking and public urban utilities; and 12.3 percent, in scientific, cultural, educational and public health undertakings. On the whole, the division of work in the composition of population is not well organized, and the potential of labor can be used to better advantage. Much can be done to develop labor-intensive trades in the cities and in economic diversification in the countryside.

The proportions of urban population and nonagricultural population in Shandong's total population is the lowest in the country. In the 30 years from 1949 to 1979, the proportion of urban population generally remained at 6.5 to 8.5 percent of the provincial population, and about 13 percent below the national average; and the proportion of nonagricultural population generally remained below 10 percent, which is lower than the national average of 16 percent in the same period. Because of the small proportions of urban and nonagricultural population, the number

of new additions to the work force and of the unemployed are relatively small. Such a population structure helps reduce the pressure on employment in the cities. In 1980, for example, when the country had to offer jobs to 13 million persons, which amounted to 1.3 percent of the total population, 10.1 percent of the urban population, and 8.3 percent of the nonagricultural population, Shandong needed to accommodate only 450,000 personw which formed only 0.6 percent of the total population, 8.5 percent of the urban population and 6.8 percetn of the nonagricultural population.

E. Fairly Good Prospects for Development of Tourism

Shandong has a long cultural history and quite many historic sites and scenic spots. The coastal cities of Qingdao, Yantai and Weihai are famous summer resorts with exquisite scenery and mild climate. They are also good locations for sanatoriums. Qufu, the former provincial capital, and Taishan are also attractions to Chinese and foreign tourists.

II. Shandong's Major Achievements in Economic Construction Since the Founding of the People's Republic

There have been great developments in Shandong's economic construction. By correcting past errors, setting right the guiding thought in economic work, and implementing the various policies formulated after the Third Plenum of the 11th CPC Central Committee, economic construction and other types of work have embarked on the road of healthy growth. A new spectacle of vigorous development has appeared. We may say that Shandong has already built a fairly solid material and technical foundation for the four modernizations. (See Table 1 and Table 2)

A. Agriculture. The conditions of agricultural production in Shandong have changed a great deal in the past 30 and more years, and agricultural output has increased by a wide margin. There have also been large increases in the irrigated acreage of farmland, in the total motive power of farm machinery, in the area of mechanized plowing, and in the application of chemical fertilizers and the use of electricity in the countryside. (See Table 3) The total value of fixed assets of the rural collective economy in the province now amounts to more than 13 billion yuan. In 1981, the gross value of agricultural output amounted to 14,024,000,000 yuan, a 5-fold increase over the 2,308,000,000 yuan of 1949, and 23.6 percent over the 11,345,000,000 yuan of 1978 with an average progressive increase of 7.3 percent each year. In 1981, the total income of all the rural people's communes, production brigades and production teams reached 15,523,000,000 yuan, averaging 237 yuan per person.

In 1981, the grain output of the province was 46.25 billion jin, a 1.65-fold increase, or an increase of 28.85 billion jin over the 17.4 billion jin in 1949, with an average annual increase of 901 million jin, a progressive increase of 3 percent. The summer grain output of the same year totaled 17.46 billion jin, an increase of 12.81 billion jin, a

2.75-fold increase, over the 4.65 billion jin of 1949; the autumn grain output was 28.79 billion jin, an increase of 16.04 billion jin, a 1.26-fold increase, over the 12.75 billion jin output of 1949. The average per-mu grain output in 1981 was 654 jin, an increase of 497 jin over the 175 jin of 1949, at an average progressive rate of 4.6 percent per year. After the founding of the People's Republic, 1960 was the year with the lowest grain output of 16.59 billion jin in the province, and 1979 was the year with the highest output of 49.44 billion jin. The average grain output per able-bodied person was 1,172.5 jin in 1949 and 1,710 jin in 1981, a 45.8 percent increase. The average amount of grain for each person was 383 jin in 1949 and 625 jin in 1981, a 63.2 percent increase.

Cash crops. In 1981, the total cotton output of the province was 13.5 million dan which raised its rank from third to the first in the country. It was 11.88 million dan more than the 1.62 million dan in 1949 after a 7.3-fold increase, with an average annual increase of 371,000 dan at a progressive rate of 6.9 percent. The per-mu cotton output in the same year was 96 jin, an increase of 72 jin over the 24 jin of 1949, a three-fold increase. The year with the lowest cotton output of 613,600 dan was 1961. In 1980, it was more than 10 million dan and reached the highest level in 1981. From 1952 to 1981, the amount delivered to supply other places totaled 21.79 million dan. Shandong's peanut output was more than one-third of the national output, and the highest in the country. In 1981, the total output in the province was 27.79 million dan, an increase of 16,973,000 dan over the 10,817,000 dan of 1949 after a 1.57-fold increase and an average annual increase of 530,000 dan at a progressive rate of 2.9 percent. In 1981, the average per-mu output was 277 jin, an increase of 114 jin over the 163 jin of 1949 at the rate of 70 percent. After the founding of the People's Republic, 1960 was the year with the lowest peanut output in the province--only 4,209,000 dan. The output was highest in 1980 at 28,085,000 dan. The amount of peanuts procured and transported out was in the first place that year. From 1952 to 1981, the net amount of edible oil transported out of the province was 4.38 billion jin. The exported amount of peanuts accounted for about 90 percent of the total national export volume. The province produced 22 percent of all the cured tobacco in the country, and the output was the second highest in the country after Henan. In 1981, the total output of the province was 4,161,000 dan, an increase of 426,000 dan over the 3,735,000 dan in 1949 after an 8.8-fold increase. The average annual increase was 117,000 dan at a progressive rate of 7.4 percent. In 1981, the average per-mu output was 317 jin, an increase of 163 jin over the 154 jin of 1949 after a 1.06-fold increase. After the founding of the People's Republic, the province's lowest cured tobacco output was in1949, and the highest output was in 1981. (See Table 4)

Forestry, animal husbandry and fishery. In 1981, the area of forests was increased from 4.5 million mu in the initial period of the People's Republic to 20.78 million mu, a 3.62-fold increase, and the per-capita area was increased from 0.069 mu to 0.28 mu. The number of trees

planted by the side of houses, villages, roads and rivers increased from 150 million to 1.65 billion, a 10-fold increase. A forest belt for the farmland was formed from scratch, and the area planted to trees has increased to 35.26 million mu. Theintercropping of tung trees with grain has developed to 4.71 million my. The province's fruit output amounts to one-quarter of the total national output, and is the highest in the country. The output of 1981, compared with that of 1949, has increased from 500 million to 3.57 billion jin, a 6.1-fold increase. The province's forestry output value has also increased from 14 million yuan to 160 million yuan, a 10-fold increase. Animal husbandry has been fairly greatly developed in the province, except for large animals. In 1981, compared with 1949, the number of large animals decreased from 3.9 million head to 3.51 million, a reduction of 390,000. The number of pigs increased from 2.71 million to 19.01 million, a 6-fold increase. (From 1953 to 1981, 23.46 million head were delivered to supply other places.) The number of sheep was increased from 1.4 million to 10.25 million, a 6.3-fold increase; and the number of domestic fowls was increased from 31 million to 80.74 million, a 1.6-fold increase. Rabbit raising has developed rapidly since 1957. In 1981, the number of rabbits in the province reached 28.32 billion, a 9-fold increase over some 2.7 million in 1957. There are now 137,000 bee hives, nearly double the number of 1956. In 1981, the output value of animal husbandry in the province was 1.63 billion yuan, and the average output value per person was 22 yuan. Compared with the total output value of 191 million yuan and the average output value per person of 4.2 yuan, the increase was 5-fold and 2.7-fold, respectively. In fishery, the province had more than 220 state-run enterprises and public agencies engaged in marine production with more than 40,000 workers in 1981. There were also 23 communes, 349 production brigades and more than 1,600 production teams with fishery as their main occupation. The number of laborers in fishery was increased from some 80,000 in 1949 to 195,000. There were only 58 motorized fishing boats in the initial period of the People's Republic. Now, the number has been increased to 10,900 totaling more than 420,000 horsepower. The province also has 31 cold storages for marine products with a total capacity of 37,800 tons. In marine aquaculture, the 11 sea farms run by the state and 118 others run by the communes and production brigades had a personnel of 26,000 and a breeding area of 286,000 mu. For breeding freshwater products, there are now 35 fishing grounds run by the state with a total area of 1.53 million mu; and 379 others run by communes and production brigades with a personnel of more than 4,300. The province has established more than 1,400 commercial freshwater fishing bases totaling 86,900 mu. The total output of marine products in the province amounts to about 14 percent of the total national output, and ranks third after Zhejiang and Guangdong in the country. In 1981, the total output of marine products in the province was 589,900 tons, a 5-fold increase over the 98,600 tons of 1949 at an average progressive rate of 5.8 percent each year. The catch of deep-sea fishing was 407,000 tons, and the output of sea and freshwater breeding was 151,000 tons. At present, the outputs of prawns and kelp account for about 40 percent and 50 percent, respectively, of the total national outputs, both being the highest in the country. A total of 1.02 million tons of marine products were delivered to supply other places

from 1952 to 1981, and about 20,000 tons were exported in recent years. In 1981, the output value of sideline products reached 1.99 billion yuan, a 5.07-fold increase over the 230 million yuan of 1949. Revenues from economic diversification in the provin;e amounted to 12.85 billion yuan, averaging 196.7 yuan per person in 1981. This included 7.24 billion yuan, 56.4 percent of the amount, for collectives, and 5.61 billion yuan, the remaining 43.6 percent, for the commune mem-er families. (See Table 5)

B. Industry. After more than 30 years of hard struggle, the province has initially established a fairly complete industrial system with fairly adequate supportive facilities. Before the liberation, Shandong had a very weak foundation for industry, especially heavy industry. There was not a single iron and steel plant, or, as people said, "not even an inch of metal wire on hand." Now, 6 medium-size iron and steel plants in Laiwu, Jinan and Qingdao, and 10 small steel and iron foundries in other places have been completed. They produce 1,184,000 tons of pig iron, 866,000 tons of steel, 739,000 tons of rolled steel, and 2.27 million tons of iron ores. Whatever foundation for coal production Shandong formerly had was destroyed on the eve of liberation. Then after more than 30 years of construction, it has completely built 66 pairs of shafts. Their productive capacity has reached 30.43 million tons with an actual annual output of about 40 million tons [as published], which ranks fourth in the country after Shanxi, Hebei and Henan. Its coal output in 1981 was 41.3 million tons, a 23-fold increase over the 1,691,000 tons of 1949. In the past several years, an average of more than 5 million tons of dressed coal of fine quality were delivered to support other places each year. Petroleum production started from scratch. After Daqing oilfield, Shengli oilfield is the second largest in the country and it produced 16.11 million tons of crude oil in 1981. The production of chemical fertilizers also started from scratch. The province has now four large and medium-size chemical fertilizer plants, and most counties have their own small ones. The chemical fertilizer output in 1981 (on 100 percent basis) was 1,054,000 tons. In the machinery industry, there were hardly any products of practical use before liberation. Most of them were simple and crude implements for cotton ginning or noodlemaking. Now, it is capable of the serial production of motor vehicles, tractors, diesel locomotives, high-precision machine tools, large forging equipment, mining machinery, complete sets of equipment for the chemical industry, and internal combustion engines of many models. In 1981, Shandong produced 10,094 motor vehicles, 30,121 large and small tractors, internal combustion engines of 2,394,600 hp, 5,710 sets of metal cutters, and 2,615 sets of forging equipment. Electric power industry in the province has also developed very rapidly. In 1949, there were only 13 power-generating plants in the province with a generating capacity of 210 million kWh. In 1981, thenumber of power-generating plants had increased to 111 with a capacity of 19.45 billion kWh, a 91.6-fold increase, which placed the province fourth after Liaoning, Shanghai and Hebei.

The development of light industry in the province has been spectacular. The outputs of textile, papermaking, cigarette and brewing industries have increased by several times or several tens of times. In 1981, compared with 1949, the output of cotton yarn (mixed amount) was increased from 158,000 to 1,393,000 pieces, a 7.8-fold increase; cotton fabrics, from 230 million meters to 1.17 billion meters, a 4-fold increase; printed and dyed cloths, from 60,000 meters to 659,000 meters, a 10-fold increase; machine-made paper, from 3,300 tons to 351,700 tons, a 105-fold increase and the second highest after Liaoning; cigarettes from 67,600 cases to 1,975,000 cases, a 28-fold increase, and the second highest in thecountry after Henan; and liquor, from 9,800 tons to 439,000 tons, a 43.8-fold increase. Bicycles, wrist watches, sewing machines, which it could not produce in the past and which are closely related to people's standard of living, are now produced on a large scale. In1981, the province produced more than 1.6 million bicycles, 2,216,000 wrist watches, and 749,000 sewing machines. Many new industrial branches, such as thechemical fiber industry, plastic industry and electronic industry, have been established. In 1981, the province produced 8,127 tons of chemical fibers, 73,178 tons of plasticwares, 2.1 million radios and 130,000 TV sets. There are many brand-name products in Shandong, and some of them, long well-known, are selling well on the domestic and foreign markets. Among them are the brandy which has won a gold medal, Qingdao beer, Yantai port wine, A-jiao [9093 5237], the shuttle-lace of Fenglai, the shi-lin-lan [1102 2651 5695] plain cooth of Weifang, the Big Dipper Brand wooden clocks, the color porcelain of Kunlun, the paclocks of Three Rings Brand, the computer paper and tissue paper of Jinan, the silk inlaid with silver wires of Weifang, the glasswares of Boshan, and so forth. (See Table 6)

Before liberation, Shandong's industry was mainly concentrated in several cities, such as Qingdao and Jinan. Now industrial enterprises of various types are all over the province. In 1981, the number of large, small and medium-size industrial enterprises above the commune level has been increased to 19,126 including 3,623 state-owned enterprises, 15,492 collective-owned enterprises and 11 others. In 1981, compared with 1953, the total industrial output value of the province was increased from 2,652,000,000 yuan to 33.58 billion yuan, a 14.5-fold increase. The original value of fixed assets of local state-owned industrial enterprises was increased from 87 million yuan to 19.95 billion yuan, a 228-fold increase. The profits turned in and taxes paid to the state in industry was increased from 67 million yuan to 4.98 billion yuan, a 64-fold increase. The productivity per person of state-owned industrial enterprises rose from 3,630 yuan in 1949 to 13,161 yuan, a 2.6-fold increase. (See Table 7)

C. Transportation, Posts and Telecommunications

The main railways in Shandong are the Jin-Pu railway, the Jiao-Ji railway, the Lan-Yan railway, the Xin-Da railway, and the Yan-He railway of a total length of 1,582 km, 887 km more than in 1949 after a 78 percent

increase. Except for the Jin-Pu and Jiao-Ji railways, all the rest were built after the founding of the People's Republic. Jinan, the provincial capital, is the intersecting point of the Jin-Pu and Jiao-Ji railways. With the exception of Linyi and Liaocheng, all the 13 prefectures and municipalities are now accessible by train. A total of 35,417 km of highways are open to traffic, of which 74.3 percent have all-weather surfaces. The mileage of the highways open to traffic is now 11.2 times that of 1949 which was then only 3,152 km. All counties and communes are now accessible by car. The mileage of inland river navigation is now 1,849 km, a 70.9 percent increase over 1949. The average length of 0.25 km of transportation route by car or by boat for every square kilometer is higher than the national average which is only 0.11 km. Sea transportation is also fairly well developed. There are now 20 harbors of various sizes at Qingdao, Yantai, Longkou, Weihai, Shidao, Huangdao, Shijousuo, Lanshantou, Zhangjiabu, Penglai, Dongfeng, Yangkou and Fuguo. The total traffic-handling capacity of the harbors is 30.12 million tons, including the 18.1 million tons of Qingdao harbor and 5.1 million tons of Yantai harbor. The harbors of Qingdao and Yantai in Shandong are 2 of the 10 harbors in the country having berths for ships of 10,000 tons. Since 1981, Shandong has organized local fleets to go to Japan and Hong Kong, and to accept cargoes for exports by sea. In 1981, the total volume of freight traffic exceeded 200 million tons, a 36-fold increase over the 5.47 million tons of 1949, and about 5 percent of the freight traffic in the country.

In posts and telecommunications, the number of offices and suboffices in 1981, compared with 1949, has increased from 999 to 2,363, a 1.4-fold increase. The total length of postal routes has also increased from 114,493 to 228,231 km, a 99.3 percent increase. The business volume of posts and telecommunications increased from 4.2 million yuan to 73.92 million yuan, a 16.6-fold increase.

D. Domestic and foreign trade. In 1981, the total sales volume was 16,478,000,000 yuan (which included 12,794,000,000 yuan from the retail sales of consumer goods and 3,684,000,000 yuan from the retail sales of the means of agricultural production.) Compared with 1949, when it was 718 million yuan, this was a 21.9-fold increase, and ranked fourth in the country after Jiangsu, Sichuan and Guangdong. The retail sales of the means of agricultural production here was the highest in the country. The commercial and service outlets in the cities and countryside of the province has been greatly developed since the Third Plenum of the 11th CPC Central Committee. Up to now, the number of these outlets has been increased to 371,000, a 2.5-fold increase over 1949. The proportion of sales by collective and individual commerce to the total retail sales was increased from 4 percent in 1978 to 14 percent. The number of farm produce markets has been increased to 3,953, and the volume of transactions exceeded 2.5 million yuan, a 1.2-fold increase over 1978.

Shandong is fairly independent in foreign trade, and 98 percent of the commodities it exports are produced in the province. It has trade relations with 142 countries and regions and has formed fairly stable

relations with a number of customers. In 1981, the total procurement for export out of Shandong was valued at 3,168,000,000 yuan, a 7.6 percent of the national procurement value, placing Shandong fourth in the country after Shanghai, Guangdong and Jinagsu. The amount of foreign exchange earned from exports totaled $1.89 billion, 10 percent of the total national earning, placing the province fourth after Shanghai, Guangdong and Liaoning. In 1981, of Shandong's exported commodities, 13.6 percent were grain and edible oil; 7.4 percent were animal products, 12.7 percent were light and textile industrial products, 11 percent were foodstuffs, 5.3 percent were native products, 8.9 percent were arts and crafts products; and 41.1 percent were industrial and mineral products. Of the 34 types of highly competitive products exported for more than $10 million, 19 are of the agricultural, sideline and arts and crafts categories which earned 47.3 percent of the amount. Among the agricultural sideline products exported, live cows, goatskin, rabbit hair, Zhejiang lambskin, pig bristles, prawns, frozen rabbit and watermarten [shui diao 3055 6285] all rank first in the country. (See Table 8)

E. People's material life. In 1981, the average distribution per person from the rural collectives was 125.5 yuan, an increase of 73.6 yuan over the 51.9 yuan in 1956 when the rural cooperatives were formed, and an increase of 57.1 yuan over the 68.4 yuan of 1978. In the 3 years after 1978, the average annual increase was 19 yuan, while in the 22 years before the Third Plenum of the 11th CPC Central Committee, the total increase was only 16.5 yuan. Thus 1 year's increase exceeded that of more than 20 years. According to investigations on 827 typical peasant households, the average net income of a commune member was 231 yuan in 1981, an increase of 126.9 yuan, a 1.2-fold increase, over 1978. At the end of 1981, the savings balance of commune members reached 2.44 billion yuan, averaging 36 yuan per person, a 23.3-fold increase over 1956 and a 2.2-fold increase over 1978. The purchasing power of the rural population reached 7.99 billion yuan, a 4.6-fold increase over 1956 and a 67.9 percent increase over 1978. In 1981, about 1.65 million commune member families in the province built new houses. These families accounted for 11 percent of all families, and their number this year was 4.5-fold the average number in each of the 10 years before 1979. In 1981, the average living expenses per peasant in the province was 178.9 yuan, more than doubling the 83.2 yuan in 1978. The composition of living expenses had also changed. Food expenses accounted for 50 percent, a 6 percent reduction below that of 1978; housing expenses, 13.4 percent, a 5.4 percent increase; daily necessities, 14.9 percent, a 2.9 percent increase; and clothing, 15.1 percent, the same as in 1978. According to investigations on the peasants' possession of the "five major items" in the province, the situation is generally as follows: Nearly every household had a clock or watch, 80 percent had bicycles, two-thirds had radios, nearly 50 percent had wrist watches, and one-third had sewing machines. Furthermore, a few peasant families have bought cassette recorders, TV sets and motor cars. Tv villages have come into existence.

The living standards of urban workers and residents have also been greatly raised. In 1981, the average wages of the workers of state-owned units and urban collectives was 755 yuan, an increase of 187 yuan at a 32.9 percent rate [as published], over 1978. Even though price inflation is taken into account, actual worker income still increased 23.5 percent over 1978. The number of people employed is increasing every year, and 795,000 people were given jobs in 3 years. The average number of dependents per worker decreased from 0.87 in 1978 to 0.71. In 1981, the savings balance in the cities reached 1,476,000,000 yuan (averaging 257 yuan per person), a 1.2-fold increase over 1978. The purchasing power of the nonagricultural population was 3.9 billion yuan (518 yuan per person) after a 69 percent increase. In 3 years, the area of new houses increased by 11 million sq m, equivalent to 45 percent of the total new housing area in the previous 28 years. The average floorspace per person also increased from 3.7 sq m to 4.4 sq m. (See Table 9)

F. Science and technology, education, public health and culture. Science and technology have developed fairly rapidly. In the initial period of the People's Republic, the province had only two scientific research units with very small staff and crude equipment. The number of professional scientific research personnel was less than 100. Now, there are 606 scientific research units of various types at various levels, including 19 research units set up by various ministries of the central government in Shandong, and 587 research institutes under the province, the municipalities and the counties. The province has 377,000 technical cadres of various types, including more than 1,800 high-grade intellectuals and 44,000 medium-grade ones. Scientific research by the broad masses is also very extensive. There are now 1,470 scientific research units run by the plants and more than 11,000 industrial technical reform organs. A network of fourth-grade agronomic institutions has spread over the province. In the countryside are more than 200,000 scientific experiment teams of the broad masses, and the number of peasant technicians exceeds 300,000. More than 1.1 million people took part in mass scientific experiments and technical renovation. In the past 30 and more years, more than 7,400 scientific achievements were made, and 28 of them won state awards for invention. Since 1979, the province had 1,817 scientific achievements, of which 75 reached or approached international standards and 560 reached domestic standards. Among those up to international standards are No 1 Lumian cotton, Yuanwu 02 corn from self-pollination, vacuum plated aluminum paper, the press with automatically changing heads, equipment and techniques of producing meodymium pentaphosphate macrocrystals and artificial culture of kelp with the raft method. The state's agencies and scientific research resources for oceanographic study are mainly concentrated in Qingdao of Shandong, which has become the base of our country's oceanographic research.

Shandong's education has also been greatly developed. Before the founding of the People's Republic, it had only 7 institutes of higher learning and some 100 secondary schools. Among every 10,000 persons, the average number of university students was less than 1 and the number of secondary

school students was only 11. Only about 20 percent of the children of school age could attend schools. In the mountainous villages, it was difficult to find anyone who could read. Now, elementary education has become basically universal in the countryside and secondary education has become basically universal in the cities. In 1981, the province had 78,829 elementary schools with 10,176,200 students in both urban and rural areas, and 95.6 percent of the children of school age were attending schools. There were 13,112 secondary schools (including 12,947 ordinary schools and 165 vocational schools), with 3,678,000 students; and 38 institutes of higher learning with 59,645 students, averaging 8 university students in every 10,000 persons.

Public health in Shandong has also developed to a certain extent. Before the founding of the People's Republic, Shandong was short of doctors and drugs. There were in the whole province some 200 public health organs of various types, less than 3,000 hospital beds, and only 26,000 public health technicians. Now, every commune has its own hospital and every rural production brigade has its own public health center. There are 9,448 professional public health and medical units with 178,500 public health technicians and 128,700 beds. Typhoid fever, cholera, malaria, black fever and other traditional and endemic diseases, which were very common in the old society, have been either stamped out or effectively controlled. The mortality rate has also been reduced from 12.1 per thousand to the present 6.41 per thousand, and people's average life expectancy has been increased from 35 to 71.3 years. Great achievements have also been made in planned parenthood, and the natural growth rate of population has been decreased from 32.4 per thousand in 1963 to 10.07 per thousand in 1981.

Shandong's cultural undertaking is flourishing. Compared with the early days of the People's Republic, the number of movie theaters and other theaters has increased from 18 to 239; professional troupes have increased from 46 to 157 with 12,000 professional performers and personnel. Movie projection teams were built from scratch; there are now 4,531 of them. The number of cultural halls (stations) and mass art halls has increased from 39 to 2,258, with 4,284 professional workers. The variety of art journals of fairly large circulation has increased from 1 to 11, and each issue is being distributed in more than 263,000 copies. The number of libraries and museums has increased from 4 to 98. The local theatrical works borrowed from the past and the newly developed ones in Shandong include Luji [Shandong opera], Bangzi, Liuzi, Maoxiang, Liangjiexian, and Wuyinxi.

III. Several Problems To Be Solved in Shandong's Future Economic Development

In view of the basic conditions as already mentioned, Shandong has many favorable conditions for its economic development. Generally, they are as follows: Under the guidance of the party's line, principles and policies since the Third Plenum of the 11th CPC Central Committee, the province has smoothly shifted the focus of its work and the enthusiasm

of the broad masses of cadres and people continued to soar. After more than 30 years of hard struggle, a fairly strong physical and technical foundation has been laid, and rich experiences, both positive and negative, have been accumulated. The natural conditions, including the climate, are favorable for the all-round development of agriculture, forestry, animal husbandry, sideline production, fishery and other undertakings. With its favorable geographical location and efficient transportation system, it is easy for the province to produce good economic results. Its rich mineral resources are useful in the development of fuel, motive power, metallurgy, chemicals, building materials and other important industries. Its long coastline is favorable for harbor construction and the vigorous development of marine products, salt, navigation and foreign trade. Because of its rich cultural heritage, its many scenic and historic spots, and well-known traditional arts and crafts, there is a promosing future for tourism. Understanding and using these favorable conditions to full advantage will help Shandong's economy to make its flying start. At the same time, we must also realistically analyze the unfavorable factors. On the whole, the unfavorable factors in Shandong's economic development are as follows: It is poor in underground water and short of water resources. Since it is located in the lower reaches of the Huang He, the Huai He and the Hai He, disasters from droughts, floods and alkalization are fairly frequent. They have become a very serious handicap to agricultural production. It is short of energy resources, and the installed capacity of power generation is insufficient. There are coal mines, but not enough resources to extract coal. Coordination between tunneling and extraction and between new and old mines is poor, and the amount of coal delivered by the province to support other places is excessive. Phosphate resources are basically nonexistent, while the small deposit of iron is hard to extract. Since the forest cover is small, there is a serious shortage of timber. In industry, there are not enough supportive projects, and the techniques and equipment used are fairly backward. Technical resources are weak, and energy consumption is high in a fairly large number of enterprises. This hinders the improvement of economic results. The population is large, the economic foundation is weak, and economic development among different areas is uneven. It we want to overcome these difficulties, and to make up for its shortcomings with its strong points so that Shandong's economy will develop on a firm foundation and at a realistic and not exaggerated speed, we must solve at least the following problems:

A. We must be prepared to pay a heavy price in breaking through the "water" and "energy" barriers. Shandong's economy has developed very rapidly since the Third Plenum of the 11th CPC Central Committee. However, since the problems accumulated over a long period are quite many, the present hidden dangers are not yet completely removed. There are four major difficulties causing serious problems in Shandong: first, the serious shortage of water; second, the shortage of energy; third, the financial deficit; and fourth, the wide gap between purchases and sales of grain. These four difficulties are the stumbling blocks

in the way of Shandong's economic development. The problems of finance and grain can be gradually solved along with the economic restructuring and the four modernizations in the province, but the real problems lie in the shortage of water, coal, oil and electricity. Shandong's first major difficulty is with the shortage of water for agriculture, industry and daily living. Because of the 3 consecutive years of drought, more than 9 million people in the countryside did not have enough water to drink and most of the reservoirs and rivers dried up this spring. The underground water level in some areas is becoming lower every year, and in the cities, the contradiction between supply and demand continues to intensify, mainly because of insufficient water and low water pressure. Some downtown areas are often cut off from water supply and some parts of the land surface have begun to cave in. In Jinan, the gushing level of underground water was at 31.85 m in 1964; now it has come down to about 26 m. If the level should go below 25 m, the water pumps in the downtown areas will not be able to function and the city will be deprived of water. The geological structure of Qingdao Municipality is mostly of granite. Since the water of the land surface system is from short sources and in rapid currents, the city mainly relies on the Laoshan reservoir and the ditches bringing in water from the Dagu He, apart from five well-pumping plants. It needs a daily supply of 330,000 tons, but because of the serious drought, the daily supply can only be 110,000 tons. Fromthis, we can see that unless the water problem is solved, Shandong will not be able to maintain its industrial and agricultural production at the present level, not to speak of raising it. There are only two ways leading to a solution: First, the tapping of underground water. Although Shandong is not rich in underground water resources, there is still potential to be tapped, mainly by sinking deep wells. Second, the utilization of surface water. Shandong's surface water resources are fairly good, mainly because of the existence of the Huang He. There is more than 40 million mu of land along the Huang He which brings into Shandong about 45 billion m^3 of water each year. At present, only some 6 billion m^3 of it is being utilized while most of it flows into Bohai Bay. Therefore, a lot of work should be done about this river. We can transform huge tracts of saline-alkaline soil by drawing water from the Huang He, and expand the irrigated area with water drawn and stored from the same source. We can also divert the water from the Huang He to relieve Jinan in the south and Qingdao in the east. In the latter case, a channel of about 300 km is required and would cost a lot of money. However, from the macroeconomic point of view, this project must be accomplished, since it will not only solve the water problems of Qingdao, but also support the operation of Shengli oilfield and supply water to the people in Weifang and other areas along the route. The flow of water in this direction is desirable.

Another major difficulty in Shandong is the energy shortage, and the energy problem comes from coal. Although Shandong's coal industry has undergone great development since the founding of the People's Republic, its supply is still short of the demand, particularly because of the lack of coordination in the strategy of coal shaft replacement. During

the first and the second 5-year plans, 39 pairs of shafts were built, thereby adding 15.16 million tons to the productive capacity in Shandong. In 1966, the state decided to stop the practice of "sending coal from the north to the south" and diverted most of its resources for prospecting and mining to the regions south of the Chang Jiang. This policy had a serious effect on Shandong's mine construction. During the third, the fourth and the fifth 5-year plans, the number of mines completed and put into operation in 15 years was 56 percent less than that of the previous 10 years, and the capacity of these new mines was 35.2 percent smaller. That is why coal output has been on the decline in the past several years. In fact, Shandong is by no means without coal; the difficulty is that its investment is not adequate and the distribution is not rational. If we will give due consideration to the good communications and transportation facilities in Shandong as one of its strong points and set it up as a key base for coal exploitation; and if we can be more liberal with investment and use the same distribution index for both the producing and the selling areas, or further solve the problems of the relevant policies, coal production in Shandong will soon present a brand-new appearance. Then, we will be able not only to solve the problem of coal shortage of Shandong, but also help it make greater contributions to the state. As the situation now stands, apart from increasing the output and practising economy in the use of coal, we should attach great importance to the conservation of petroleum and electricity in solving Shandong's energy problem. At the same time, we must make every effort to develop marsh gas, small-scale hydropower, and solar energy in the countryside. On the whole, Shandong must treat the solution of its problems of water shortage and coal shortage on a strategic plane.

B. We must carefully solve the problem of "hemiplegia" in economic development. Because of historical and geographical reasons, economic development in Shandong has been uneven for a long time. Before the liberation, industry was concentrated in the coastal cities in the east and in the cities along railways, such as Jinan, Zibo, Weifang, Zaozhuang and Dezhou, but basically nonexistent in the huge area of western Shandong, except in two small towns, namely Jining and LInqing, on the banks of the canal. This condition has a direct effect on agricultural production as well as the development of education, culture and public health. That is why the economic development in the eastern half of Shandong is earlier and faster than in its western half. For many years the party and the government have carefully supported the backward areas in economic development and adopted measures to help the hinterland develop industry and open up the mountainous areas. The situation has improved every year, but the "hemiplegia" of Shandong, characterized by the faster economic development of its eastern half, has not been much improved. In the five prefectures in western Shandong, namely, Huimin, Dezhou, Liaocheng, Heze and Linyi in the mountainous regions of Yimeng, the population accounts for 44 percent of the total provincial population and their combined area accounts for 48 percent of the total provincial area. However, their industrial output value amounts to only 12.2 percent of the total value. From 1955 to 1978, four areas in northwestern Shandong consumed 11.07 billion jin of grain sold by the state,

spent 628 million yuan of relief funds, and owed the state 517 million yuan. In 1978, the commune members of these four areas had an average income of only 46.22 yuan per person from collective distribution, lower than the provincial average by 22.18 yuan and lower than in Yantai by 74.78 yuan. After the Third Plenum of the 11th CPC Central Committee, the provincial committee tried to help the eastern half of Shandong to become wealthy first because of its better economic foundation. After ensuring a steady increase in the grain output, it energetically developed economic diversification and industrial sideline production. Then it tried to free the four areas in western Shandong from poverty by expanding the cotton acreage, developing forestry and animal husbandry, and promoting the primary processing of agricultural sideline products without, however, relaxina any effort in grain production in striving for grain self-sufficiency. After 3 years of readjustment and selective development, the advanced areas became further advanced, while the poor and backward areas got rid of their poverty. In 1981, compared with 1978, the gross value of industrial and agricultural output increased 22.37 percent in Yantai Prefecture, 11.5 percent in Weifang Prefecture, and by a still wider margin in the four areas of northwestern Shandong--a 48.9 percent increase in 3 years. In 1981, the industrial output value of the five prefectures of Huimin, Dezhou, Liaocheng, Heze and Linyi accounted for 14.23 percent of the total provincial industrial output value. In the past 3 years, the four areas in northwestern Shandong repaid their old debts of 64.33 million yuan and contributed 20,322,500 dan of ginned cotton. The commune members' income from collective distribution averaged 138.8 yuan per person, which was higher than the provincial average, and the income per person from distribution in Liaocheng Prefecture was 176 yuan, which placed it second among the 13 prefectures and municipalities after Yantai, with Dezhou third. Even these preliminary changes have done much to reduce the need for the province to send large amounts of grain and money for the relief of northwestern Shandong. However, the problem of "hemiplegia" had not been basically solved, as shown by the following facts: Industry in the plains of the western half cannot catch up with that of the eastern half and its economic foundation was very weak, while, in the central mountainous areas, economic diversification had not been well developed and the income of the collectives and commune members was still very low. In view of this, and in order to improve the economic results according to long-range plans, the provincial party committee decided to take these measures as the second step in its program of action: While continuing to bring into play the superiority of the coastal areas in industrial and agricultural production and foreign trade, it should also support the western areas in a planned way in the development of light industry, especially in processing agricultural sideline products and, at the same time, pay special attention to the development of mountainous areas. (See Table 10)

To solve basically the problem of uneven economic development in Shandong, suitable and reasonable readjustments should be made in its economic layout. In Jinan, the provincial capital, scientific research, education,

culture and the urban public utilities should be developed, but, in general principle, no more new projects should be started for heavy industry. Taking advantage of its existing industrial foundation, we should pay particular attention to the machine tool, motor vehicle and heavy machinery industries and also develop some high-grade products with unique features in the textile, papermaking and electronic industries. In Qingdao, we should develop more high-grade, precision and advanced products so that it will become the producer of high-grade textile, rubber, electronic and instrument and meter products and an export base. No further plan should be made for the production of those industrial items that may consume much water and energy, while gradual adjustments should be made on the present scale of their production. Since this coastal city has a pleasant surrounding, we should develop tourism and set up sanatoriums here. For Zibo Municipality, we should give priority to the development of the petrochemical mining, metallurgy, building materials and machinery industries so that they will become the base of heavy industry in the province. We should also develop those light and textile industries in which chemical raw materials are largely used, and produce more traditional products, such as ceremics and silk. For Zaozhuang Municipality and Jining and Taian prefectures, priority should be given to the development of coal, electric power, coking and coal tar industries, so that it will gradually become an energy base. We should also take advantage of their fertile soil and inland water surfaces to develop grain production and freshwater breeding. Yantai and Weifang prefectures should become the export bases for handicraft products, grain, edible oil, tobacco, fruits and marine products. In Weifang Municipality, priority should be given to power, machinery and textile industries, and in Tantai Municipality, priority should be given to the development of leather, foodstuffs and clocks and watches. The four prefectures of Heze, Liaocheng, Dezhou and Huimin should combine to form an important cotton-producing base and become a producing area of miscellaneous grains of the province. They should also be gradually developed into a producing center of timber and animal products. These prefectures should make full use of their local resources and, in cooperation with other cities in this and the other provinces, actively develop light, textile, food and other related industries with priority to the processing of agricultural and sideline products. The communications and transportation facilities and electric power industry should be strengthened in these prefectures. Linyi Prefecture with its mountainous areas should make use of its resources in grain, edible oil forestry and animal husbandry in combination and develop its processing industry for foodstuffs, leather and other agricultural and sideline products. Along with the construction of the Yan(zhou)-Shi(jiusuo) railway and the Shijiusuo harbor, it should develop its mineral resources of different types to promote its building materials and ceremic industries, and then serve as one of the entrepots for export goods. The economic layout should be coordinated with city development. In addition to the small cities of Yantai, Weifang, Jining, Weihai, Dezhou and Tai'an which should be suitably expanded, the small important townships of Linyi, Liaocheng, Heze, Reizhen, Dongying, Shijiusuo, Longkou, Linqing,

Yidu, Yanzhou and Zouxian should also be gradually transformed into small cities according to their own characteristics. The other county cities and seats of important communes should also be built into small townships of various sizes so that they will become political, economic and cultural centers of the countryside.

C. We must proceed from realities and conscientiously readjust the proportionate relationships of the national economy. Before 1979, the main problem in Shandong's economic structure is its one-sided stress on heavy industry in development. As a result, iron and steel and machinery products of heavy industry dominated the product mix and affected the development of agriculture and light industry. At the end of 1978, of the gross value of industrial and agricultural output, heavy industry accounted for 39.2 percent, a 34 percent increase over the 5.2 percent of 1952; light industry, 32.3 percent, only a 3.2 percent increase over the 29.1 percent of 1952; and agriculture, 28.5 percent, a 37.2 percent decrease below the 65.7 percent of 1952. In each of the 26 years from 1952 to 1978, heavy industry increased by 18 percent; light industry by 8.2 percent; and agriculture by 2.7 percent. These margines of increase are directly caused by irrational investment. A comparison of the investments in 1978 and 1952 shows a 36-fold increase in heavy industry, a 9.5-fold increase in light industry, and a 8.3-fold increase in agriculture. This was how the development of agriculture, light industry and heavy industry became disproportioned. At the same time, the internal structure of agriculture and industry is also very irrational. As to the use of national income, the share of accumulation far exceeded that of consumption. From 1952 to 1978, the average rate of progressive increase each year was 9.1 percent in accumulation funds and 5.3 percent in consumption funds. In 1978, the increase rate of accumulation funds was 29.3 percent (based on current prices. The highest rate was 31.8 percent in 1959.) In implementing the policy of readjustment after the Third Plenum of the 11 CPC Central Committee, Shandong made every effort to shorten the capital construction front, to reform the product mix of heavy industry, to close, suspend, merge and retool some steel and machinery enterprises, to support agriculture, and to expand the production of light and textile consumer goods that are needed by the broad masses. These measures brought marked changes in Shandong's economic structure. In 1981, the gross value of industrial and agricultural output exceeded that of 1978 by 19.6 percent. The proportion of light industry reached 39.72 percent, that of heavy industry was readjusted to 30.82 percent, and that of agriculture was reaised to 29.46 percent. In the internal structure of industry, the proportion of heavy industry dropped from 54.9 percent in 1978 to 43.7 percent, and that of light industry rose from 45.1 percent to 56.3 percent. In the internal structure of agriculture, the proportion of output value of cotton, peanuts and other cash crops to the total output value of farm produce rose from 15.7 percent in 1978 to 28.3 percent, and the ratio between accumulation and consumption in the use of national income was readjusted. In the past 3 years, the average progressive increase each year was 12.1 percent in consumption and 7.4 percent in accumulation. Thus the accumulation rate of 1981 was

reduced by 25.15 percent. Now the proportionate relationships among various national economic sectors generally tend to be rational. Of course, it will required further study in practice in determining exactly how the proportions should be. (See Table 11)

The present problem is that much work still needs to be done in readjusting the internal structure of agriculture and industry, including the product mix, the technical structure and the enterprise lineup, and this readjustment should be carried out organically in combination with restructuring and consolidation. The work of readjustment should be focussed on the upholding of the "six priorities" policy for light industry so as to ensure the continued increase in consumer goods; on the further improvement of the product mix in heavy industry so that under the new conditions, this industry can maintain its growth at a certain rate; and on the vigorous development of forestry, animal husbandry, sideline production and fishery as well as economic diversification, provided a steady increase is maintained in grain and cash crops in agriculture. The objectives of the readjustment are as follows: In agriculture, there should be self-sufficiency and some reserve in grain, while the development of cash crops and economic diversification should be commensurable with the development of light industry. In light industry, the raw materials provided by agriculture must be fully utilized, and the proportion of industrial raw materials should be gradually increased. The increase in consumer goods should be consistent with the increase in social purchasing power and the development of foreign trade. Heavy industry must first serve agriculture and light industry, and should develop steadily within the limits of its capability and as required by the national economic development and technical transformation. Other undertakings should be based on realities and develop in accordance with future requirements.

D. Agricultural development must be treated as a matter of extraordinary importance. Agriculture is the foundation of the national economy. If agriculture fails to make any headway, we will have difficulty in all other fields. This problem is particularly prominent in Shandong. In meeting the overall requirements of the state, Shandong's grain, cotton, edible oil, tobacco, jute, hogs, fruits and marine products can play a fairly important role, and Shandong's setbacks in agriculture cannot be easily compensated by state planning. Agriculture is also very important to Shandong itself. It has an agricultural population of more than 66 million which has for many years accounted for more than 90 percent of the total provincial population and is higher than the national proportion of 80 percent. The number of agricultural laborers is about 80 percent of the entire labor force and slightly higher than the national proportion. More than 70 percent of the raw materials for light industry in the province are derived from agricultural sideline production, and their annual output value is more than 13 billion yuan. The countryside, too, is a huge market for industrial goods, and of the total volume of retail sales in 1981, 48.53 percent were consumer goods purchased by the rural population, and 22.36 percent were means of agricultural production purchased by the communes,

production brigades or teams and individual peasants. The purchase of these two categories of products added up to 70.89 percent of the total retail sales volume. At present, the volume of agricultural and sideline products for exports accounts for about 50 percent of the total export volume of the province. Practice over many years has proved that whenever there was a bumper harvest, people in various economic sectors in the province would live in comfort, but not otherwise. The various difficulties encountered in the early 1960's were mostly attributed to poor harvests and insufficient food, while the improved economic situation of the province in the past several years was reflected by the rapid growth of agriculture. On the whole, however, agriculture in Shandong is still fairly weak, and the fairly large increase in grain production could only initially solve the problem of feeding the people. In 1981, the average amount of grain for each person was 625 jin, lower than the national average of 652 jin. According to the state's plans for grain procurement quotas from 1981 to 1984, Shandong should each year buy an average amount of 6.1 billion jin [from the peasants] and sell 6.7 billion jin [to the people] after bringing in a net amount of 600 million jin from other sources. This year, however, the actual difference between buying and selling will far exceed 600 million jin. In economic construction, no matter how good its harvests may be and how developed its industry may be, Shandong must at all times treat agriculture as a matter of prime importance, pay very close attention to its grain output, and must not for a single moment relax its effort in this respect. In the future development of agriculture, on the basis of readjustment of the internal structure of agriculture in the past several years, we must ensure a steady increase in grain output and at the same time gradually solve the problems of ecological equilibrium and rational planting. The farmland that is suitable for grain must be used for grain crops, and must not be encroached upon in the development of cash crops and economic diversification.

E. We must have the determination to solve the problem of poor economic returns. Poor economic returns are the chief weak link in the province's economic work. It is also a potential to be tapped, and as long as we can make a breakthrough in this direction, our entire agricultural production will rise to a new level. In the past several years, Shandong has practiced the system of responsibility for agricultural production in various forms, and the system of economic responsibility among the industrial, commercial and S&T enterprises, resulting in improved economic returns in varying degrees. However, the situation of poor returns over many years has not yet been basically reversed. Since industrial production plays a decisive role in the province's financial revenues and the revenues from industrial and transportation enterprises amount to 49.4 percent of the local revenues in the province, it is particularly important that the economic returns of industrial production be raised. At present, the poor economic returns from industrial production is caused mainly by the following factors: poor competitive power of products because of the stress on output and output value and the neglect of variety and quality; high consumption of raw materials and fuel and serious waste; poor financial management,

irrational use of funds, and the evasion of taxes to an alarming extent; poor utilization of labor resources and low labor productivity; lack of coordination between production and marketing as a result of inefficient information service in business operation; insufficient attention to the technical transformation, equipment renovation and macroeconomic results of enterprises; and so forth. According to statistics from the inventories taken in 1962, 1972 and 1980, thenet loss of circulating funds amounted to 435 million yuan. In 1981, about 200,000 yuan's worth of commodoties, 0.6 percent of the annual output value, were stockpiled. The profits realized per 100 yuan of output value among the state-owned industrial enterprises (including the two expenses) was 15.2 yuan--6.3 yuan below that of Shanghai and 0.3 yuan below the national average. The proportion of budgeted state-run industrial enterprises operating at a loss in the province was as high as 26 percent, and the amount of losses totaled 202 million yuan, equivalent to 10 percent of the profits realized by all the industrial enterprises in the province. Shandong was one of the six provinces losing more than 200 million yuan. The output value per capita in the state-owned industrial enterprises (based on the constant prices of 1980) was 13,817 yuan, lower than in Shanghai by 13,573 yuan and in Jinagxu by 937 yuan. If the productivity of the personnel can only be raised to Jiangsu's level, the annual output value would be increased by about 1.6 billion yuan. Acting in accordance with the spirit of instructions from the CPC Central Committee and the State Council, the provincial party committee and provincial government have decided to reorganize the enterprises in different groups and different periods in order to accomplish the "four shifts," namely, the shift of stress from speed in increasing output value to the variety and quality of products and the production of marketable goods; the shift from reliance on increased output for increased revenues to reliance on reduced consumption and production costs and increased accumulation; the shift from stressing production to stressing management and S&T along with production; and the shift from mainly relying on extensiveness to intensiveness in starting new projects and increasing the capacity, and on technical transformation, equipment renovation, and importing and popularizing new technologies. If these measures are carried out in practice effectively, Shandong's economic returns from industrial production will be greatly improved.

F. We must develop industry by paying attention to the large, small and medium-size enterprises simultaneously.

Shandong is a large province with a spacious territory and a huge population, and had a very weak industrial foundation in the early days of the People's Republic. If we want to develop its industry in a way consistent with the entire economic construction program, but are unable to build more large enterprises when the state has neither the financial resource nor the time for this purpose, we must mobilize the initiative in several quarters, vigorously develop the collective enterprises, and take the road of industrial-commercial and industrial-foreign trade integration with small and medium-size industrial enterprises as the main components, while upholding the leading position of

the state sector of the econony. At present, more than 95 percent of the enterprises in the province are small and medium-size ones, and 40 to 80 percent of such important products as coal, chemical fertilizers, cement and farm machines are supplied by the "five small industries." These enterprises have played an important role in Shandong's economic development. In developing small enterprises, cities should serve as the centers while large and medium-size enterprises are the backbone elements in integrated production and in specialization and cooperation. We must guard against the practice of setting up "small and complete" enterprises. For more than 10 years, Weihai Municipality has unswervingly adhered to the principle of combining the cities with the countryside, and using the countryside to encourage the cities, in farming out its products like "a mother hen laying eggs," and in organizing integrations. This method has greatly helped the commune- and production brigade-run enterprises in their rapid development. In 1981, the income of these enterprises was increased 9.4-fold, almost doubling in 1 year. Changyi County adopted and popularize Weihai Municipality's experiences in farming out products and forming "chains" of specialized production. Eight "chains" were organized in the county, with the county plants taking the lead and all the communes and production brigades forming the bodies of "chains." There were altogether 1,417 processing centers run by the communes and production brigades with more than 93,000 workers and most of the communes have their own "chains." This administrative system, characterized by a "close concentration of supply and marketing activities and numerous processing points like stars in the sky" has effectively strengthened the planned guidance over the industrial sideline production of communes and production brigades. In the country, 80 percent of the products were directly or indirectly controlled by the plans with fairly good economic results.

G. We must energetically develop education, S&T and public health. Shandong's education, S&T and public health have undergone fairly great developments in the 30 and more years since the founding of the People's Republic. Compared with other undertakings in this province and in other provinces and municipalities, however, the development in these undertakings have been very slow and far from adequate for the modernization program, and the basic resources in S&T are fairly weak. According to the statistics of 1979, the total number of scientists and technicians amounts to only 0.36 percent of the provincial population with is below the national level of 0.6 percent, below that of its neighboring province of Jiangsu of 0.44 percent, and even farther below that of Liaoning of 1 percent. If we look at the number of professional S&T personnel in the professional organs, Shandong's resources will appear even weaker--only slightly better than those of Xizang and the frontier provinces and regions, and ranking 26th in the country. The structure of education, particularly that of secondary education, is very irrational, mainly because of the very low proportion of secondary vocational and technical schools, while most of the graduates of senior and junior secondary schools lack professional knowledge and the ability to work independently. This year, 340,000 students graduated from senior secondary schools, but the enrollment of university students was only for 14,000 persons,

4.2 percent of the graduates. Graduates from junior secondary schools numbered 835,000, but the enrollment of senior secondary and secondary vocational schools was for only 210,000 persons, 26 percent of the graduates. In other words, about 300,000 graduates from senior secondary schools and 600,000 from junior secondary schools each year have to participate directly in industrial or agricultural production or in other forms of social labor, while part of the present secondary education is unrelated to social needs. Medical and public health facilities are also fairly backward. In the province, there are only 24 medical workers for every 10,000 people. This number is smaller than the national average of 30.2, and places Shandong 24th among all provinces, municipalities and autonomous regions. For every 10,000 people, the average number of hospital beds is only 17, less than the national average of 20.2, and ranking 25th in the country. This situation is closely related to the slow developments in education and S&T. The problem is quite clear: Without a large number of professional personnel of various categories and grades, and without a large number of skilled workers of a certain cultural standard, it would be basically impossible to develop Shandong's agriculture, industry and various constructive undertakings. Education is the foundation of S&T development, and the promotion of intellectual development is an important fundamental form of construction. Therefore, the resources in various fields should be mobilized for this purpose. It would be desirable for us to spend less in other endeavors in order that more could be spent on education. The province is now planning to reorganize the universities in a planned way so as to tap the potential, to run schools in more diversified forms, to broaden the channels of learning, and to enroll more students. At the same time, we should quickly reform secondary education and train more professional personnel for the four modernizations. Each county in the province should transform two or three ordinary senior secondary schools into agricultural technical secondary schools, while each city should transform one-third of its ordinary senior secondary schools into vocational secondary schools (or add vocational classes), reorganize the ordinary secondary schools, improve the quality of teaching, and set up vocational and technical classes. We must make every effort to raise the ratio of students of secondary vocation schools to the number of senior secondary school students from the present 16 percent to more than 40 percent, and to basically change the irrational structure of secondary education in 1985. We must also popularize elementary school education in the countryside and vigorously introduce sparetime education for the workers. In developing S&T, we should proceed from Shandong's realities and stress the promotion of economic development and the improvement of economic results. We must intensify our research in and development of production techniques, particularly for solving the key problems of S&T which have a close bearing on the economic results in our national economy.

Shandong is an old revolutionary base, and its people are hardworking and courageous with many glorious traditions. The party organizations in Shandong have been tested in long struggles. There are now 150,000 party branches at the basic levels with more than 3 million party members

and more than 3.5 million CYL members. They form the core of leadership over the four modernizations in the province and have become a shock force full of vitality. Under the correct leadership of the CPC Central Committee, the party organizations at all levels in the province can certainly rally the people of the province around them and lead these people in painting the newest and most beautiful picture on the great earth of Shandong.

Table 1. Gross Value of Industrial, Agricultural Output and National Income (Unit: 100 million yuan)

年份 1	工农业总产值 2	农业总产值 3	工业总产值 4	国民收入总额 5	国民收入人均占有（元） 6
1949	32.53	23.08	9.45	20.83	45.79
1952	60.90	39.99	20.91	41.17	85.29
1965	105.00	43.74	61.26	62.10	108.74
1976	318.60	107.00	211.60	163.65	232.52
1977	360.90	107.00	253.90	173.70	244.68
1978	398.00	113.45	284.55	193.86	270.75
1979	421.52	123.69	297.83	206.77	285.91
1980	457.51	134.66	322.85	228.02	312.53
1981	476.04	140.24	335.80	247.88	335.21

Key: 1. Year
2. Gross value of industrial and agricultural output
3. Gross value of agricultural output
4. Gross value of industrial output
5. Gross national income
6. National income per capita

Table 2. Gross Value of Industrial, Agricultural Output and National Income (Based on 1980's constant prices)

项目 1		单位 2	1980 年	1981 年
3 工农业总产值		亿15元	524.1	545.49
4 农业总产值		亿15元	193.8	201.90
5 工业总产值		亿15元	330.3	343.59
6 按轻、重工业分	轻工业产值7	亿15元	168.3	194.19
	重工业产值8	亿15元	162.0	149.40
9 按经济类型分	全民所有制产值10	亿15元	229.8	244.07
	集体所有制产值11	亿15元	100.15	98.91
	其他经济类型产值12	亿15元	0.35	0.61
13 国民收入总额		亿15元	270.3	292.3
14 人均国民收入		16元	370.5	256.3
		美17元	240.1	395.7

Key:
1. Item
2. Unit
3. Gross value of industrial and agricultural output
4. Gross value of agricultural output
5. Gross value of industrial output
6. By heavy and light industries
7. Output value of light industry
8. Output value of heavy industry
9. By economic sectors
10. Output value of state-ownership system
11. Output value of collective ownership system
12. Output value of other economic sectors
13. Gross national income
14. National income per capita
15. 100 million yuan
16. Yuan
17. Dollars

Table 3. Level of Agricultural Modernization

1 年份	耕地面积 2 (万亩)	农业机械总动力 (万马力) 3	机耕面积 4 (万亩)	有效灌溉面积 5 (万亩)	每亩耕地化肥施用量 6 (折纯) (斤)	每亩耕地用电量 7 (度)
1949	13,091.9	0.5	—	371.5	—	—
1952	13,774.1	1.6	5.8	513.3	—	—
1965	12,001.4	95.8	1,676.3	2,267.0	1.97	1.1
1978	10,944.6	1,475.6	5,730.2	6,622.2	18.5	12.8
1979	10,897.9	1,692.5	6,480.9	6,607.2	21	14.8
1980	10,862.07	1,865.15	6,844.73	6,611.3	25	19
1981	10,831.97	2,077.5	6,390.4	6,650.7	27	24

Key:
1. Year
2. Farmland area (10,000 mu)
3. Total motive power of farm machinery (10,000 hp)
4. Area of mechanized farming (10,000 mu)
5. Area of effective irrigation (10,000 mu)
6. Application of chemical fertilizers per mu (on 100% basis) (jin)
7. Electricity consumption per mu (kWh)

Table 4. Farm Crop Output

Total grain output: 100 million jin
Total cash crop output: 10,000 dan
Per-mu output: jin

1 年份	粮食 2 亩产	粮食 3 总产	夏粮 4 总产	秋粮 5 总产	棉花 6 亩产	棉花 7 总产	花生 8 亩产	花生 9 总产
1949	157	174.0	46.5	127.5	24	162.09	163	1,081.75
1952	208	239.8	67.2	172.6	32	338.88	303	1,647.95
1965	286	266.4	72.8	193.6	39	397.46	189	1,328.97
1978	587	457.6	161.8	295.8	33	308.22	256	1,878.41
1979	644	494.4	192.7	301.7	41	333.61	251	2,120.22
1980	650	476.8	154.0	322.8	97	1,074.64	300	2,808.55
1981	654	462.5	174.56	287.95	96	1,350	277	2,778.97

Key on following page

[Key to Table 4 on previous page]

Key:
1. Year
2. Grain output per mu
3. Total grain output
4. Total summer grain output
5. Total autumn grain output
6. Cotton output per mu
7. Total cotton output
8. Peanut output per mu
9. Total peanut output

Table 5. Output of Forestry, Animal Husbandry, Sideline Production, Fishery (Unit: 100 million yuan)

1 份	2 合计	3 占农业总产值比重%	4 林业	3 占农业总产值比重%	5 牧业	3 占农业总产值比重%	6 副业	3 占农业总产值比重%	7 渔业	3 占农业总产值比重%
1949	4.67	20.2	0.14	0.5	1.91	8.3	2.30	10.0	0.32	1.4
1952	8.84	22.1	0.25	0.6	3.98	10.0	3.89	9.7	0.72	1.8
1965	9.53	21.8	0.44	1.0	4.60	10.5	3.45	7.9	1.04	2.4
1978	32.88	29.0	1.73	1.5	11.65	10.3	15.95	14.1	3.55	3.1
1979	34.93	28.2	1.63	1.3	13.24	10.7	16.92	13.7	3.14	2.5
1980	39.1	29.0	1.74	1.3	16.1	11.9	17.75	13.2	3.49	2.6
1981	41.0	29.2	1.61	1.1	16.33	11.7	19.93	14.2	3.13	2.2

8 注：农业总产值见表一。

Key:
1. Year
2. Total
3. As percentage of total agricultural output
4. Forestry
5. Animal husbandry
6. Sideline production
7. Fishery
8. Note: See Table 1 for gross value of agricultural output

Table 6. Output of Major Industrial Products

项目 1	单位 2	1949年	1952年	1965年	1978年	1979年	1980年	1981年
3 钢	万吨	0.0105	0.3619	13.05	82.35	84.77	90.11	86.57
4 生铁	万吨	—	—	41.19	150.49	153.76	141.49	118.44
5 发电量	亿度	2.09	3.48	24.71	155.86	170.96	185.97	194.49
6 原煤	万吨	169.1	362.0	1,740.0	4,200.1	4,438.2	4,290.5	4,130.52
7 原油	万吨	—	—	83.86	1,947.00	1,887.96	1,758.71	1,611.19
8 汽车	辆	—	—	335	7,369	9,861	11,165	10,094
9 大、小拖拉机	台	—	—	18	40,062	40,913	35,888	30,121
10 棉纱(混合数)	万件	15.83	39.30	46.72	114.39	120.37	129.94	139.25
11 棉布(混合数)	亿米	2.31	4.85	4.04	9.82	10.06	10.87	11.74
12 机制纸及纸板	万吨	0.33	1.08	6.76	28.33	33.05	36.74	35.17
13 缝纫机	万架	—	0.03	3.05	24.57	31.35	45.91	74.98
14 自行车	万辆	—	0.1	14.77	70.49	85.80	116.31	160.45
15 手表	万只	—	—	0.85	76.46	99.65	136.36	221.61

Key:
1. Item
2. Unit
3. Steel (10,000 tons)
4. Pig iron (10,000 tons)
5. Power generation (100 million kWh)
6. Coal (10,000 tons)
7. Crude oil (10,000 tons)
8. Motor vehicles (each)
9. Tractors, large and small (each)
10. Cotton yarn (mixed amount) (10,000 pieces)
11. Cotton fabric (mixed amount) (100 million meters)
12. Machine-made paper and paper board (10,000 tons)
13. Sewing machines (10,000)
14. Bicycles (10,000)
15. Wristwatches (10,000)

Table 7. Total Industrial Output
(Unit: 100 million yuan)

年份 1	工业总产值 2	3 按轻、重工业分				4 按经济类型分			
		轻工业产值 5	占工业总产值% 7	重工业产值 6	占工业总产值% 7	全民所有制工业产值 8	占工业总产值% 7	集体所有制工业产值 9	占工业总产值% 7
1949	9.45	8.19	86.7	1.26	13.3	3.91	41.38	0.0011	0.01
1952	20.91	17.74	84.8	3.17	15.2	11.46	54.8	0.23	1.1
1965	61.26	36.93	60.3	24.33	39.7	51.92	84.75	9.28	15.15
1976	211.60	96.37	45.5	115.23	54.5	154.71	73.11	56.89	26.89
1977	253.90	116.61	45.9	137.29	54.1	176.58	69.55	77.32	30.45
1978	284.55	128.41	45.1	156.14	54.9	198.48	69.75	86.07	30.25
1979	297.83	139.07	46.7	158.76	53.3	212.77	71.44	85.06	28.56
1980	322.25	164.46	51.03	157.79	48.97	224.01	69.51	98.24	30.49
1981	335.80	189.07	56.3	146.73	43.7	231.33	68.89	104.47	31.11

10 注，1980、1981年集体所有制工业产值中，包括其他经济类型的产值数。

Key:
1. Year
2. Total industrial output
3. By light and heavy industries
4. By economic sectors
5. Light industry output
6. Heavy industry output
7. As percentage of total industrial output
8. Industrial output value of state-ownership system
9. Industrial output value of collective ownership system
10. Note: The industrial output value of collective system in 1980 and 1981 includes the value of other economic sectors.

Table 8. Retail Sales, Foreign Trade
(Unit: 100 Million Yuan)

年份 1	社会商品 2 零售额	生活消费品 3 零售额	农业生产资料 4 零售额	外贸收购总值 5	出口总值 6 (亿美元)
1949	7.18	6.23	0.95	—	—
1952	19.95	18.48	1.47	1.36	0.67
1965	39.92	33.25	6.67	5.24	1.26
1978	104.37	77.39	26.98	17.42	8.29
1979	118.60	89.58	29.02	23.33	13.06
1980	143.50	110.63	32.87	27.89	17.63
1981	164.78	127.94	36.84	31.68	18.91

Key:
1. Year
2. Retail sales volume
3. Retail sales of daily consumer goods
4. Retail sales of means of agricultural production
5. Total value of procurement for foreign trade
6. Total export value (100 million dollars)
7. Note: Total export value based on planned prices

Table 9. Increase in Income of Urban and Rural Population

	单位 1	1978年	1979年	1980年	1981年	1981年为1978年的% 2	平均每年递增% 3
4 职工工资总额	亿元	26.24	30.05	37.08	39.58	150.84	14.6
5 全民	亿元	20.54	23.80	29.21	31.17	151.77	14.9
6 集体	亿元	5.70	6.25	7.87	8.41	147.48	13.8
7 职工平均工资	元	568	628	745	755	133.16	10.0
8 全民	元	597	664	774	782	130.99	9.4
9 集体	元	478	521	654	667	139.54	11.7
10 农村社员纯收入	亿元	57.76	76.73	96.90	123.98	214.65	29.0
11集体分配	亿元	44.29	52.90	68.33	82.02	185.19	22.8
12家庭副业	亿元	13.47	23.83	28.57	41.96	311.53	46.0
13社员人均收入	元	89.20	118.20	149.20	189.70	212.67	28.6
14 集体分配	元	68.40	81.50	105.20	125.50	183.48	22.4
15 家庭副业	元	20.80	36.70	44.00	64.20	308.65	45.6

Note: Peasants' income from household sideline occupation is calculated on the basis of typical investigations.

Key:
1. Unit
2. 1981 as percentage of 1978
3. Average progressive increase each year (%)
4. Total wages of workers (100 million yuan)
5. State-owned (100 million yuan)
6. Collective-owned (100 million yuan)
7. Workers' average wages (yuan)
8. State-owned (yuan)
9. Collective-owned (yuan)
10. Net income of rural commune members (100 million yuan)
11. Collective distribution (100 million yuan)
12. Household sideline occupation (100 million yuan)
13. Average income of commune members (yuan)
14. State-owned (yuan)
15. Collective (yuan)

Table 10. Gross Value of Industrial, Agricultural Output in Various Prefectures and Municipalities in 1981

	合计 1	占全省 2 比重%	工农业总产值人均占有(元) 3	工业 4 总产值	占全省 2 比重%	农业 5 总产值	占全省 2 比重%
6 全省	476.04		643.7	335.80		140.24	
7 济南市	48.01	9.95	1,456.8	43.04	12.82	4.97	3.09
8 青岛市	75.62	15.67	1,808.2	67.53	20.11	8.09	5.02
9 淄博市	43.41	9.0	1,980.0	38.39	11.43	5.02	3.12
10 枣庄市	15.54	3.22	578.98	10.72	3.2	4.82	2.99
11 烟台地区	72.8	15.09	846.9	43.41	12.93	29.39	18.26
12 潍坊地区	60.12	12.46	677.2	38.71	11.53	21.41	13.3
13 泰安地区	27.4	5.68	473.4	16.71	4.98	10.69	6.64
14 济宁地区	27.19	5.63	490.5	15.25	4.54	11.94	7.42
15 德州地区	23.23	4.81	424.0	10.62	3.16	12.61	7.83
16 聊城地区	20.4	4.23	463.0	9.88	2.94	10.52	6.53
17 惠民地区	17.28	3.58	326.5	7.86	2.34	9.42	5.85
18 菏泽地区	19.21	3.98	264.9	6.95	2.07	12.26	7.61
19 临沂地区	32.34	6.7	312.0	12.47	3.71	19.87	12.34

Note: (1) Gross value of agricultural output of various prefectures and municipalities is based on their reports.
(2) Gross value of industrial output of all provinces includes 1,426 million yuan (4.24 percent) belonging to Shengli oilfield and the military industry bureau.

Key:
1. Total
2. As percentage of total value of all provinces
3. Gross value of industrial, agricultural output per person (yuan)
4. Gross value of industrial output
5. Gross value of agricultural output
6. All provinces
7. Jinan Municipality
8. Qingdao Municipality
9. Zibo Municipality
10. Zaozhuang Municipality
11. Yantai Prefecture
12. Weifang Prefecture
13. Tai'an Prefecture
14. Jining Prefecture
15. Dezhou Prefecture
16. Liaocheng Prefecture
17. Huimin Prefecture
18. Heze Prefecture
19. Linyi Prefecture

Table 11. Consumption, Accumulation of National Income
(Unit: 100 million yuan)

年 1 份	国民收入使用额 2	消 费 额 3	积 累 额 4	积累率 (%) 5
1976	144.81	103.80	41.01	28.32
1977	161.17	114.19	46.98	29.15
1978	182.00	129.29	52.71	28.96
1979	188.06	136.72	51.34	27.30
1980	217.29	158.78	58.51	26.93
1981	259.51	194.26	65.25	25.15

6 注，1981年按1980年现行价格计算。

作者注：文内、表内所用工农业产值及国民收入数字，除特别注明外，一九四九年至一九五七年均按一九五二年不变价格计算；一九五八年至一九七〇年均按一九五七年不变价格计算，一九七一年至一九八一年均按一九七〇年不变价格计算；增长速度均按可比口径计算。

(1982年7月稿。责任编辑：郑幼云)

Key: 1. Year
2. National income used
3. Consumption amount
4. Accumulation amount
5. Accumulation rate (%)
6. Note: Figures of 1981 based on current prices of 1980

Author's note: In the tables of this article, unless specially pointed out, all the figures of gross value of industrial, agricultural output and of national income in 1949-1957 are based on the constant prices of 1952; those of 1958-1970, based on constant prices of 1957; and those of 1971-1981, based on the constant prices of 1970. Growth rates are calculated according to comparable items.

9411
CSO: 4006/139

PROVINCIAL AFFAIRS

BRIEFS

JILIN CIGARETTE PRODUCTION--Jilin Province produced 260,000 boxes of cigarettes last year, which created some 134 million yuan of profit and tax, amounting to 8.2 percent of the taxes collected by the province. The province plans to produce 280,000 boxes of cigarettes this year. [Excerpt] [Changchun JILIN RIBAO in Chinese 31 Jan 85 p 1 SK]

LIAONING SELF-EMPLOYED--By the end of 1984, Liaoning Province's individual-run households engaged in industrial production or commerce had increased to more than 373,000, exceeding 1952's peak of 369,000. These households are staffed by more than 545,000 people, accounting for 1.5 percent of the province's total urban and rural population. In 1984, their business volume exceeded 21 billion yuan, a 100-percent increase over 1983; and the taxes they paid to the state were 55 million yuan, a 167-percent increase over 1983. Rural areas were faster than urban areas in the development of individual-run industrial and commercial households. by the end of 1984, such households in rural areas had reached more than 231,000, and their proportion had increased from 40 percent in 1981 to 62 percent. Individual-run households also increased their investment and expanded their business scale. by the end of last year, their total investment totaled 455 million yuan, averaging 1,220 yuan per household, showing a more than 100-percent increase over 1983. [Summary] [Shenyang LIAONING RIBAO in Chinese 4 Feb 85 p 1 SK]

CSO: 4006/408

AGGREGATE ECONOMIC DATA

BRIEFS

LIAONING OUTPUT VALUE ACHIEVEMENTS--According to statistics compiled by the provincial statistical bureau, Liaoning Province scored an 11.9-percent increase in its social output value in 1984 over the 1983 figure. The province realized 69.77 billion yuan as its industrial and agricultural total output value, an 11.3-percent increase over the 1983 figure. It scored a 12.6-percent increase in national income over the 1983 figure. In 1984, its per peasant income was 477 yuan, a 6.5-percent increase over the 1983 figure. Rural people scored a 9.1-percent increase in their living expenditures over the 1983 figure. The per capita living expenditure of urban staff members and workers was 586 yuan, a 14.7-percent increase over the 1983 figure. [Excerpts] [Shenyang Liaoning Provincial Service in Mandarin 2200 GMT 13 Feb 85 SK]

LIAONING INDIVIDUAL HOUSEHOLDS--Thus far, the number of individually-run commercial and industrial households in Liaoning Province has increased from 20,069 in 1979 to 373,000, an 18-fold increase, and surpassing, for the first time, the previous record high in 1952, when the number was 360,000. At present, there are 263,000 individually-run business centers with sales and display rooms and sales stands across the province, three times the number of state and collective centers. These individual households have given jobs to 505,000 urban jobless youths and surplus rural workers. [Summary] [Shenyang Liaoning Provincial Service in Mandarin 1030 GMT 21 Jan 85 SK]

GROSS SOCIAL OUTPUT VALUE INCREASES--According to QINGHAI RIBAO, in 1984, the province's gross social output value totaled 4,122 million yuan, an increase of 9.82 percent over the previous year. Therefore, both the social output value and the national income of the province have reached record highs. Furthermore, the province has reached ahead of schedule the national income target of the Sixth 5-Year Plan. The province's per capita national income was approximately, 436 yuan, an increase of 31 yuan over the previous year. In terms of fixed prices, the increase was 8.1 percent. [Excerpt] [Xining Qinghai Provincial Service in Mandarin 1100 GMT 14 Feb 85 HK]

CSO: 4006/401

ECONOMIC MANAGEMENT

ZHOU HUI GIVES OPINION ON MARKET TOWN CONSTRUCTION

SK200346 Hohhot Nei Monggol Regional Service in Mandarin 1100 GMT 18 Feb 85

[Text] In the reform of the urban and rural economic structure, leading cadres of the Nei Monggol Regional CPC Committee and government have persistently conducted investigations and research, thus effectively promoting economic development. Before the Spring Festival, Comrade Zhou Hui, secretary of the Nei Monggol Regional CPC Committee, investigated on three occasions the construction of market towns in (Qixiaying) Town of Zhuozi County. He pointed out: In the construction of small market towns, the efforts of individual, collective and state enterprises should be pooled, but the emphasis should be placed on individual and collective enterprises. The barriers between different administrative areas should be eliminated so that extensive economic contacts between cities and villages and towns can be established.

The opinion of Comrade Zhou Hui, which is significant in guiding the construction of small market towns in Nei Monggol, evoked enthusiastic repercussions from various fields.

During the past year, leading persons of the regional CPC Committee and government conducted investigations and research at nearly 100 industrial, communications, financial, and trading enterprises and more than 50 banners and counties, and gave meticulous guidance to the restructuring of the urban, rural, and pastoral economy. In the spring of 1984, the economic and managerial reforms of many industrial, communications, financial, and trading enterprises in the region became stagnant due to a failure in fulfilling the contracts at the end of 1983. Some of these enterprises even restored the practice of eating from the common big pot. Leading comrades of the regional CPC Committee and government conducted investigations on such a situation in Hohhot City, Baotou City, and Bayannur League. They formulated through discussions a series of policies and measures very soon in order to promote the reforms and to enable the economic responsibility system, which has more than 10 forms, to be applied extensively at industrial and communications enterprises. The passive situation in industrial production was soon changed. The region's output value grew by 4.7 percent in the first half of the year and grew by 9.01 percent annually. The profit of local industrial enterprises increased by 34.4 percent, and the region's revenue showed a 20.2-percent increase, the best in several years.

As soon as the new year began, leading persons of the regional CPC Committee and government selected a unit each at which they will participate in and familiarize themselves with its entire course of reform. They also urged all departments and units to do the same and to be vanguards of reforms.

CSO: 4006/408

ECONOMIC MANAGEMENT

BRIEFS

STUDY ON ECONOMIC REFORM--Shanghai Municipality has organized a group of senior engineers, research fellows, theoretical workers, and veteran cadres with rich practical experience to investigate special topics and study a broad range of subjects to provide decision-making foundation for the Shanghai Municipal CPC Committee and government in reforming and revitalizing Shanghai's economy. The Shanghai Municipal CPC Committee has set up a leading group in charge of the investigation and study. A total of 250 personnel divided into six groups have begun work. The subjects under investigation and study include the transformation of traditional industries, the development of new industries, the development of the tertiary industry, the strengthening of urban infrastructure, the restructure of suburban agriculture, the development of the intellectual resources and personnel training. [Text] [Beijing Domestic Service in Mandarin 1600 GMT 15 Feb 85 OW]

CSO: 4006/401

FINANCE AND BANKING

BRIEFS

LIAONING'S AUDITING WORK--Last year, auditing departments in Liaoning Province audited 527 units and discovered 341.93 million yuan in illegally owned funds. Of this, 164.72 million yuan was retained in violation of laws and discipline, and 26.21 million yuan should have been handed over to the state. [Excerpt] [Shenyang LIAONING RIBAO in Chinese 8 Feb 85 p 1 SK]

ANHUI BANKERS MEETING--The Anhui Provincial Agricultural Bank recently held a meeting of directors of agricultural banks in the province. The meeting discussed questions on how to raise funds, expand sources of funds for rural credit loans, support the readjustment of Anhui's farm crop patterns and rural production setup, and promote the development of commodity economy. It also made arrangements for dealing with these questions. Huang Huang, secretary of the provincial Party Committee, and (Shao Ming), vice governor, attended and addressed the meeting. [Excerpts] [Hefei Anhui Provincial Service in Mandarin 1100 GMT 18 Feb 85 OW]

CSO: 4006/408

INDUSTRY

OUTPUT OF GUANGDONG'S ELECTRONICS INDUSTRY INCREASES

Guangzhou NANFANG RIBAO in Chinese 15 Oct 84 p 1

[Article by Wang Dekuan [3769 1795 1401], Li Junqiu [2621 0193 7264] and Lin Shi [2651 0670]: "Carry Out the Policy of Opening to the Outside World, Import Advanced Equipment--Output of Guangdong's Electronics Industry Quadruples In 3 Years; Guangdong Can Now Produce One Television Set Every 2-1/2 Minutes and Four Radio-Cassette Recorders Every Minute"]

[Text] By the end of September, the output value of Guangdong's electronics industry had broken through the 1.2 billion yuan mark thereby quadrupling in 3 years. In 1981 the output value of its electronics industry ranked 8th in the nation; this year it has leaped to 3d. This is the result of implementing the policy of opening to the outside world.

Guangdong can now produce one television set every 2-1/2 minutes and four radio-cassette recorders or six radios every minute. The carrier rockets and man-made earth satellites launched by China have instruments and parts developed and manufactured by Guangdong's electronics industry. This signifies that Guangdong has reached a new level in its electronics science and technology.

There was no electronics industry in Guangdong prior to Liberation. After Liberation, due to the influence of "leftist" mentality, development of the electronics industry was exceedingly slow. By 1979 the total annual output value of the electronics industry in the province was merely 200 million yuan or so. Since the 3 Plenary Session of the 11th party Central Committee Guangdong's electronic industry has developed rapidly, spreading east to the Chaoxian Plain, west to the western Guangdong region, north to the foot of the Five Ridges and south to Hainan Island. The industrially backward mountainous regions in northern Guangdong can already produce electronic computers. The city of Foshan has become one of the 10 great electronics cities in the whole country. Chaoxian, the home of porcelain, has already been using porcelain clay to produce the important basic electronic component--the carbon diaphragm resistor, thereby filling in the gap in the country.

Guangdong's electronics industry has been able to develop rapidly primary because of the implementation of the policy of opening to the outside world which has actively imported advanced equipment, advanced technology and

advanced management experience. Having imported advanced production lines and advanced equipment for several years, many enterprises which at first could only produce low-grade radios can now produce black-and-white television sets, color television sets, high-grade radio-cassette recorders and high-grade radios. Before 1979 electronic computers in Guangdong were still at a small-quantity production stage. They are now produced by more than 20 enterprises throughout the province. In the province as a whole there are now 14 different types of basic electronics products including light-emitting diodes, plastic-sealed triodes, electrolytic capacitors and magnetic heads that have attained the domestic advanced level. At the same time, a large number of electronics products including variable capacitor diode test meters, automatic distortion meters, double-sided double-density floppy disk drives and ultrasonoscopy diagnostic meters have been developed and put into production, filling in the gaps in the country.

In the past many enterprises relied on state subsidies because their equipment were old and production methods outdated. Now many enterprises with high economic results have risen. The Foshan Municipal Radio Plant used to be famous in the province for its big deficits, but since importing advanced equipment and advanced technology it has become one of China's 10 big profitmakers in electronics.

Although there has been rapid development in Guandong's electronics industry, because it started out slow and with a poor foundation, it is still relatively poor in technical strength; the quality of products and the level of management have not been improved in step with the output value and the gaps are wide; and some leaders still continue to concentrate much of the energy on product quantity and profits. These problems have aroused the attention of authorities in the electronics industry.

9586
CSO: 4013/45

INDUSTRY

CONSTRUCTION SCALE OF SUGAR MILLS ON HAINAN ISLAND DISCUSSED

Haikou HAINAN RIBAO in Chinese 20 Oct 84 p 2

[Article by Lin Youping [2651 1429 1627]: "A Discussion on the Construction Scale of Sugar Mills On Hainan Island"]

[Text] There are currently 36 sugar mills in the Hainan Administrative District (including the Longli and Shanzhugou mills which are under construction and each with a daily press capacity of 1,000 metric tons with a total designed daily production capacity of 21,500 metric tons and an average daily production capacity of 597 metric tons per mill. According to the sugarcane development plan of the Hainan Administrative District, sugarcane output will be increased to 5 million metric tons by 1990 and 10 million metric tons by the year 2000, which will require the mills to have a total daily press capacity of 85,000 metric tons. In other words, within 15 years the production capacity of sugar mills will be increased by 63,500 metric tons per day. Calculating on the basis of the average scale of existing sugar mills we will need to build 127 new mills with a standard daily output of 500 metric tons. Therefore, along with the development of sugarcane production and the increase in production capacity of sugar mills, the path of mill construction or the production scale of sugar mills deserves to be studied and discussed in earnest.

From the standpoint of the level of scientific and technical development in the sugar manufacturing industry, the current general trend is toward large production scale, automation and continuity in production operations, high-efficiency equipment, diversification in product variety and higher product quality. Sugar mills in some foreign countries are being developed toward a production scale of handling of 10,000 metric tons of sugarcane per day. In the previous press season Brazil had an output of 8 million metric tons of sugar. There is a total of 263 mills in the country and the smallest one has an output of 3,000 to 5,000 metric tons while the largest mill can press 31,000 metric tons of sugarcane per day, so that mills with a daily capacity of 1,000 to 2,000 metric tons have long been eliminated. The situation in our province is similar. The Shunde Sugar Mill used to have a daily capacity of 800 metric tons but now it has been expanded to 5,000 metric tons. The Zhongshan Sugar Mill had a daily capacity of 2,000 metric tons, now it has been expanded to 4,000 metric tons. After the small cane press mills with a daily capacity of 1,000 metric tons were constructed and began production in Zhanjiang the year before last, their press capacity was expanded to 2,000 metric tons per day in the last press season. Obviously, whether it is abroad or within the province, the scale of sugar mills generally tends to be large and this is the general trend.

Building large sugar mills have many advantages. First, it favors to the comprehensive utilization of by-products from the mills. For example, using waste molasses of to develop fermentation industry to produce monosodium glutamate, citric acid, nucleic acid acetic source [cu mu 6818 3018] and using bagasse to produce granulated fiberboards or chemical fiber can expand the industrial area of sugar mills. Second, the "three wastes" discharged by sugar mills can undergo comprehensive treatment conveniently thereby reducing investment cost. Third, large mills have a high degree of automation, high labor productivity, advanced technical and economic targets. Their costs are low and they yield good economic results. Take the press season of 1982-1983 in Guangdong as an example, the unit cost of white sugar of large mills was 587.442 yuan per metric ton at the Jiangmen Sugarcane and Chemical Mill and 562 yuan at the Shunde Sugar Mill. Those with a relatively good level of management was 609 yuan at the Dongshui Sugar Mill with a daily capacity of 1,000 metric tons and 675.82 yuan at the Jianguo Sugar Mill with a daily capacity of 500 metric tons. The cost of white sugar from large mills is 13 to 37 yuan lower than that of medium-sized mills and 91 to 115 yuan lower than small mills. From these comparative figures it is obvious that the economic results of large mills are irreproachably higher than those of small mills.

Of course, our district currently do not have the conditions to build mills with a daily press capacity of 10,000 metric tons, but it is certain that the general trend should be the development of large mills. The size of a mill is determined by the quantity and density of sugarcane resources, conditions of communications and transportation and the sources of water supply. In view of the actual conditions in our district, in order to realize the development plan of the sugar industry, based on the distribution of current small sugar mills, each county (and city) must have 7 to 8 mills. Where do we put such a dense distribution of mills? If we distribute them according to the production scale of 2,000 metric tons per day we still need to have 40 sugar mills, or on the average at least 2 in each county (and city). Such distribution is rational but measures must be suited to local conditions; mills can be large or small and each has a role to play. Therefore, in terms of the development plan of the sugar manufacturing industry in our district, I believe that we should expand the production capacity of old mills by intension expanded reproduction and primarily increase the processing volume supplemented by extension expanded reproduction. The expanded reproduction of these two forms are mutually linked and are carried out in combination, though not at the same time and not with the same particular emphasis. Although our district has a certain foundation in the production of the sugar industry, it is primarily consisted of small mills with outdated equipment, a low level of management and poor technical quality which seriously prevent their production capacity from playing its role and their economic results from improving. In addition, the financial resources of our district are still inadequate so that we should stress intension expanded reproduction, rely on advanced science and technology and develop the potentials of old mills and transform them to expand the production capacity of existing mills. This is economically worthwhile and is geared to actual circumstances. Take our

district as an example, the production capacity of each metric ton of sugarcane in newly constructed mills requires 250,000 yuan while in general it only costs 140,000 yuan to develop and transform an old mill. For instance, the Bayi Sugar Mill was originally a small mill with a daily capacity of 350 metric tons. In recent years it has been transformed and expanded to 1,000 metric tons at a total investment of 4.54 million yuan. During the cane sugar production period of 1983 to 1984 its sugar products brought 1,806,800 yuan in profits. Its accumulation is quick and effective and its economic results are obvious.

However, purely relying on the transformation of old mills to suit the implementation of planning clearly will not work. We still need to build a number of sugar mills in newly-developed sugarcane areas and regions where there is a high density of sugarcane, good water resources and convenient communications and transportation. Their scale should best be between 2,000 to 3,000 metric tons per day and in special locations we can consider building sugar mills with a daily capacity of 5,000 metric tons.

9586
CSO: 4013/45

INDUSTRY

YUNNAN MEETING ON PREPARING FOR INDUSTRIAL CENSUS

HK160557 Kunming Yunnan Provincial Service in Mandarin 2300 GMT 15 Feb 85

[Text] On 14 February the provincial government held a telephone conference on the industrial census, which demanded that the leaders concerned enhance understanding, strengthen leadership, and make good preparations for the industrial census in the province.

The meeting pointed out: The national industrial census set by the State Council for the first quarter of 1986 is a major investigation of the national condition and strength. It is an extremely importance item of foundation work for modernization. The tasks of the census are:

1. To get a clear idea on the basic conditions of the country. Apart from showing the entire state of the industrial economy including production, supply, marketing, manpower, finances and materials, it will focus on showing the technological state of industrial equipment, the economic results, the internal structure of industry, and the situation regarding staff and workers, and will provide relatively complete and detailed basic data for the state.

2. To get a clear idea on the situation in each enterprise regarding production, capital, equipment, and personnel; to stimulate enterprise consolidation; and to strengthen basic work such as making estimates, keeping records, making statistics, accounting and so on, so as to improve the management standard of the enterprises.

This is the last year for preparing for the industrial census. The census will cover many items, involve broad fields, and require a strong technical and professional sense. It will be difficult. To ensure that Yunnan's industrial census will be smoothly carried out in accordance with the unified arrangements of the whole country, it is currently necessary to implement the various measures, and speed up the organization and strengthening of the census organs. All prefectures, cities and countries, and the departments in charge must have able and effective leadership groups and administrative organs for the industrial census. They must also solve as soon as possible problems such as funds for the census.

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INDUSTRY

CURRENT CONDITION, DEVELOPMENT PROSPECTS OF CEMENT INDUSTRY

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[Article by Jing Wen [2529 2429]: "The Current Condition and Development Prospects of China's Cement Industry"]

[Text] Cement is an important building material. The cement industry has developed rapidly since it first appeared in 1756. Especially since the beginning of this century, its output, variety, quality and production technology have been greatly improved, and in 1981, its gross output exceeded 900 million tons. It has become an important and indispensable material in civil engineering. Our cement industry has also been greatly developed in the past 30 years, but its output is still far short of the requirements of our urban and rural housing construction and our industrial and agricultural production. The contradiction between supply and demand is quite striking. How to speed up the development of cement industry is an important issue with a bearing on the four modernizations and the improvement of people's living conditions.

I. Basic Conditions of Development of Our Cement Industry

Our cement industry began during the Westernization Movement to meet the needs of mining, factory construction and other construction projects in the late 19th century. In 1889 (the 15th year in Qing Emperor Guangxu's reign), the first cement factory in our country, the Tangshan Cement Factory, was opened as a joint government-civilian venture in the mining area under the Kaiping Mining Administration Bureau of Tangshan, Hebei Province. This factory was soon closed down because of losses. It was reopened in 1906 on a partnership basis and operated under the new name of the Qinxin Cement Company. Two small rotary kilns were purchased from Denmark, and the daily productive capacity was 700 barrels. Before Liberation, their capacity was gradually increased to 350,000 tons a year. After the Qixin Company, more than 30 cement enterprises were established--some by the government, others by civilians and still others by foreign traders. Among them were the Dalian Cement Factory, the Guangzhou Cement Factory and the Daye Cement Factory of Hubei. The highest productive capacity before Liberation was 4,038,000 tons. (The figures, and those that follow, do not include the figures of Taiwan Province.) Because of the oppression of the three large mountains [imperialism, feudalism and bureaucratic capitalism] and the economic

depression, some of these factories were forced to close down while others had to operate under capacity. The highest annual output before Liberation was only 2.29 million tons, which was further reduced to only 660,000 tons in 1949.

The founding of New China brought a new life to the cement industry. During the 3 years of economic recovery, some of the destroyed or closed cement factories were quickly repaired or reopened, while others, left uncompleted before Liberation , such as the Jiangnan Cement Factory, were quickly completed and put into operation. Since the First 5-Year Plan period, a number of medium-size cement factories and many small ones were built throughout the country. After 30 years of effort and along with the development of the entire national economy, our cement industry has developed into an important industrial branch capable of large-scale production. The current situation is basically as follows:

(1) Number of Enterprises and Their Scales of Production

There are now more than 4,500 cement enterprises with some 700,000 workers throughout the country. Among them are 52 large and medium-size enterprises with about 100,000 workers, and about 4,500 small ones with about 600,000 workers. Of the total number of more than 450,000, 1,963 are state-owned. At the end of 1980, they had about 620,000 workers, about 6.5 billion yuan's worth (original value) of fixed assets and a gross output value of 3.3 billion yuan (based on the constant price of 1970). At the end of 1981, the productive capacity in the country was 91.9 million tons, of which 25.77 million tons came from the 52 large and medium-size cement enterprises and 66.13 million tons came from some 4,500 small enterprises. The average annual output of the large and medium-size cement factories was 520,000 tons, and the highest-capacity ones at present are those of Beijing's Liulihe Cement Factory and the Handan Cement Factory, both of which produce more than 1 million tons each year. According to the statistics on 2,010 small cement enterprises at the end of 1979, 1,926 of them had shaft kilns and 84 had rotary kilns. Their cement output that year was 41,721,600 tons. Among those using shaft kilns, 131 enterprises, each with an annual capacity of more than 88,000 tons, produced a total of 13,190,900 tons, of 31.6 percent of the total output of all small cement enterprises; 223 others, each with an annual capcity of 44,000-88,000 tons, produced a total of 9,042,200 tons, or 21.7 percent of the total output; 1,021 others, each with an annual capacity of 10,000-14,000 tons, produced a total of 13,869,800 tons, or 33.3 percent of the total output; 551 others, each with an annual output of less than 10,000 tons, produced 2,219,100 tons, or 5.1 percent of the total output; and 84 others with small rotary kilns produced 3,439,600 tons, or 8.3 percent of the total output.

(2) Output

Our cement output has increased 126-fold with an average annual increase of 16.3 percent in the 32 years since the founding of the People's Republic. The total cement output in 1981 was 84 million tons, which put our country in third place in the world. The annual increases in our cement output are shown in Table 1.

Table 1. Increases in China's Cement Output in 1949-1981
(Unit: 10,000 tons)

年(1)度	产(2)量	比上年增长%(3)	年度(1)	产量(2)	比上年增长%(3)
1949	66		1965	1,634	35.2
1950	141	113.6	1966	2,015	23.3
1951	249	76.6	1967	1,462	-27.4
1952	286	14.9	1968	1,262	-13.7
1953	388	35.7	1969	1,829	44.9
1954	460	18.6	1970	2,575	40.8
1955	450	- 2.2	1971	3,158	22.6
1956	639	42.0	1972	3,547	12.3
1957	686	7.4	1973	3,731	5.2
1958	930	35.6	1974	3,709	-0.6
1959	1,227	31.9	1975	4,626	24.7
1960	1,565	27.5	1976	4,670	1.0
1961	621	-60.3	1977	5,565	19.2
1962	600	- 3.4	1978	6,524	17.2
1963	806	34.3	1979	7,390	13.3
1964	1,209	50.0	1980	7,986	8.1
			1981	8,400	5.2

Key:

1. Year
2. Output
3. Percentage of Increase over the Previous Year

Our country occupied the first rank in terms of absolute output and the rate of increase. The outputs of several leading cement-producing countries are shown in Table 2.

Table 2. Cement Output of Several Leading Cement-producing Countries
(Unit: 10,000 tons)

(1)国别	(2)水泥产量	(1)国别	(2)水泥产量
(3)苏联	12,500	(8)西德	3,420
(4)日本	8,810	(9)法国	2,860
(5)中国	8,400	(10)西班牙	2,960
(6)美国	6,510	(11)印度	1,710
(7)意大利	4,180	(12)英国	1,480

(13) 注：除中国为1981年产量外，其余各国均为1980年产量。

Key:

1. Country
2. Cement Output
3. Soviet Union
4. Japan
5. China
6. United States
7. Italy
8. West Germany
9. France
10. Spain
11. India
12. England
13. 1981 for China and 1980 for all others

In the 1960's, the average cement output in our country increased by 1.01 million tons at a rate of 5.1 percent each year. We were behind the Soviet Union, Japan, the United States and some other countries. In the 1970's, however, our annual increase was 5.41 million tons (including the output of small cement factories) at a rate of 12 percent, which was higher than the rates of increase of Japan, the United States and the Soviet Union. See Table 3 for details.

The total output of the large and medium-sized enterprises in our country was increased from 3,802,000 tons in 1953 to 24.85 million tons in 1981 with an average increase of 6.9 percent.

A number of small cement factories have been built in various localities since 1958 to meet the requirements of farmland capital construction and urban housing development. Since the early 1970's, the output of small cement enterprises has increased very rapidly. The average annual increase from 1971 to 1980 was 3.7 million tons, a 4-fold increase in 10 years.

Table 3, Rates of Increase in the Output of Several Leading Cement-producing Countries

(1) 国别	(2) 1960～1970年平均		(3) 1970～1979年平均	
	(4)净增量（万吨）	%	(4)净增量（万吨）	%
(5) 苏联	497.2	7.7	308.2	3.
(6) 日本	347.7	9.6	340.1	4.9
(7) 中国	101.0	5.1	535.0	12.4
(8)其中大水泥	34.6	3.2	86.2	5.3
(9)美国	130.4	1.8	29.7	0.5
(10) 意大利	127.7	7.7	73.8	2.05
(11) 西德	136.2	4.5	-32.6	—
(12) 法国	148.1	7.4	- 1.9	—
(13)西班牙	114.7	12.6	126.2	6
(14)印度	63.0	6.3	47.7	3
(15)英国	37.5	2.5	-10.1	—

Key:

1. Country
2. Average of 1960-1970
3. Average of 1970-1979
4. Net Increase (10,000 tons)
5. Soviet Union
6. Japan
7. China
8. China's large and medium-sized cement factories
9. United States
10. Italy
11. West Germany
12. France
13. Spain
14. India
15. England

(3) Variety and Quality of Products

In the early post-liberation period, we could produce only three types of cement, namely, ordinary cement, slag cement and white cement. After more than 30 years of effort and successful experimentation, more than 20 types in 5 categories have been produced. In addition to the ordinary silicate cement and slag cement, the principal types of special cement are: slag and silicate cement for building large dams; anti-sulphuric cement for maritime and railway tunnel projects; oil well cement for strengthening the well walls in developing oilfields; special expandable and self-stressed cement for civil engineering; fast-setting and fast-hardening cement for rescue operations and for the use of sand molds; alumina cement for refractory concrete work; refractory calcium-aluminate cement; white cement; and color cement.

The quality of cement has also been greatly improved. The grade of cement produced by large and medium-size factories in 1953 was of Grade 394 (according to the hard-processing standard), and reached Grade 452 by the soft-processing standard (equivalent to Grade 517 by the hard-processing standard) in 1981. The proportion of high-grade cement above Grade 425 by the soft-processing standard was raised from 9 percent in 1953 to 94 percent in 1981. The quality of the product of small cement enterprises has also gradually improved. According to the statistics of 1980 on 2,111 small cement factories in the country, 85.6 percent of the products out of the factories were up to the required standard, an increase of 12 percent over 1978, and 95 percent of these up-to-standard products were above Grade 325 by the soft standard.

(4) Geographical Distribution of This Industry

Before Liberation, cement production was mainly concentrated in the northeast, the north and the eastern coastal areas. The geographical distribution was very irrational, but a great improvement has been made after 32 years of construction. Now, except for Xizang and Ningxia, all the provinces, municipalities and autonomous regions have their large and medium-size cement factories, and more than 80 percent of all counties and many communes and production brigades have their small cement factories. The regional distribution of cement production has also undergone great changes. A comparison between the regional output in the early post-liberation period and in 1981 will show a drop from 54.3 percent to 14.8 percent in the northeast, a drop from 24.4 percent to 15.4 percent in northern China; a rise from 10.4 percent to 27.4 percent in eastern China; a rise from 8.9 percent to 24.6 percent in the central south; a rise from 1.9 percent to 10.8 percent in the southwest; and a rise from 0.1 percent to 7 percent of the total output in the northwest. Along with the improvement in the geographical distribution of the cement industry, the average railway distance of cement transportation has also undergoing great changes: from 505 km in 1952 to 854.3 km in 1956, to 788 km in 1965, to 604 km in 1970 and to 356 km in 1980.

(5) Consumption Pattern

With the development of the national economy and the increase in urban and rural housing construction, the scope of cement utilization has continued to expand while the pattern of its consumption has also undergone great changes. The general trend of development is that the volume of consumption in productive maintenance and rural construction has rapidly increased, while that of capital construction has correspondingly declined. Of the total amount of cement consumed during the First 5-Year Plan, 66.4 percent was used in capital construction; 6.3 percent, in productive maintenance; 4.2 percent, in the countryside; and the remaining 23.1 percent, in other projects (such as exports and foreign aids). In 1980, the share of capital construction dropped to 42.3 percent; that of productive maintenance rose to 22.7 percent; and that of rural consumption also rose to 35 percent. The changes in the pattern of cement consumption in various periods are shown in Table 4.

Table 4. Changes in the Pattern of Cement Consumption in Various Periods (percent)

(1) 时期 \ (2) 百分比 (3) 消费方向	(4) 基本建设	(5) 生产维修	(6) 农村消费	(7) 其它
“一五”时期(8)	66.4	6.3	4.2	23.1
“二五”时期(9)	67.1	9.9	2.6	20.4
三年调整时期(10)	50.3	17.4	11.9	20.4
“三五”时期(11)	47.2	17.1	18.3	17.4
“四五”时期(12)	42.1	19.5	28.3	10.1
“五五”前三年(13)	36.2	19.6	32.9	11.3
1980年 (14)	41.7	22.4	34.6	1.3

Key:

1. Period
2. Percentage
3. Way of Consumption
4. Capital Construction
5. Productive Maintenance
6. Rural Consumption
7. Others
8. First 5-Year Plan
9. Second 5-Year Plan
10. 3 years of readjustment
11. Third 5-Year Plan
12. Fourth 5-Year Plan
13. 3 years before Fifth 5-Year Plan
14. 1980

II Major Problems in Cement Industry

(1) Irrational Structure, Low Output and Slow Increase Among Large and Medium-size Enterprises

Our country ranks first in terms of absolute cement output and its increase rate, but the per-capita amount is small. According to statistics, China ranks 42d among the 54 cement-producing countries in terms of per-capita consumption. See Table 5.

Table 5. Per-capita Cement Consumption (Unit: kg/person-year)

(1)国别	1970年	1979年
(2) 苏联	381	453
(3) 日本	528	705
(4) 美国	327	337
(5) 意大利	603	691
(6) 西德	598	552
(7) 法国	551	521
(8) 英国	307	273
(9) 中国	26	74
(10) 世界平均	158	192

Key:

1. Country
2. Soviet Union
3. Japan
4. United States
5. Italy
6. West Germany
7. France
8. England
9. China
10. World average

In our national cement production as a whole, the proportion of fine-quality and low-cost products by the large and medium-size enterprises is small, and the rate of increase in output is low. In 1953-1978, the average annual growth rate among all the enterprises, large and small included, was 12.8 percent, but that of the large and medium-size ones was only 8.3 percent. In 1979, the total cement output increased by 13.3 percent, but that of the large and medium-size ones was only 8.8 percent. In 1980, the total cement output increasec by 8.1 percent, but that of the large and medium-sized ones increased by 3.5 percent. In 1981, the total cement output increased by 5.2 percent, but that of the large enterprises decreased by 2.9 percent. See Table 6 for details.

Because of the slow increase in the output of large enterprises, their ratio to the total cement output has continued to drop every year as shown in Table 7.

Table 6. Total Cement Output and Output Increase Rates of Large and Small Enterprises in Various Periods

时 (1) 期	水泥总产量递增率 (2) (%)	其中 (3)	
		大企业递增率 (%) (4)	小企业递增率 (%) (5)
(6)恢复时期	63.1	63.1	/
(7)"一五"时期	19.1	19.1	/
(8)"二五"时期	-2.7	-5.3	38
(9)调整时期	39.6	29.9	77.5
(10)"三五"时期	9.5	6.5	14.9
(11)"四五"时期	12.4	4.7	20.8
(12)"五五"时期	11.5	6.1	14.8
1981年	5.2	-2.9	9.0

Key:

1. Period
2. Total Output (percent)
3. Including:
4. Progressive Rates of Increase of Large Enterprises
5. Progressive Rates of Increase of Small Enterprises
6. Recovery period
7. First 5-Year Plan
8. Second 5-Year Plan
9. Readjustment Period
10. Third 5-Year Plan
11. Fourth 5-Year Plan
12. Fifth 5-Year Plan

Table 7. Ratios of Outputs by Large, Small and Medium-size Enterprises to the Total Output in Various Periods

时 (1) 期	大中型厂 (2) (%)	小型厂 (3) (%)	时 (1) 期	大中型厂 (2) (%)	小型厂 (3) (%)
(4)恢复时期	98.0	2.0	(8)"三五"时期	61.0	39.0
(5)"一五"时期	97.4	2.6	(9)"四五"时期	47.0	53.0
(6)"二五"时期	80.2	19.8	(10)"五五"时期	34.1	65.9
(7)调整时期	73.4	26.6	1981年	29.6	70.4

Key:

1. Period
2. Large and medium-size factories
3. Small Factories (percent)
4. Recovery period
5. First 5-Year Plan
6. Second 5-Year Plan
7. Readjustment period
8. Third 5-Year Plan
9. Fourth 5-Year Plan
10. Fifth 5-Year Plan

The contradition between supply and demand has been very acute in our country over the past 10 years and more. The cement output of large and medium-size enterprises, in particular, has every year shown a shortfall of 5-7 million tons.

The structure of cement varieties is also irrational. First, in our country, the ratio of slag cement and pozzolanic cement containing large amounts of aggregates is excessive, while in the capitalist countries, most of the silicate cement contains little or no aggregate, while slag cement and pozzolanic cement are produced only in small amounts. In 1980, of the output by our large and medium-size cement enterprises, silicate cement amounted to 19.15 percent; ordinary cement, 45.06 percent; slag cement, 38.43 percent; pozzolanic cement, 1.46 percent; and special cement of various types, 4.95 percent. More than half of the total output by small enterprises were slag cement. Second, the ratio of intermediate- and low-grade cement is high and that of high-grade and fine-quality cement is low. At present, the proportion of fine-quality cement above Grade 525 by the soft standard is only 10 percent, and that of Grade 525 is approximately 30 percent of the total output. All the rest are below Grade 325.

(2) Low Technical and Management Standards and Backward Equipment

The backward technology of our cement industry is mainly manifested in the high ratios of wet-process products, while the development of the new dry process is too slow. The wet process and the dry process belong to different technologies in cement production. Production with the wet process can be more easily controlled and more conveniently managed with good quality ensured. However, it requires higher energy consumption. Production with the dry process, though making a higher demand on the quality of raw materials, has the advantages of higher output, less land occupancy and lower energy consumption. This new dry process has developed very rapidly, particularly since the appearance of the dry production line with the technique of extra-kiln decomposition in the early 1970's. This event was hailed as an important step in the improvement in the cement industry of the 1970's. In France during the 1960's, wet-process cement accounted for 70 percent of its cement output, but in 1978, this proportion was reduced to 12 percent. In West Germany, dry-process cement accounted for 86 percent of the total output in 1978. In 1963, Japan produced 49.7 percent of its cement with the wet process. In 1979, this proportion was less than 2 percent and 65 percent of its cement was produced with new dry-process kilns. Japan even plans to retain only the rotary kilns with precalcinators and to eliminate all the other types within this year. In our country, however, 86, or 60.5 percent, of the 142 rotary kilns owned by the large and medium-size cement enterprises are using the wet process, and the rest are all old dry- and semidry-process kilns. There is not a single energy-saving rotary kiln with a precalcinator in formal operation. About 20 percent of the technical equipment of these large and medium-size plants belongs to the 1920's and 1930's; about 70 percent belongs to the 1940's and 1950's; and less than 10 percent belongs to the 1960's and 1970's. The small cement factories above the county level throughout the country have a total of 3,156 shaft kilns,

including 467 mechanized ones. The rest of their kilns are all common shaft kilns (also called indigenous kilns) which are fed manually and operated intermittently. Common kilns are crude kilns for cement production. Their output is low, the quality of their products is uneven, their energy consumption is high and their operation requires a high labor intensity. Even mechanized shaft kilns have many technical weaknesses because of the many problems with the prehomogenization of raw materials, the measurement and the system of ingredients for grinding, the homogenization of raw materials and the accurate proportions of their blending, pellet-forming properities and so forth.

(3) High Energy Consumption, Low Labor Productivity and Serious Dust Pollution

Because of backward production techniques and problems in management, the economic results of our cement industry are far from ideal, particularly because of the fairly high energy consumption. In 1980, the cement industry consumed 12,655,000 tons of coal (standard coal), 370,000 tons of petroleum and 7.644 billion kw of electricity. The total consumption was equivalent to 15,845 million tons of standard coal, or 32.02 percent of the 49.48 million tons of standard coal consumed in the entire building materials industry. The energy consumption per unit is also fairly high. In 1980, the average consumption of large and medium-size rotary kilns in the country was 1,446 kilocaleries for every kilogram of clinker, and the energy consumption of the wet-process kilns was 1,500-1,800 kilocalories per kilogram, far higher than what is required according to advanced foreign standards. For example, the energy consumption of large rotary kilns with precalcinators is only 710 kilocalories for 1 kilogram of clinker, and in Japan, the average energy consumption is only 808 kilocalories per kilogram.

Since small cement factories mainly use shaft kilns, their energy consumption per unit, on the whole, is lower than that of large and medium-size factories. In 1979, for example, the average consumption by small cement enterprises on each ton of clinker was 182.7 kg of standard coal, 11.8 percent below the large and medium-size factories. The consumption by mechanized shaft kilns was even lower. In 1980, the consumption of standard coal by 141 mechanized shaft kilns, each producing more than 88,000 tons each year, was 161 kg, or 1,126.8 kilocalories for 1 kg of clinker, with a 36 percent heat efficiency. Compared with the energy consumption by foreign shaft kilns at 820-900 kilocalories per kilogram of clinkers, ours is still higher by 20-30 percent.

Labor productivity is low. In 1980, the output per person was 269 tons in the large and medium-size enterprises and 81 tons in the small enterprises, from several to more than 10 times lower than their counterparts in advanced foreign countries.

Dust pollution is also serious. At prasent, the dust discharged into the air from the kiln ends in the large and medium-size cement factories amounts to more than 1 million tons each year. The dusts from this source and from the driers, grinders and packing machines all add up to about 10 percent of the total cement output. The dusts discharged by the small cement factories, though less than the amount from the large factories, still amount to about 5 percent of the total cement output. The workshops of many small

factories are full of flying dust, up to hundreds of millimeters per cubic meter and exceeding the state-set limits by tens of times. This is not only an economic loss but also a source of environmental pollution which is hazardous to the health of the people living in the vicinity and harmful to the growth of agricultural crops.

III. Development Prospects for China's Cement Industry

Although China's cement industry has undergone great developments since the founding of the People's Republic, neither its output nor the quality and variety of the products can meet the requirements of economic development and the people's housing program. Our population is large, our steel output is low, the area of forest cover is small and timber is particularly scarce. Along with the development of industrial production and construction and the improvement of living conditions for the urban and rural population, the amount of cement to be used in the construction trade and other fields will continue to increase and the demand for cement will continue to rise. According to an assessment by the Organization of Industrial Development of the United Nations, the total accumulated amount of cement consumption in the European countries is now 14,000 kg per person. World population by the turn of the century is expected to be about 6.5 billion, and the total cement output will be 1.5 billion tons (or 1.8 billion tons according to another version), or an average consumption of 230 kg of cement per person. At present, the average annual consumption of cement in our country is only 84 kg per person, and the output has to double in order to reach the world standard. Now let us base our forecast on the relationship between the actual volume of cement consumption and the GNP in various countries of the world. In other countries, when the GNP reaches $1,000 per capita, the annual volume of cement consumption will be between 0.24 and 0.43 tons per capita. When our GNP reaches $1,000 per capita and our population reaches 1.25 billion, the total cement output should be at least 290 million tons before we can meet the basic requirements. Therefore, the vigorous acceleration of cement development is a necessity.

Again, this trend of development can be shown by the changes in the ratio of cement output to steel output and the forecast ratios.

See Table 8.

Table 8. Changes in the Ratio Between Cement Output and Steel Output in Our Country and in the World

年份 (1)	1950年	1960年	1970年	1979年	1990年 预(2)测	2000年 预(2)测
世界 (3)	0.7	0.92	1.05	1.15	1.25～1.35	1.5～1.8
中国 (4)	2.31	0.84	1.45	2.36 (81年)		

Key:
1. Year
2. Forecast
3. World
4. China

From this table, we can see that either in the world or in our own country, the increase in cement output is always faster than that of steel output. (Production in the initial period of the People's Republic was not yet regular; therefore, the situation in 1950 was exceptional.) The ratio of cement output to steel output continues to rise year after year, and some people anticipate that the 21st century will be the age of the substitution of nonmetallic materials for metallic materials as the major raw materials.

The main ways to accelerate the development of cement industry in our country are:

(1) Technical Transformation and expansion of the Existing Large and Medium-size Enterprises in a Planned Way

The 52 large and medium-size cement factories we now have form the mainstay of our cement industry. Their products are of fine quality and have a fairly wide range of varieties. They are the factories to be relied on mainly in making high-grade concrete on site. The mines and those old factories with fairly good transportation facilities should be expanded and their equipment updated. This arrangement will help save money and yield quick returns. If their production in different stages cannot be well coordinated, steps should be taken to strengthen the weak links so as to give full play to their comprehensive productive capabilities. In carrying out a technical transformation for the old factories, we must strive for the improvement of economic results mainly by reducing energy consumption, improving the quality of products and increasing the varieties.

(2) Active Development of the New Dry-process Technology

In the future, the new or expanded large and medium-size enterprises should generally adopt the dry process, and generally, there should be no more new wet-process production lines. In the next 2 or 3 years, we should pay special attention to the building of the two large dry-process production factories in Qidong and Ningguo and to their preparations for production. These factories have dry-process production lines imported from Japan. Their technology is fairly advanced, and their energy consumption is low. Therefore, we should make every effort to complete them to be ready for operation in 1984-1985. We should also organize our resources for the assimilation of this new technology. At the same time, we should quickly complete the dry-process production line with the technique of extra-kiln decomposition which has been designed by ourselves with the capacity of a daily output of 2,000 tons. We should also energetically popularize the medium-size, dry-process kiln model of the Xinjiang Cement Factory and the Peixian County Cement Factory in Jiangsu.

(3) Transformation and Upgrading of Small Cement Factories

In the past several years, the output by small cement factories has increased by 5 million tons each year, and the rate of increase is quite impressive. This is because of the sharp contradiction between supply and demand and the urgent need for small cement factories to alleviate this contradiction

and to meet the requirements of construction in the vast countryside and in the small townships in addition to improving the peasants' housing conditions. At the same time, small cement factories have the advantage of requiring less investment, yielding quick returns and consuming less energy. That is why the development of small factories deserves to be highly regarded. However, since small cement factories are already too numerous, no more new ones should be built during the period of readjustment. We should carry out readjustment, transformation or improvement as required under different conditions and pay particular attention to the improvement of quality, the conservation of energy, the lowering of production costs and the reduction of environmental pollution. As for those small factories with good natural resources and favorable transportation facilities, high standards of production and management and ample motive power at their disposal, we can expand their scope of production, perfect their technical process, transform their indigenous shaft kilns into mechanized shaft kilns and gradually upgrade them as medium-size factories. Some small factories with good natural resources and ample motive power may be far away from the mines. However, if their transportation facilities are adequate and their only handicaps are the lack of complete sets of equipment, low technical standards and poor management, we must see to it that the main items of equipment now available are evenly distributed so that these factories' equipment will be in complete sets, their economic results improved and their dust pollution reduced. As for those that are short of natural resources and uncertain of the availability of motive power and whose products are of inferior quality and yet highly priced, resulting in prolonged losses, we must resolutely close them down, suspend their operations, merge them with others, retool them for other lines of products or change them into grinding mills of the large and medium-size factories or into intermediate stations for the transshipment of cement in bulk.

(4) Strengthend Mine Construction

For the production of each ton of ordinary cement, we have to consume 1.2 tons of limestone and a certain quantity of clay, gypsum and aggregates. Therefore, mine construction is the basis of cement production and must be carefully attended to before there can be any development in the cement industry. However, there are now many problems with the cement mines, as shown, for example, by the lack of planning in mining, lack of coordination between extraction and stripping and overdue stripping from the large and medium-size cement mines with nearly 1 million tons of materials left untouched. Furthermore, huge resources have been wasted by people who are interested only in rich--but not poor-mines, take the line of least resistance in mining and make excessive demands on the quality of ores. The resources in the mines of several large and medium-size factories are now nearly exhausted and there is an urgent need to build new mines as their replacements. Most small cement factories are uncertain of the resources of their mines, and their output cannot be stable. Therefore, an urgent task of the moment is to step up our efforts in mine construction.

(5) Improving Management; Intensifying Such Basic Work As Scientific Research, Designing, Geological Prospecting and Special Equipment Manufacturing; Raising the Workers' Cultural and Technical Standards; Giving Full Play to the Role of the Scientific and Technical Personnel; Organizing Forces To Take the Difficult Problems in Scientific Research; and Quickly Uplifting the Technical Standards of Our Cement Industry.

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INDUSTRY

TECHNICAL TRANSFORMATION OF TEXTILE INDUSTRY DISCUSSED

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[Article by Survey Group of the Ministry of Textile Industry: "Technical Transformation in China's Textile Industry Surveyed"; Editor in charge: Zong Han [1350 1383]]

[Text] The textile industry system is now faced with a new situation: technical transformation is going on with an increasing momentum and on a larger scale. Therefore, we must conscientiously sum up the historical experiences, analyze the present situation and deeply explore the orientation, the line of action, the technical policies and the actual measures that are consistent with the realities of our textile industry. Based on a survey of eight provinces and municipalities, namely, Shanghai, Tianjin, Beijing, Jiangsu, Zhejiang, Hubei, Hunan and Anhui, this article will present some research data and analyses and some proposals for reference by the relevant authorities.

I. Historical Experiences and Present Situation of Technical Transformation in the Textile Industry

(A) General Assessment

In the initial period of the People's Republic and in the 1950's, the cotton textile trade performed four major tasks in technical transformation: first, improvement of the air-conditioning equipment and strengthening of the control of workshop temperature and humidity in order to improve the conditions of production and labor; second, adoption of the broken-end collector which has markedly reduced the number of broken ends; third, simplification of the process of cotton spinning through improved technology and management; and, fourth, a systematic summing up of the technical experiences in the three key processes of scutching, carding and sizing. The preliminary transformation of a series of parts for these three key processes was thus accomplished.

The main features of transformation during the 1960's were: the use of the butyl cyanide top rollers and aprons and improved parts of drafting for spun yarns in order to improve the quality of slivers; the substitution of roller bearings for plane spindle cores [dan 9116] to increase the operational speed; the prevention of selvedge defects in weaving looms; and the use of butyl

cyanide pickers and aprons and lease rods and side frames of laminated wood to increase operational speed. Through mass renovation, we also succeeded in mechanizing the doffing equipment of spun-yarn workshops and greatly reduced labor intensity. In the middle and late 1960's, we succeeded in producing the second generation of cotton-spinning equipment, while cotton-bundling machines, doubling and twisting machines, combing and twisting machines, high-speed sizing machines and other high-efficiency machinery for cotton spinning found their way one after another into new mills as their new equipment and into old mills to update their old equipment.

Since the 1970's, the Ministry of Textile Industry has popularized 33 completed technical innovations in cotton spinning including the use of combing and twisting machines to produce rigid wire clothing and the pressurized drafting of rovings and spun yarns, thus increasing the output of carded yarns and the speed of the drawing frame's operation. By readjusting the weight of rovings and through the high drafting of spun yarns, the amount of pre-spinning work has been reduced and more floorspace has been saved to increase the productive capacity. Some measures to reduce labor intensity, such as mechanization in cotton opening, bundling, cleaning and doffing, and the use of cone winders have reached maturity and are now in popular use.

In the textile industry in recent years, the use of separated spindle cores, high-speed vibration-absorbing spindles, high-speed antiwedging rings and cone rings has raised the per-unit output of spun yarn up to advanced world standards. The use of automatic drawing-in frames has also increased the output of reeding and has markedly decreased labor intensity. With the popularization of electronic yarn cleaners in winders, automatic eveners in drawing frames and computerized testers for looms, electronic technology is being introduced in the cotton textile trade. The new techniques of spinning and weaving, such as open-end spinning, self-twist spinning and the air-jet loom and rapier loom, are widely used in certain varieties. In addition, rollers, top rollers, spindle tapes, looms with electricity-saving pulleys, ethyl silicon oil, the air-conditioned multiple use of water, filling-well water in winter and other new techniques have helped in energy conservation.

Since the founding of the People's Republic, the technical transformation of cotton textile trade has, broadly speaking, yielded the following results: higher standards of products, increased speed of machine operations, increased per-unit output, rational reduction of spinning process, reduction of labor intensity, improved labor environment and rational conservation of raw materials and energy.

The woolen textile, jute textile, silk textile, knitting and printing and dyeing trade have also done a great deal of work in technical transformation. For example, some obsolete equipment or the equipment of motley models has been replaced by the new equipment of specific models. High-temperature and high-pressure dyeing and heat-setting equipment has been used in the production of chemical fiber knitwear; intermittent dyeing has developed into continuous dyeing in the printing and dyeing trade; large rotary weft-knitting machines have been developed in the knitting trade; automatic reeling machines and rotary cocoon boilers have been adopted in silk reeling; and automatic hemming

and tubular stiching machines are being used for gunny sacks in jute textile. These items of technical transformation have markedly raised the standards of production techniques and products among all trades.

In the textile industry, our technical equipment is still below the advanced world standards. The productivity of some enterprises is fairly low, and their economic results are far from ideal. Our backward technical equipment has affected the competitive power of our textile products on the international market. Because of this backwardness, the waste of raw materials and energy is now fairly prevalent. Our testing methods are also backward, since we mostly rely on our "feel" and visual assessment. The standards of our products are therefore not up to the current demand. The poor conditions of labor and environmental protection have also "made light work heavy" and shortened the service life of frontline workers. All these problems are now posing a series of tasks for technical transformation in our textile industry. This situation must be gradually improved as permitted by our national resources and national conditions.

(B) Six Categories of Technical Transformation

During this survey, we studied and discussed various methods of technical transformation. In our opinion, the following categories deserve to be used for future reference in technical transformation:

1. Scientific and technical achievements should be used in complete processes for technical transformation.

In the 1950's, the Ministry of Textile Industry held a meeting of professionals in scutching, carding and sizing to sum up the experiences in the scientific and technical achievements in reducing broken ends and saving cotton and grain. This meeting spurred on the textile trade throughout the country in technical transformation with remarkable economic results. The ministry also held national exhibitions of new products, new techniques and new technologies in 1966 and 1978. These exhibitions have played a positive role in encouraging the textile trade to raise their products' standards, to increase their output, to lower their consumption and to improve working conditions. In 1974, the ministry organized various trades to study and review the technical innovation results, 33 items of which have played a positive role in the technical transformation of the cotton textile industry. The mills built during and before the First 5-year Plan were able to increase the number of their spindles by more than 10 percent through renovation and transformation and without changing their product mix or expanding their factory buildings. Through this transformation, some experimental units designated by the production department of the ministry, such as the Shijiazhuang No 5 Cotton Mill and the Northwest No 3 Cotton Mill, showed almost instant success. The textile system has transformed as many as 2.02 million spindles and then added 340,000 spindles to its equipment.

Every few years, it would be desirable for us to sum up and popularize the scientific and technical achievements of our country and of other countries reproduced by us, as well as the achievements of professionals in scientific

research and of the broad masses in equipment renovation through on-the-spot investigations, exchange of experiences and exhibitions, and then organize these achievements into a complete process to be used in technical transformation.

2. Installation of new machines to update textile products.

Since the 1960's, in an effort to develop worsted products, plied yarns and broad-width fabrics as a means to increase their exports, some enterprises have acquired combers, twisting machines and broad-width looms, while the printing and dyeing trade has extensively used the equipment suitable for high-temperature and high-pressure dyeing of polyester yarns and for hot setting. This way of transformation has shown good results.

In the middle and late 1970's, in developing imitation wool made of chemical fibers, the cotton textile trade developed its spinning equipment for long and medium fibers, the printing and dyeing trade developed its equipment for tensionless dyeing and finishing and the knitting trade developed its warp-knitting machines and large rotary weft-knitting machines. With these new machines, they have developed their new-product workshops and production lines and brought about significant changes in their product mix. This change has not only met market demands but also increased their output value.

3. Transform the vital parts and key materials to improve quality, increase output and reduce consumption.

This is the common method used by the textile system. The outstanding merit of this method is that it reduces investment, helps new projects in getting an easy start and yields quick results in production. Part of the transformation project can be carried out in combination with major repairs and therefore requires no extra investment.

(1) The Shanghai No 1 Textile Machinery Plant took the initiative of improving the transmission parts of its old A201 comber and increased the operational speed by more than 40 percent. Because the ordering of goods in the country was centrally organized by the textile machinery company under the ministry, the cost of rebuilding each set of machinery was only 800 yuan, about 5 percent of the cost of a new comber.

(2) The municipal textile system of Shanghai organized its resources to tackle the difficult problems in scientific research and established a number of specialized factories to produce special parts and materials. By this means, it effectively solved the problem of vital parts and key materials for textile equipment. Since the 1950's, the spindles and rings for spun yarns have been updated three times, the speed of spindle revolution has almost doubled and the per-unit output of spun yarn has reached advanced world standards. For cotton looms, butyl cyanide pickers and aprons and lease rods and side frames of laminated wood have replaced those of cowhide and ordinary wood, thereby increasing the speed of the looms by about 10 percent. For the weft-knitting machines, curved-line cams have replaced the broken-line cams and the speed has been increased by 70-100 percent.

4. Up-to-date equipment for spinning, weaving and dyeing and finishing has been added to increase output.

Several major trades of the textile system have been successful in the use of new textile technical equipment. Some experimental workshops operating as industrial units in scientific research, such as the open-end spinning workshop of the Shanghai No 22 Cotton Textile Mill, the self-twist spinning workshops of the Shanghai No 3 Cotton Textile Mill and the Beijing No 1 Cotton Textile Mill, the air-jet weaving workshop of the Shanghai No 6 Weaving Mill and the gripper-projective work-zone of the Shanghai No 5 Woolen Textile Mill, all have higher outputs than they could have had with their traditional textile equipment. The design printing with rotary screen in the printing and dyeing trade, the industrial flocking of blankets and the tufting of acrylic blankets in the woolen textile trade have all been undergoing industrial experimentation and have proved capable of increasing efficiency and giving certain unique characteristics to the products.

5. New electric elements and electronic technology in textile equipment to improve the quality of products, to raise work efficiency and to conserve energy have been adopted.

Since the 1970's, the electronic technology has gradually become popular in textile industry. Practice has proved the tremendous potential of technical transformation in this respect. The methods under this category can be used as follows:

(1) To improve the quality of products. If electronic cleaners in winders are used to eliminate yarn defects, the price of yarns for export can be 3 percent above that of ordinary yarns. Furthermore, if electronic cleaners of international brand names are used, the price can be increased by 5 percent. This is what Shanghai has been doing. The use of automatic eveners in carding machines or drawing frames can markedly reduce unevenness in the weights of card slivers and drawn slivers. The use of photoelectric weft straighters in printing and dyeing can greatly reduce the amount of biased fillings.

(2) To increase work efficiency. If electronic computers are used in the weaving workshop for observing the frequency of breakdowns and the productivity, they can reveal the backwardness of the machines and not only can help reduce the production of substandard fabrics but can also increase the productivity. Electronic card-cutting machines and jacquard machines have been introduced in the knitting, silk textile and carpeting trades. They can help increase work efficiency, simplify the process of remaking or altering products, advance the delivery dates for exports and raise the output and the capacity to earn foreign exchange.

(3) To conserve energy. The use of electronic elements to check and control the pressure, temperature, humidity and liquid level in the process of printing and dyeing is helpful not only in stabilizing the quality and reducing labor intensity but also in energy conservation.

6. Advanced foreign equipment, in combination with technical transformation, should be imported.

Since the policy of opening to the outside world was implemented in 1978, the textile enterprises in various localities have imported advanced technical equipment which has played a good role in the technical transformation of our textile industry. For example, the Nantong No 1 and No 3 Cotton Textile Mills have imported from West Germany and Belgium the traditional textile equipment of these countries in complete sets. The Changzhou No 1 Cotton Textile Mill has imported a complete set of open-end spinning equipment from Japan. The Beijing No 2 Woolen Textile Mill has imported from West Europe a complete set of weaving and dyeing equipment for woolen textiles. The Shanghai No 18 Woolen Textile Mill has imported its fancy woolen yard equipment from France. The Shanghai No 15 Silk Textile Mill has imported a complete set of jet-water weaving equipment from Japan. The Shanghai No 20 Knitting Mill has imported jacquard weft-knitting machines with large-diameter caps from Spain and England. The Shanghai No 3 Printing and Dyeing Plant has selectively imported complete sets of printing and dyeing equipment. These new machines and new technologies are of great reference value to our textile industry in improving the products and raising production efficiency. They can also help increase the productive capacity.

(C) Historic lessons and remaining contradictions

Because of the influence of "leftist" thinking, the textile system has learned many lessons from the problems of technical transformation as shown by these examples in particular: some renovation or transformation projects were started in a hurry and before conditions were ripe, only to be followed soon by a complete halt, thus causing the waste of financial, material and technical resources. Year after year, the textile enterprises have been under pressure to increase their output, output value and profits resulting in an overtapping of potential, while the improvement of facilities for production and living conditions have been neglected. In the technical transformation of the textile industry, the economic policy of the state does not provide specific support and guidance. These problems must be gradually solved in the course of readjustment before technical transformation can quickly embark on the road of steady and healthy development. The historical lessons and existing problems are mainly shown in the following seven areas:

1. Excessive potential tapping has resulted in outstanding tasks. In the woolen textile trade, for example, the following problems existed in equipment renovation and potential tapping among some plants way back in the 1960's: the process of scutching was too short and the efficiency in removing impurities was low so that whenever the conditions of raw cotton were a little unsatisfactory, production was put in a passive position. The per-unit output of carding machines was overstressed, and too much pressure was exerted on the spindles, thus affecting the cleanliness of the webs. The development of high-grade products was hampered and the regulation of production became difficult. The number of passages through the drawing frame was not enough, thus affecting the evenness of dyeing. The drafting of spun yarns was overstrained, causing the instability of slivers. If the solution of these

problems were to be indefinitely postponed, it would be difficult to take corrective action later when the layout of factory buildings and the arrangement of machinery have been finalized.

2. A lack of unified organization in the alteration of key parts has led to "smaller, slower, poorer and more wasteful results." For a long time, the major items of equipment produced by the textile machinery plant directly under the ministry were mainly intended for new mills and were rarely supplied to the old mills for equipment renovation. Many textile machinery plants are concerned with the capital construction of textile mills but are not so cooperative in transforming the existing old mills. Furthermore, these parts, made in many different plants, are not interchangeable. As a result, those parts that are easily damaged cannot be produced in large quantities, and the only alternative is the spending of large sums on prolonged maintenance and repairs.

3. In the manufacture of materials and special parts in the country, no arrangement has been made to select and support the good units on a nationwide scale, and, as a result, the effects of technical transformation in this respect cannot benefit many units.

Furthermore, because of too much stress on "self-reliance," many provinces and municipalities have built their own rigid wire clothing workshops and ring workshops. There are now more than 10 each of them and the gap between the advanced and the backward is very large. As a result, some inland plants have long been deprived of new and fine-quality materials and special parts. The standards of their products are far below those of the coastal areas.

One of the causes for the high output of spun yarn in Shanghai's textile system is that the parts of its high-speed winders can be promptly replenished. Each ring can be used for 8-12 months, and each set of spindles can last 3-5 years. In the inland enterprises, however, the parts of winders are not only inferior in quality but also insufficient in quantity. For example, the cycle of supply for rings is sometimes as long as 2-3 years, and that is why they can only afford to operate at low speeds throughout the year or even take over the discarded rings from Shanghai as though they were treasures.

The solution of this problem should not be too difficult. However, because of the system of decentralized industrial administration, it remains unsolved after years of discussion.

4. The manufacture of looms cannot keep pace with the development of textile technology. The technical improvement of many major items is slow, and some of them were taken apart as soon as they entered the factory. For example, a winder had its head removed upon entering the plant so that it could be converted to another model, and a loom, also upon entering the plant, had to be equipped with some devices to prevent selvedge defects and crowsfeet. Sizing machines, if not taken apart, would not be fit for blended chemical fiber products.

The woolen textile trade has never had any ideal machine model. For many years, this trade has imported equipment from many foreign countries, but in the assimilation of technology and the selection of models, progress has been very slow. Now, the production plants have to wait for the appearance of new models before updating their old machines; otherwise, some woolen mills might have abandoned the idea of equipment renovation altogether.

Since the machines for tough silk and jute can only be produced in small quantities, the textile machinery plants are unwilling to manufacture them. Therefore, the equipment for cotton and woolen textile had to be borrowed for improvised use in the absence of proper models.

Silk looms are of many models. The mills under the ministry and the local mills have looms of more than 10 models. The designs of the equipment are of low standard and its adaptability is poor.

5. Textile products of good quality do not have good prices, thus affecting the adoption of new technology. In the meeting, the participants all strongly felt this way. For example, the use of electronic yarn-cleaning devices in winders can reduce cloth defects. The price of exported yarns was increased by 1-3 percent, but no price increase was permitted for domestic sales. Shanghai has adopted the policy of supporting textile mills whereby whenever a mill buys an electronic yarn-cleaning device, the bureau will pay a third and the company will pay another third of the price, with the remaining third to be paid by the mill itself. However, there is a stipulation to the effect that the mill can use the device only for brand-name or high-grade products. Since the installation of an electronic yarn-cleaning device costs money not only in the purchase but also in maintenance, and such expenses cannot be compensated by the prices, some mills were unwilling to use them. Another example can be found in the preshrinking and resin finishing of fabrics, for which no price increase is permitted. Furthermore, if the tensile strength of the fabrics is decreased after resin finishing, the price has to be reduced. Thus instead of gains, there can only be losses, and the enthusiasm of the printing and dyeing mills in using new equipment for preshrinking and resin finishing is dampened. In the case of hosiery mills, the thin nylon stockings produced by short stitch-length machines are well-received on the market. The production process is very difficult, but the commodity price department keeps the price down for the reason that silk stockings do not require much material. The mills could not make any profit and had to suspend their production of stockings. According to our existing policy in the pricing of textile products, no consideration is given to whether the processing is simple or complex or whether the technology is easy or difficult. This discourages the adoption of new technology.

6. Funds for technical transformation projects for improving the quality of products and the conditions of labor and environment are hard to raise. For some of those projects which are useful for developing exports and earning foreign exchange but cannot produce direct and immediate benefits, no bank loans can be obtained, and the mills are not keen in investment.

7. There is no established system for new machines and new models to be tried out in industrial production, while overall planning and suitable policies for the technical transformation of old mills are still lacking. Usually, each has its own idea and these ideas are mutually conflicting. Their one-sided and ill-calculated actions inevitably affect the economic results. Some comrades of Shanghai's textile system commented on this situation in these remarks: backward transformation brings more losses than gains; blind transformation means futile effort; and uncoordinated transformation leads to "smaller, slower, poorer and more wasteful results."

II. Orientation and Line of Action in Technical Transformation of Textile Industry

What is the orientation of technical transformation for our textile industry? What line of action should be pursued? The opinion of some leading cadres of the provincial and municipal textile systems is that in studying and exploring these questions, we must first analyze our national conditions and the realities of our textile industry. We must proceed from our national conditions in determining the orientation and line of action.

(A) National Conditions Which Should Be Taken into Account in the Technical Transformation of the Textile Industry.

It was generally felt that the national conditions having a bearing on the technical transformation of the textile industry are: the large population, huge labor reserve, low wages, shortage of energy, high cost of electricity, inadequate construction funds and the workers' low technical standards. In technical transformation, this actually means that:

1. Because of the large population and the great demand for textile products in the urban and rural markets at home, the textile industrial departments should exert every effort in the 1980's and 1990's to help raise the per-capita consumption of textile products to the average world standards. For a fairly long time to come (at least during the 1980's), therefore, these departments should use some of their financial and material resources to expand their productive capacity. They cannot follow the example of the textile trade of some industrially developed countries in concentrating their funds on technical transformation in recent years.

2. Because of our abundant labor resources and the low wages on the one hand and the shortage of energy and high costs of electricity on the other, our textile trade should for a fairly long period (at least during the 1980's) remain as a labor-intensive industry. We must be careful that the electricity consumption by our equipment for every bale of yarn and every 10,000 meters of fabrics cannot be the same as that of some industrially developed countries which give first priority to labor productivity and labor savings.

3. Because of our insufficient construction funds and limited investment, we must pay more attention to the method of reducing investments, producing good results and yielding quick returns. Expensive equipment can only be used on a small scale and in the case of absolute necessity.

4. Because of low technical standards among the rank and file of workers, and the fact that many accessory parts of the machinery, electric power and electronics industries are not yet up to the international technical standards, more attention should be paid to the adoption of suitable advanced technologies in the technical transformation of the textile industry.

In our opinion, we must ascertain the orientation and line of action in light of our national conditions before our textile industry can carry out its technical transformation smoothly and can really attain the goals of reduced investment, quick progress and good results by stressing actual benefits instead of presenting a good outward appearance to earn a reputation.

(B) Question of Orientation

The consensus at the meeting was that the orientation of technical transformation for the textile industry should aim at many objectives, some of which should have a higher priority. The following three major objectives should be stressed:

1. Technical transformation should help a great deal in raising the standard of our textile products so that they can meet the demands of the age. It should also meet the ever increasing demand on the urban and rural markets at home and increase the competitive power of our textile products on the international market. Thus our "quantitative superiority" will gradually change to "qualitative superiority."

2. Technical transformation should continue to increase the productivity of the equipment in various trades of the textile system so that in capital construction, there will be a smaller investment, a lower production cost and better economic results.

3. Technical transformation should bring about the most economical and rational utilization of raw materials so that the same amounts of energy and raw materials will result in the production of more textile products of even higher economic value. While stressing the three major objectives, we should pay attention to the following measures in our overall planning: to raise environmental protection, and particularly the "three-waste" treatment, to the standards required by state laws; to improve labor conditions in textile mills further, particularly through air conditioning so as to change the phenomenon of "light work becoming heavy"; to reduce gradually the number of workers on every 10,000 spindles and every 1,000 sets of machines and the amount of manpower on every bale of yarn and every 1,000 yards of fabrics; and to enable our textile industry gradually to approach and finally to surpass the advanced world standards in science and technology. Therefore, we should be farsighted enough in building some model mills and model workshops with new technology and to coordinate the long-range with the short-range plans.

(C) Question of Line of Action.

Based on our national conditions as already mentioned and summing up the ideas of various localities as well as the successful experiences already gained, we

feel that the technical transformation of the textile industry during the 1980's should proceed along the following lines:

1. Adoption of advanced technologies of a multi-level technical structure.

Of the advanced equipment and technologies of the textile industry in the world, a fairly large portion is highly automatic and saves labor, but it calls for heavy investment and a high power consumption and is not easy to master. If they are copied wholesale, we will find them unsuited to our present national conditions. Therefore, some experts are almost unanimous in the opinion that bearing in mind our national conditions, we should adopt those technologies that require smaller investment, yield quick returns, produce good effects and can be easily mastered by our workers. In addition, they must conform to the orientation of the technical development in our textile production. In this case, the technical structure in the process of modernizing the textile industry must be a multi-level one. The high level of automation with electronic technology, the intermediate level of mechanization with semiautomatic technical equipment and the old-style equipment for spinning, weaving and dyeing as well as the traditional handicrafts will have to coexist for a certain period (at least during the 1980's), during which only the suitable techniques will be mainly relied on.

Certain high-level automation and electronic technologies can also be used. For example, the automatic evener devices, the electronic yarn-cleaning devices, the photoelectric weft straighteners and other electronic technologies can be used to improve the quality of slivers, reduce cloth defects and prevent biased fillings. They have effectively improved the quality of products and the textile enterprises in various localities have used them to advantage in recent years. If electronic yarn-cleaning devices are used to produce yarns for exports, the price can be higher for better quality, and the investment can be recovered within half a year. These types of high-grade and advanced textile equipment should certainly be used in technical transformation.

Traditional handicrafts should also be used to a certain extent instead of being summarily discarded. For example, hand-printed, silk-bearing, "hand-made" labels can be sold at higher prices on the international market, while hand-made batik prints have their economic value on the domestic and foreign markets and as tourist commodities. The old technical equipment for spinning, weaving and dyeing, such as the multi-end reeling machines and the looms of metal and wood in the silk trade, the scourging tanks in the printing and dyeing trade and the handicraft printing block can still be used to a certain extent and should not be completely eliminated.

Of course, suitable advanced technologies should be used for the main equipment. This is the most important link in the technical transformation of the textile industry.

(1) Cotton and silk spinning. In the 1980's, ring spinning should still be commonly used for cotton yarns. At the same time, we can appropriately introduce some new spinning techniques, such as open-end spinning and self-twist spinning which can yield real economic benefits, instead of striving for automation which, though labor saving, requires a heavy investment and high power consumption.

(2) Weaving. In the 1980's, shuttle-changing looms should still be the main item of weaving equipment in our textile industry. On this basis, we can carry out scientific research and some auxiliary projects of renovation during the technical transformation. At the same time, we can gradually develop the cop-changing looms and the new shuttleless looms and vigorously develop the broad-width warp- and weft-knitting equipment. For the preparatory process of weaving, we can develop the semiautomatic drawing-in machines and high-performance sizing machines.

The ratio of knitwear is continuing to increase according to the general trend. In our opinion, it should be distinctly pointed out that the use of high-speed weft-knitting machines with large and multiple pirns and of high-speed warp-knitting machines can be suitable as advanced technical equipment for the knitting trade.

(3) Dyeing and finishing. The finishing techniques of printing and dyeing include those of cotton printing and dyeing, wool dyeing and finishing, silk printing and dyeing and the dyeing and finishing of cotton knitwear. Our standards in these fields are far below the international advanced standards. This will have a very strong impact on the capacity of our textile goods to earn foreign exchange and will be incompatible with the gradual increase in purchasing power on the domestic market. Therefore, this trade should pay more attention to the adoption of new dyeing and finishing equipment that is suitable for our needs and our technical standards. This is particularly necessary for finishing equipment.

Since the sales of printing and dyeing products are closely related to the trend of market demands, some comrades believe that the suitability of the printing and dyeing equipment for the production of popular goods should show whether or not our technology is adequate for our needs. For example, in developing the production of various specially treated knitwear that is in demand on the international market, we must gradually equip the mills with up-to-date machines for resin finishing, calendering, riffling, wool brushing, cotton ginning, cotton shearing and other post-finishing work, so that in the course of technical transformation, the printing and dyeing mills can catch up with the production of those articles that are still in vogue. We share these comrades' view. For example, the finishing equipment for imitation-wool knitwear of medium-length fibers and the knitwear of long polyester fibers, which are now developing, should be viewed in this light.

In developing its production, the printing and dyeing trade has the problem of productive capacity and, more important still, the problems of quality and variety. Therefore, in the technical transformation of printing and dyeing equipment, we should first consider the products and their quality and variety instead of stressing the speed of operation and the output per unit.

The printing and dyeing trade consumes fairly large quantities of water, steam, chemical dyestuffs and additives. In the near future, it must pay particular attention to the use of suitable technologies for conserving power, water, steam, oil, coal and chemical dyestuffs. Many localities proposed the use of high-efficiency water calendering, high-efficiency open-width washers, weak

alkaline with multiple effects [dan jian duo xiao 3225 4354 1122 2400], the recovery of steam with enlarged containers and other measures for conserving energy and recovering caustic soda and the use of color yarns for color knitwear and of bobbin dyeing to save dyestuffs.

2. Put special emphasis on key machinery, vital parts and key materials in technical transformation.

The most successful experience in the technical transformation of textile industry is in the transformation of machinery in some important processes and of some vital parts and special textile materials that play leading roles in various processes with a view to saving investment and producing quick and good results. The original foundations and equipment models in different areas and enterprises are different. Therefore, their views on the key sets of machinery, vital parts and key materials cannot be the same. However, they are all quite clear about the major issues in this respect. If what they did in the past was piecemeal and random in nature, now they should raise this method on to the plane of policy to be affirmed and carried out in a well-planned way. Shanghai's textile system has already embodied this policy in the technical transformation of various trades and in their long-range plans. It clearly understands what the vital parts and the special materials of key importance to the textile industry are and has accordingly set the tasks and objectives as well as the pace to attain these objectives. Shanghai's experiences are significant for the whole country.

The vital parts of textile equipment are generally the interchangeable parts for the direct processing of fibers, cotton yarns and knitwear and the functional parts which play major roles in production. They also play a decisive role in quality, output and consumption. If the vital parts and the key materials are carefully attended to during technical transformation, we can greatly promote textile production and improve its economic results. We must pay great attention to the standards of the principal parts and materials and to their scientific research, manufacture and supply so that there will be not only a rational layout but also an inducement to competition. The good units should be selected for these jobs and their supplies must be guaranteed. In the early 1980's, the standards set for the major parts and materials should be proclaimed by the ministry so that these parts and materials can be standardized and serialized and made interchangeable to promote large-scale production, to improve the quality and to lower the production cost. Some vital parts and key materials are manufactured in widely scattered localities. Since they are produced in small lots and the technical resources are scattered afar, their prices will always be high and their quality poor. Those units that have good technical resources and are producing fine-quality goods should be supported, and necessary conditions should be created for their large-scale production. These measures will change the outlook of development in the textile industry.

3. Transform obsolete equipment, update old equipment.

The major items of technical equipment in our textile industry now are still of the 1940-1960 vintage. In order that our textile industry can catch up with

advanced world standards in technical equipment, we must gradually renovate and transform them in the way permitted by our present labor, energy, financial and technical resources. In the 1980's, we should adopt those technologies that can reduce investment, yield quick returns and good results and are easily mastered, all centering around the main tasks of developing new products and promoting production efficiency and energy conservation, and then carry out the large-scale transformation of the technical equipment.

There have been different views on the demarcation between the replacement of equipment and the transformation of old machines. As the basis of the demarcation, some chose the equipment's year of manufacture or its service life; some chose the capacity to manufacture textile machines in meeting the requirements of technical transformation; some chose the interchangeability of the accessories supplied; some chose the ratio of the parts required for the transformation to the entire machine; some chose the ratio between the costs of transformation and the cost of a new machine; and some chose the technical and economic results of the transformation. Below are our own views:

(1) The view that demarcation should be based on the year of manufacture.

The comrades holding this view believe that the current technical equipment embodying outdated technology should be discarded. As for the way to classify them according to the manufacture year, there were again two different views. One of them favored the use of the absolute year; the other, the relative year.

Among those comrades favoring the use of the absolute year, some believed that the equipment of the 19th century (before 1900) should be replaced; others proposed that the equipment manufactured before World War I (before 1918) should be discarded; and still others held that the equipment before the Liberation in 1949 should be updated.

Those comrades favoring the use of relative years felt that since the textile equipment in America, Japan and West Europe is replaced every 8-12 years, while our depreciation period is about 27 years, a higher depreciation rate and a shorter replacement period were proposed.

In the course of our survey, we discovered that many textile mills in various localities had already transformed their equipment in accordance with the 33 technical innovations for cotton textiles recommended by the production department of the ministry. Many of the old items were manufactured before Liberation, but after the transformation, their technical performance could match the second generation of cotton textile equipment manufactured in China. For example, the carding machines of the Shanghai No 12 Cotton Textile Mill, made by the Pratt Company of England before Liberation, had an output of 22 km per unit-hour, which could match that of the Model A186 carding machines. Again, 73 percent of Shanghai's spinning machines were manufactured before Liberation; now these machines are completely equipped with the most up-to-date winding parts in our country--the high-speed vibration-absorbing spindles with separated spindle cores and high-speed anti-wedging rings. These spindles and rings are of the same advanced standards as the second generation cotton textile equipment, and the mixed output per unit in the municipality is now

more than 40 kg per spindle-hour, which is up to advanced world standards. It is clear that the manufacture year we so often talk about refers to the manufacture year of the frames and the basic parts. In fact, the equipment under this category, after transformation, is demonstrating a good performance since its vital parts have all been replaced by those of the 1970 vintage. Therefore, a demarcation on the basis of manufacture years cannot be quite clearcut.

Furthermore, the so-called replacement period of 8-12 years for the textile equipment of America, Japan and West Europe is not actually the replacement period, but rather the financial depreciation period. Machinery at the end of the depreciation period does not mean that it has to be written off. According to the results of our investigations abroad, the United States still has textile and dyeing machines which have bee in service for more than 30 years. It is true that the depreciation period of our textile equipment is a little too long and disadvantageous to technical transformation. It has been proposed that the depreciation period be reduced appropriately to, say, 20 years in the case of cotton textile machines.

(2) The view that demarcation should be based on the manufacturing capacity.

Some areas that are weak in manufacturing textile machines felt that since the cost of transforming old machines locally is high and the quality is poor, it would be better to replace the old machines in order to save energy and work. The majority of comrades held that the transformation of old mills in the industrially advanced countries of the world is entirely undertaken by the textile machinery plants, while the textile and dyeing mills need only pay their money. The Shanghai No 1 Textile Machinery Plant has transformed all the combers for the state at low costs, and any textile mill that has had its machines transformed by this plant has raised its output by more than 40 percent. When Shanghai transformed the machines in the 1970's for carding, combing and weaving, all the vital parts for spun-yarn machines and the cotton and silk looms in completed sets were supplied under a unified arrangement. The result was "greater, faster, better and more economical." Therefore, we suggest that arrangements be made on a nationwide basis for the vital parts of all type of machinery that require the transformation to be standardized, universalized and serialized after being professionally inspected and under a unified system of organization, manufacture and supply. By this means, the transformation cost can be greatly reduced and its quality greatly improved, and the areas of low manufacturing capacity need no longer worry.

(3) The view that demarcation should be based on the machinery structure.

This type of demarcation can also be divided into two types: according to the main specifications of the frame and according to the intensity of machinery transformation.

The main specifications of the frame, in the case of textile machinery, refer to the frontal width, the delivery gauge and the spindle gauge. There are now five or six specifications for the front width of our new carding machines, and the specifications for the spindle gauge and screen width in yarn spinning are

also very many. These nonstandard sets and their accessories are scattered over many places. Despite regional cooperation, they can be produced in only small lots and the production costs are prohibitive. Their maintenance and repairs are costly over long periods. Therefore, some people are in favor of writing off this category of equipment. We feel that in the final analysis, we must see how many sets of machinery and how many spindles of the same specifications there are in the country. If the quantities produced are too small, it would not be worthwhile for us to continue their use. However, if the quantities are up to a certain level, we should continue to use them instead of writing them off.

Some people were of the opinion that if the intensity of machinery transformation is excessive, and if, for example, nearly all the vital parts have to be changed, there should be no need to transform them. This view is oversimplified. In the transformation of cotton textile machinery, the vital parts for spun-yard machines, such as the drafting, twisting and transmission parts, have generally been transformed. However, this transformation has proceeded only gradually along with the growing maturity of technical renovation, and the change involved each time was not extensive.

(4) The view that demarcation should be based on the cost of transformation.

Some experts were of the opinion that if the cost of transformation for a machine exceeds two-thirds of the cost of a new machine, it should be replaced. We share this view, subject, however, to several definite preconditions. First, the cost of transformation should be based on a large-scale transformation under a unified arrangement; second, only the cost of the current transformation, but not the accumulated costs of previous transformations, is to be taken into account; third, the expenses on installation, factory construction and the control of ventilation pipes are excluded; and, fourth, the machine after transformation should show a better technical performance compared with a new machine. Unless these preconditions are met, old machines should not be transformed when the cost involved exceeds two-thirds of the cost of a new machine.

(5) The view that demarcation should be based on the economic results of technology.

The comrades holding this view believed that if a transformed machine can technically meet the requirements of high operational speed and heavy load, is up to the technical standards of a new machine and is economically worthwhile, it should be transformed, but not otherwise.

In deciding on whether some items of equipment should be replaced or transformed in the course of technical transformation, the textile system should comprehensively consider various factors. Broadly speaking, demarcation should be based on the following considerations: if the basic parts of any spinning, weaving and dyeing equipment after transformation can still meet the requirements of high operational speed, heavy load, stable operation, fine quality and low consumption, and the transformation cost does not exceed two-thirds of that of a new machine (including the installation expenses), then

it should be transformed, but not otherwise. The way to arrange for equipment replacement will have to depend on the national resources. In dealing with old cotton textile equipment in the country as a whole, transformation should be carried out on the equipment for spun yarns, for the cleaning, carding and combing of cotton and for the second drawing. For quick reciprocal winders, slubbers and parts of the fly frames, replacement should be first considered. Finally, the principles as already mentioned should serve as the criterion for all enterprises in choosing transformation or replacement in technical transformation.

III. Adopt Strong Measures To Promote Technical Transformation

To promote technical transformation in the textile industry, we must create the necessary material conditions and implement the technical and economic policies that are useful to technical transformation.

1. The textile machinery trade should more actively coordinate its activities with the transformation of the old mills of textile enterprises.

Since the founding of the People's Republic, the textile machinery trade has made great contributions to the development of the textile industry by turning out complete sets of spinning, weaving and dyeing equipment. For a long time, however, the manufacture of most machines has been monopolized so that there can be no comparison and no competition. The upgrading of models for the entire process of spinning, weaving and dyeing is too slow, and the new types of machines produced are insufficient for keeping pace with technical developments. The equipment for spinning, weaving, dyeing and knitting wool, jute and silk is produced in small lots and does not receive much attention, while some new models do not compare favorably with the old models and have not been given specific model numbers for a long time. New textile products very often have not been tested in practical-experiment workshops or in the testing workshops of industrial production. They were produced while their designing was still in progress, and many defective looms have been turned out by the production plants. The textile bureaus and mills of some provinces and municipalities ardently hope that the textile machinery trade can serve the construction of new mills as well as the technical transformation of the old ones. However, for many years, except for isolated cases, it has not been able to serve its dual purpose. This is particularly true of the textile machinery plants that produce hot items, since they generally do not undertake the supply of the parts and accessories needed for the transformation of old machines. Thus some textile enterprises, particularly those inland enterprises in the process of transforming their old mills, were forced to spread their units far apart and each of these units had to look for their own parts and accessories, resulting in poor engineering quality and high expenditures. We must take due measures to strengthen our work in these respects:

- Unified arrangement for the improvement of the accessories and spare parts required for the transformation of old mills so as to bring into play the superiority of large-scale production;

- Competition that is suitably encouraged to promote "greater, faster, better and more economic results" in textile machine manufacture;

- Establishment of consultation service agencies regarding the transformation of old mills.

These agencies will serve as an important link between the textile machinery trade and the various textile-processing trades. The textile mills should have practical-experiment workshops and textile machines of new models should be tested in industrial production before being put into operation. Foreign technology should be thoroughly assimilated, the users' opinion should be solicited and the process of updating the models of spinning, weaving and dyeing should be accelerated. The textile machinery trade should produce their machines of various types of two different models simultaneously, namely, the popular model and the improved model, to suit the needs of different localities and enterprises of different technical standards.

2. Great importance should be attached to the technology of producing materials and special parts and to the improvement of the production and supply system.

It was generally agreed that our textile equipment is below the advanced world standards and that the main cause of this backwardness is the poor properties of special textile materials and parts. Some experts were of the opinion that the resources in scientific research, design and manufacture should be organized to tackle the difficult technical problems, and that the key materials and special parts with foreign patents can be imported to make a quick breakthrough in prolonging the service life and improving the quality of these materials and parts. More active leadership should be provided over the manufacture and supply of textile machinery and materials, and those plants producing good materials and special parts should be given financial support in order that their productive capacity can be expanded. The textile institutes of higher learning should provide special courses on textile materials to train more technicians and to strengthen the technical forces of materials plants.

3. The quality of textile machines and the materials manufactured is largely determined by the varieties and properties of the metallic and nonmetallic materials and the cooperating parts. To promote technical transformation, the textile industry departments must enlist the cooperation and coordination of the metallurgical, chemical-industrial, machine-building and electronics branches, set international standards as their goal and make every effort to reach or approach these standards in the near future.

4. The financial policy that is helpful to technical transformation should be adopted.

The leading cadres and experts in some provinces, municipalities, bureaus and plants generally agreed that the following measures should be adopted:

The depreciation rate should be suitably raised, and the depreciation fund should be entirely retained at the industrial departments to be used by the

provincial or municipal textile departments, bureaus or companies under a unified arrangement. It was also generally agreed that the present depreciation rate in the textile industry is too low. In the case of Beijing, for example, the mixed depreciation rate of various types of textile equipment is 3.7 percent, meaning an average depreciation period of 27 years. The general opinion was that this period should be shortened to about 20 years. Again, in recent years, the textile departments in many places have mixed the depreciation funds with the enterprise profits for spending. Thus the depreciation funds were actually used for the expansion of productive capacity, while technical transformation and equipment replacement, for which depreciation funds are originally intended, were relegated to the background. This procedure does not seem to be proper, since depreciation funds should after all be mainly used on technical transformation.

Preferential loans should be granted for technical transformation for the purpose of improving the product quality. At present, in the absence of suitable pricing policies, the prices of some products are deviating from their value, and the improvement of textile products is usually inconsistent with the enterprises' economic benefits. The grant of low-interest loans as a form of compensation will encourage the enterprises to improve their product quality and to develop new products through technical transformation.

The important projects of environment protection and labor protection, which do not yield direct economic benefits but are useful in the macroeconomic sense, can be financed through state allocations if the enterprises do not have the required resources. As reported by some localities and enterprises, bank loans could not be obtained for some transformation projects of environment protection and labor protection, and the enterprises were left entirely helpless.

5. Price policies that are helpful to technical transformation should be formulated.

The prices of textile products are now set by the commercial departments in accordance with the old formula, which was used in the initial period of the People's Republic, of adding a portion of the wages and the industrial profit margin to the cost of raw materials with hardly any consideration of such favors as the degree of technical difficulty in processing, the length of the production process, the size of each lot produced and the date of delivery. This greatly hinders the adoption of new technologies. Therefore, the policy of a good price for a good product should help in technical transformation.

6. Standards should be set for the quality of textile products according to the way they are used.

Arbitrary uniformity is now required according to the quality standard for textile products. This hampers not only the improvement of economic results but also the adoption of new technologies. Some new technical equipment for spinning, weaving and dyeing are useful in their own special fields. If they must conform to uniform standards that are arbitrarily set, it would be impossible for them to be popularized. Such a problem exists with the open-end

spinning, self-twist spinning and air-jet looms, and suitable measures must be taken to improve the standards of quality.

7. The backward equipment should be written off through state legislation.

Some comrades held that because of our underdeveloped industry, we should make use of discarded equipment in the underdeveloped regions in order to promote their industrial development. This method may yield some local benefits but will also bring about the competition of small factories against large factories with "smaller, slower, poorer and more wasteful results" from the macroeconomic point of view. The laws for development proclaimed by Japan after World War II strictly stipulated that discarded equipment must not be used, and the result was very helpful to Japan's economic development. Our Ministry of Textile Industry has also ruled that replaced equipment must be written off, but some local authorities, in their own interests, still continue to use it. It is suggested that the regulation of "replacing the old with the new" should be reiterated and that the state should make corresponding economic laws to restrain and punish the offenders in order to ensure the progress of technical transformation.

8. Modern standards should be set to promote technical transformation.

Every year, Japan has its statistics on the progress of technical transformation in every work process of cotton spinning, weaving, printing and dyeing, and publicizes its rate of modernization. This method is helpful to technical transformation in the textile trade. In 1980, when our Tianjin Textile Bureau worked out its plans for the modernization of its own technical equipment, it also set standards of modernization. Setting such a standard, compiling periodical statistics and publicizing the progress of technical transformation in the work processes of various localities and enterprises as well as the rate of modernization will encourage the localities and enterprises in comparing themselves with, learning from, catching up with and helping others, much to the advantage of technical transformation. However, the standards of various measures of modernization must be based on our national conditions. On the one hand, we must work out a practical minimum standard for the whole country as a unified means of measurement on a nationwide basis. On the other hand, for the areas and enterprises in which the development of technology is fairly rapid, the standard can be even higher instead of being at the national level. It is suggested that Japan's method of setting a modernization rate for its textile industry be used as reference. This rate will be publicized, but with no binding effects. Based on their own conditions, the localities and enterprises can set their own rates of progress in technical transformation and their objectives without blindly striving for modernization regardless of their own financial resources.

9. We should set technical standards for the equipment of textile enterprises and guard against the accumulation of outstanding tasks or "oversimplification."

During this survey, the comrades who were consulted unanimously favored the setting up and the trial of technical standards for the enterprises' equipment.

It is suggested that the technical standards for the textile enterprises should also apply to their factory buildings, equipment, daily life facilities, conditions of labor protection and environmental protection and the economic indexes of production techniques. This standard represents the minimum demand on the enterprises. Generally, all enterprises in their normal operation should be able to conform to this standard in all respects. Since this standard is based on minimum requirements under normal business conditions, all the indexes in designing new factories cannot be below this minimum standard; otherwise the higher authorities will not approve the design. If the completed factory is not up to the standard, it will not be allowed to operate. In this way, such outstanding tasks as shown by the failure of factory construction to meet the construction standards or to install air-conditioning equipment and so forth can be prevented. It will also be possible to proceed with the technical transformation of the textile industry more smoothly and on a larger scale.

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INDUSTRY

IMPORTATION OF TEXTILE TECHNOLOGIES, EQUIPMENT DISCUSSED

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[Article by the Survey Group of the Ministry of Textile Industry: "Importing Technologies and Equipment for the Textile Industry"; Editor in charge: Zong Han [1350 1383]]

[Text] Since the founding of the People's Republic, we have gradually imported from some foreign countries either complete sets or single units of equipment for chemical-fiber and general textile production as required for the development of our textile industry. These imports have played a certain role in the technical transformation of our textile industry and in increasing the productive capacity for chemical fibers. Particularly since the 3d Plenary Session of the 11th Party Central Committee, we have actively developed our economic relations with foreign countries and have speeded up the development of our light and textile industries by importing more textile equipment. These measures have shown fairly good results in developing our production, improving the quality of products, increasing the varieties and promoting exports. Practice has proved the correctness of the policy of importing technologies and equipment as a means of developing our textile industry as rapidly as possible.

I. General Situation of Imports

Since the founding of the People's Republic, we have spent, according to a rough estimate, a total of $2.1 billion on the importation of foreign equipment for our textile industry, and more than 90 percent of the equipment was imported after the 1970's. The equipment for chemical fibers enjoyed priority and a total of more than 20 complete sets as imported, costing about $1.5 billion or more than 70 percent of the total import investment. Woolen textile equipment cost about $200 million; cotton textile equipment, about $100 million; and printing and dyeing equipment, about $100 million. According to incomplete statistics, the expenditures on knitting equipment, silk textile equipment and jute textile equipment were $46.6 million, $35 million and $12 million, respectively. The funds, including foreign currency for importing chemical-fiber equipment in complete sets, were allocated by the state, and the projects for which the imported equipment was used were designated by the central authorities. When completed and put into operation, these projects came under the management of the localities. For importing

spindles and looms, the funds including foreign exchange were mostly raised by the localities from different sources: foreign exchange loans, compensatory trade earnings, foreign exchange at the disposal of the localities, loans granted by the sellers and the wages for processing supplied materials. There were also funds from the profits shared between the local governments and the enterprises and some foreign exchange allocated by the ministry. The foreign exchange from these allocations amounted to more than $500 million, of which $100 million went to Shanghai and Jiangsu each. The shares of Beijing, Tianjin, Shandong, Liaoning, Hubei and Guangdong ranged from $40 million to $50 million or from $20 million to $30 million, and those of other provinces and municipalities were even less.

The use of imported equipment, classified by trades, is as follows:

(1) Chemical fibers. In the 1950's, complete sets of viscose filament yarn and nylon equipment were imported from East Germany. In the 1960's, complete sets of vinyl and acrylic equipment were imported from Japan and England. In the 1970's, seven complete sets of polyester, vinyl and acrylic equipment that used mainly petroleum and natural gas were imported from Japan, France, West Germany and Italy. Several far-flung large chemical-fiber mills in Shanghai, Liaoyang, Tianjin, Sichuan, Pingdingshan and Yisheng are the key enterprises of our chemical-fiber industry, all up to the international technical standards of the 1970's. Except for Shanghai's project in the second phase and the Yizheng project, which are still under construction, all the others have been completed. Recently, nine other projects of high-speed polyester spinning have been imported mainly with foreign exchange from local sources. The imported equipment has a total productive capacity of 380,000 tons.

(2) Cotton textiles. A total of about 270,000 spindles for ring spinning, 30,000 complete air-jet looms, 370 cotton-weaving looms and some single machines have been imported. Except for the more than 50,000 cotton spindles imported in the 1950's and 1960's, most of the equipment was imported in recent years by the localities. Most of the ring spindles were imported from West Germany and the rest were from Switzerland, Japan and England. Most of the air-jet looms were imported from Japan, with the rest coming from West Germany and Czechoslovakia. Most of the weaving looms were imported from Belgium, with the rest coming from West Germany. Most of the imported items are of advanced international standards.

(3) Printing and dyeing. More than 400 sets of cotton-printing and dyeing equipment have been imported. In the past several years. 15 complete dyeing and finishing lines were imported. These lines accounted for 4 percent of the total productive capacity in printing and dyeing production. Six high-speed production lines for dyeing and finishing polyester cotton, two for dyeing and finishing medium-length fibers and some single machines used as a supplement to our own equipment were selectively used in processing chemical-fiber products. With the exception of a small number imported from West Germany, most of these items were supplied by seven Japanese printing and dyeing machinery plants. They are typical examples of Japanese printing and dyeing equipment of the 1970's.

(4) Woolen textiles. We imported a total of 190,000 woolen spindles including 160,000 items of worsted and knitting equipment, 30,000 items of wool-carding equipment, more than 100 sets of looms, a fairly large quantity of wool-dyeing and finishing equipment, some gripper-projective looms, rapier looms, tufting machines, air-jet spinning and other equipment of new models. More than 60 percent of these items were imported by the localities in the past several years, mostly from Italy, West Germany, Japan and France, and are fairly advanced models.

(5) Knitting. According to incomplete statistics on 8 provinces and municipalities in the past several years, a total of more than 1,500 sets of equipment have been imported. Among them are 221 sets of single-face circular weft-knitting machines, 283 sets of double-face circular weft-knitting machines, 96 sets of warpers, 900 sets of double-needle tubular stocking knitters, 126 sets of printing and dyeing equipment for knitwear and 658 sets of sewing machines of various types, besides some auxiliary equipment imported from Japan, England and West Germany.

(6) Silk. In the past several years, we have imported 1,680 sets of equipment including 619 sets of winding, drawing and twisting machines, 264 looms with shuttles, 158 water-jet looms and other shuttleless looms, 4 sets of equipment for making card patterns and 120 sets of dyeing and finishing equipment. Some of them are of the current advanced international technical standards.

(7) Jute textiles. The equipment imported during the early post-liberation period from the Soviet Union and Japan for flax and ramie spinning is already outdated. In the past several years, the Harbin Flax Textile Mill imported 6,760 spindles from Romania, the Lanxi Flax Textile Mill imported 5,000 spindles and a small amount of weaving equipment from Italy and the Dalian Gunny Sack Mill imported some used equipment with an annual productive capacity of 2,500 tons from England. Not many items of jute textile equipment have been imported.

II. Use of Imported Equipment

The imported textile equipment is mostly intended for increasing the productive capacity. The chemical-fiber equipment, which accounted for more than 70 percent of the total investments in imports is largely intended for the development of the chemical-fiber industry in our country so that we will gradually become self-sufficient along with the reduction in imports. The imported textile equipment is mainly intended to improve the quality of our textile products and increase their competitive power on the international market. On the whole, the imported items have produced fairly good economic results and have raised the scientific and technical standards of our textile industry to a certain level.

(1) The initiation and development of our chemical-fiber industry are inseparable from the use of imported equipment. In the initial period of the People's Republic, the foundation of the chemical-fiber industry was

virtually nonexistent. Now we have built up a productive capacity of 636,000 tons, and last year's actual chemical-fiber output was 527,000 tons. The productive capacity of 380,000 tons derived from imported equipment, supplemented by some Chinese-made equipment, accounted for 60 percent of the total productive capacity, while the remaining 40 percent was from the equipment basically reproduced from imported equipment and slightly improved by ourselves. The devices for silk-reeling and post-processing in the equipment for producing viscose fibers and nylon, vinyl and polyester fibers imported in complete sets in the 1950's, 1960's and the early 1970's are now designed and manufactured by ourselves. The complete production line designed and manufactured by ourselves with an annual productive capacity of 7,500 tons of short polyester fibers was recently tested in the Zhenjiang Synthetic Fiber Mill of Jiangsu. Its operation was found to be normal, the technology was stable and the output was up to the designed capacity. The quality of products was also up to state standards and the investment required was two-thirds less than in imported equipment. We have already supplied 14 such complete production lines and will supply 3 more this year. Last year, we proceeded with the design and manufacture of two complete production lines for reeling short polyester fibers with an annual capacity of 15,000 tons, to be ready for the Shanghai General Petrochemical Plant's second-phase project. At present, only a few countries such as the United States, Japan and West Germany can manufacture such heavy equipment.

(2) Imported equipment has improved the quality and has increased the varieties of our products to a certain extent. We have already had certain technical resources for cotton textiles which are of a fairly advanced standard in certain respects. However, the finishing equipment and techniques for printing and dyeing are still fairly backward. Therefore, the designs and varieties of our products, particularly the new products, are still inadequate for the demands of the domestic and foreign markets. In the past 10 and more years, we have used chemical fibers as the raw material to develop three major new products, namely, polyester-cotton fabrics, medium-length chemical fibers and elastic woolen fabrics. The sales of these products nearly doubled every year on the domestic market. To solve the problem of dyeing and finishing for these three major new products, we have imported some equipment, mainly finishing equipment, for printing and dyeing and in increased quantities in recent years. This equipment is very useful in improving the quality and increasing the designs and varieties of the products. We have also reproduced some main machines, such as the heat-setting machine, the hot-melting dyeing machine and the high-temperature and high-pressure dyeing machine. The capacity of the completed production line for the printing and dyeing of polyester cotton has now reached 254 million meters a year, which can initially meet the demands of domestic and foreign markets.

Our knitwear industry has also undergone great developments in the past several years, and a great deal of knitting euqipment has been imported in various localities. The imported single- and double-jacquard circular weft-knitting machines, the warp-knitting machines and the double-needle tubular knitters are the types of equipment now in short supply in our country.

The use of these machines to produce what is now in popular demand on the market will open a new prospect for the development of knitted chemical-fiber products and for development from the production of knitted underwear to the production of knitted garments. We are now able to manufacture some of these machines, but the quality is rather poor.

(3) The combination of the digestion and absorption of imported equipment with the technical renovation and scientific research in the country has provided reference aids to the promotion of our equipment renovation and technical transformation. Before the Liberation, there was virtually no textile machinery industry in our country and all the textile equipment was manufactured in different countries, thus earning its name of "international brand." Control over the equipment was very difficult. During the first 5-year Plan, it was decided that on the basis of transforming our equipment, we should design and manufacture our cotton-textile and printing and dyeing equipment of a certain high standard. In 1963, the ministry organized hundreds of technicians and designers to conduct systematic studies to digest the imported equipment and to learn the advanced foreign science and technology. Then in combination with our own innovations in scientific research and reform, and with advanced technology and reasonable economic results as preset goals, we introduced a second series of new models, then of an advanced world standard, and greatly improved the conditions of our textile equipment. In the several years following the 3d Plenary Session of the 11th Party Central Committee, many localities have imported large quantities of spinning, weaving and printing and dyeing equipment, mostly of an advanced world technical standard. Among these items were the liquid ammonia-treatment device imported from the United States which can reduce the shrinkage of working cloth to less than 1 percent, besides making it soft to the touch and comfortable to wear; the cotton-spinning equipment from Switzerland which can reduce the proportion of uneven slivers by more than 2 percent below that of our own models; and the water-jet looms imported from Japan which can operate at twice the speed of our present silk looms, produce products of better quality and are more suitable for chemical-filament processing. Some localities are now reproducing these and similar items, and some of these reproductions are already in operation.

(4) Imported equipment has achieved outstanding success in improving economic results. However, it is generally several times more expensive than its Chinese counterpart. Furthermore, since foreign exchange is hard to obtain in the localities, most of the funds for the purchase are obtained through loans which must be redeemed, with interest, within a time limit. Therefore, such questions as whether the imported equipment can quickly acquire its productive capacity, whether its products can be sold abroad for foreign exchange, whether it can produce good economic results and so forth must be considered before deciding on its importation. Under the actual conditions in the past several years, the success of the imported items can be seen from their economic results in these two aspects: first, the imports have promoted exports. Many localities have sold the products back to the countries of origin in compensatory trade or have accepted

materials for processing and then used the profits and wages thus earned to pay for the imports. Some localities also used the import equipment to produce high-grade products or products in great demand on the international market and to increase the competitive power of our products. Second, the imported items have met the requirements of our country in developing new varieties. The domestic textile market has undergone great changes in the past 2 years. In order to improve the quality and increase the designs and varieties of products as well as the goods in short supply, many localities have imported some new models which have not yet been produced in the country and which are superior to our own models in both quality and performance. For example, the Shanghai Textile Bureau in 1975-1981 spent $110 million on importing its equipment, and it is estimated that the imported equipment could increase its output value by 850 million yuan, its profits and taxes by 320 million yuan and its exports by $130 million. In 1981, the Beijing Municipal Textile Bureau also increased its output value by 280 million yuan, of which 104 million yuan came from its imported equipment.

III. Problems and Lessons from Experiences in Importing Equipment

In importing foreign equipment, the textile industrial system has achieved great success as well as encountered many problems. Its problems are as follows: first, importation of many items of equipment but not enough technology; second, inadequate dissemination of information among too many importing units; third, some duplicate imports; and, fourth, lack of thorough digestion and popularization and shortage of accessories for imported equipment now in use. The task now is to study and solve these problems, and to sum up the experiences carefully. We should work out concrete policies and measures to improve our future work in accordance with the general and specific policies of the central authorities on economic relations with foreign countries and in light of the actual situation of the textile industry.

(1) The problems of the importation of many items without importing enough technology, of duplicate imports and of a lack of digestion and popularization are interrelated.

In the past, textile equipment was imported mainly for the purpose of increasing the productive capacity. In the case of chemical-fiber equipment, which accounted for 70 percent of the total investment in imported equipment, it is true that there have been problems of duplication. However, since it could rapidly increase the productive capacity, it would certainly be better to import the equipment than to spend even more foreign exchange in importing huge quantities of chemical fibers. Therefore, the economic results of importing equipment should be good. Our science and technology in the textile field and our capacity to manufacture machinery are already up to a certain standard. Even though we seldom imported technology along with importing equipment, we have been able to manufacture the equipment, especially the equipment for small and medium-size enterprises, and to popularize their use within 3-5 years, since the ministry was generally in direct charge of such imports. As for the several sets of heavy equipment for chemical fibers imported in the 1970's, we are still unable to manufacture

the monomer-polymer for the first half of the process, but are already basically able to design and manufacture the auxiliary equipment for reeling for the second half.

Many localities have attached great importance to the development of the textile industry in the past several years. When they are in possession of some foreign exchange, they always consider importing the textile equipment first. They have gained very good results in importing equipment, exporting products, supporting exports with imports, increasing the output of products now in short supply on the domestic market and using the surpluses of some to make up for the shortages of others. However, because of the lack of unified administration over equipment imports in the past, each locality or enterprise was more concerned with its own interests whenever the economic results were considered. They would, for example, join the rush to import any equipment that seemed to promise good profits, and that was why wasteful duplication became fairly prevalent.

Such duplication should be brought under control, now that the capacity of our chemical-fiber equipment has reached its fledging stage, but such efforts have been futile. In the case of high-speed spinning equipment for polyester filaments, for example, contracts for imports have already been signed in nine different places for an annual capacity of about 20,000 tons and at a cost of about $50 million. Now, negotiations are going on in five other places, and the scope of production will also be about 20,000 tons. If these negotiations are successful, another $50 million will be spent. We are now by no means short of polyester filaments or elastic polyester-woolen fabrics; yet, because of the price disparity, everyone likes to produce profitable fabrics with the high-speed method. If we look at the international market, we will see that the United States, an early producer of filaments, has an annual output of 1 million tons, 60 percent of which were produced with high-speed spinning, to be sold on the foreign markets as popular goods of dependable quality. Japan was a little late in the development of filament production. Its annual output was 300,000 tons, of which 90 percent were produced with high-speed spinning and 10 percent with common spinning (also called low-speed spinning). The filaments from low-speed spinning are of greater variety and better quality and are more effective in imitating wool or silk. Instead of taking the old path of the United States, Japan decided on its own course of action: "Victory through qualitative superiority." This experience is of good reference value to us. We have developed filament production in the past several years, and it would be permissible for us to use both high-speed and low-speed spinning. However, we must not blindly pursue high-speed spinning and should take even greater caution against any rush to import high-speed spinning equipment. In attempting to increase our productive capacity, we must take a broader and deeper view of the situation and avoid any obsession with temporary gains; otherwise we may only increase our own burden. At present, the common spinning equipment designed and manufactured in our country are satisfactory in their function and efficiency and can help 20 units increase their productive capacity by 30,000 tons every year. To improve the quality and increase the varieties and designs of filament fabrics, we should develop their production with low-speed spinning.

Furthermore, the high-speed spinning equipment that was trial-manufactured by Huadong Textile College and the Shanghai Synthetic Fiber Research Institute has shown its initial success. Therefore, future imports must be controlled.

(2) Blindness in importing brings many losses.

In recent years, many localities were eager to increase their productive capacity in the textile industry. Textile equipment is centrally distributed by the ministry to ensure the planned development of textile production. Some localities would like to increase their productive capacity outside the plan and have accordingly imported their own equipment from foreign countries. Foreign equipment is more expensive than its Chinese counterpart by several or nearly 10 times. Thus in trying to expand their productive capacity, they had to spend huge sums of foreign exchange for the equipment, only to produce ordinary products. This is economically undesirable. Our capacity for manufacturing textile machinery is by no means small, and our technique is of an acceptable standard. Each year, we can produce 1.2 million cotton spindles and 120,000 wool spindles in complete sets, and we are entirely capable of even meeting the requirements of our textile development with some surplus for exports. In the last several years, however, the localities have spent more than $200 million in importing 220,000 cotton textile and more than 100,000 woolen-textile spindles. The enterprises importing the equipment had rosy visions at first; now, more and more of them are groaning under hardship. The Nantong No 1 National Cotton Mill imported 10,000 spindles for cotton spinning in complete sets; now, 2,000 spindles have been made idle. This mill has drawn three lessons for its experiences: first, building a productive capacity with 10,000 cotton spindles would cost 1.33 million yuan if Chinese-made equipment were used but has cost 12.82 million yuan by using imported equipment--a difference of more than 9 times. Second, imported equipment requires less manpower and produces products of better quality but consumes more electricity--some 60 percent (and 90 percent in some mills) more than the consumption by Chinese equipment. The production cost is thus greatly increased. Third, worse still, the mill had to exert great efforts every year to raise the foreign exchange every year to import expensive accessories to keep the imported equipment operating. Once the accessories did not arrive in time, the equipment would come to a halt. Many enterprises originally planned to recover their investment in 3 years; now, after one more calculation, even 6 years would not be enough for this purpose.

There are many causes for these blind importations, the main ones being as follows: first, a lack of investigation and study. For example, among the 220,000 imported cotton spindles, the spinning frames of 85,000 of them are long frames of 1,000 spindles, which are defective new products that are liable to break down during operation and have a low operational rate. Foreign countries rarely use them, but we are the biggest buyer. These machines have brought us endless trouble. Second, inadequate consideration for our national conditions. Imported equipment generally uses less manpower but consumes more electricity, while our national conditions demand greater attention to the employment problem and energy conservation. For example,

in the past several years, we imported from West Germany and Italy more than 160 sets of automatic winders at a cost of more than $10 million. The energy consumption by this type of equipment is 10 times higher than that of Chinese-made winders, and the mechanical structure is complex. Because of the difficulty in maintenance and repairs, the units have stopped using them. Third, unrealistic consideration for economic results. The economic results of importing equipment, as calculated by some units, have been exaggerated and are not realistic. Generally, the textile industry makes profits, and even more on those products with chemical fibers as the raw material. However, some imported equipment needs to be supplemented by Chinese-made equipment which should be taken into consideration. We must not exclude this factor and attribute our gains solely to the imported equipment. The proper way to calculate should be to compare the imported equipment with its Chinese counterpart under identical conditions and in the production of identical products.

Great care should be exercised on the importation of used equipment. At present, some industrially developed countries are turning their investment from the labor-intensive industrial branches to the technology-intensive branches, and in view of the depression on the international textile market in the past several years, many of these countries are selling their old equipment. We must exercise great care in buying old equipment and be sure that the equipment is dependable in quality and reasonable in price. It must also be technically capable of producing easily marketable goods. For example, the Dalian Gunny Sack Mill spent $320,000 on the purchase from Japan of one set of old jute textile machinery, made in England, with an annual capacity of 2,500 tons. Its mechanical condition as fairly good, and the supply of accessories was dependable. Japan was the sole sales agent for the products and within 1 year, the investment was totally recovered. At the same time, the technique of fermentation with ephedrad tablets [ma bing 7802 7399], used in this equipment, has been under research in our country for many years and without success. The Li Yuxing Knitting Mill of Guangzhou, as another example, imported a number of machines for knitting, printing and dyeing. These machines were fairly new, the technology used was fairly advanced and the prices were low. They were precisely what we needed for developing new products. On the whole, however, our purchases of old equipment from foreign countries have been unprofitable; the Dalian Gunny Sack Mill and Li Yuxin Knitting Mill, cited as examples, are among the minority. Some enterprises have bought from foreign countries very old machines which, once taken apart, cannot be reassembled. The supply of spare parts is also uncertain, so that some machines had to be cannibalized for parts, while others had to be scraped after a brief service life.

(3) We have not been able to catch up with the digestion and absorption of imported equipment. Unless this job is carried out well, it will be difficult for us to promote our textile science and technology with what can be learned from the imported equipment.

The work of digesting and absorbing imported equipment should apply to the use and maintenance of the equipment and our gradual self-sufficiency in accessories and spare parts. After ascertaining the theory of the machinery,

we should also develop and create our own advanced equipment. We have already done some work in this respect and have obtained some good results and experiences. However, the progress has been slow and has often failed to keep pace with current developments.

At present, in the work of using, managing, digesting and absorbing imported equipment, we have to concentrate our efforts on the solution of two problems: first, the problem of self-sufficiency in the accessories and spare parts of the imported equipment; and, second, the design and manufacture by ourselves of complete sets of equipment of a fairly high standard.

For many enterprises, the supply of accessories for their imported equipment cannot catch up with its operation, and the phenomenon of machinery stoppage has been common. The Nantong No 1 National Cotton Textile Mill had a 9 percent stoppage rate in the first year and a 10 percent rate in the second year because of the lack of spare parts. One-third of the stocking knitters had come to a halt because the supply of stocking needles failed to arrive in time. This problem is now becoming increasingly serious and is attracting attention in various quarters. Recently, eight cotton textile mills in Shanghai, Jiangsu, Shandong and two other localities have taken the initiative of mutual cooperation for the solution of this problem. This is a very good practice and all trades should take similar action to solve their own problems.

Our capacity to design and manufacture complete sets of chemical-fiber equipment is now developing. In 1956, we imported one set of nylon equipment, and in 1960, we manufactured the equipment with an annual capacity of 1,500 tons. In 1965, we imported one set of polyprophlene fiber equipment with an annual capacity of 2,500 tons, and in 1975, we manufactured the polyester-fiber equipment with an annual capacity of 4,000 tons. In 1974, we imported a set of polyester-fiber equipment with an annual capacity of 6,000 tons and in 1979, we manufactured one with an annual capacity of 7,500 tons. Now we are in the process of manufacturing a complete set of equipment for reeling short nylon fibers with an annual capacity of 15,000 tons. At present, 40 percent of the productive capacity of the chemical-fiber industry is derived from the equipment manufactured in our own country. One of the existing problems is that although we can be self-sufficient to a certain extent in the reeling equipment for the latter phase of work, our capacity to manufacture chemical industrial equipment has not been correspondingly developed. The other problem is that the pace of creation and of making improvements is slow and cannot catch up with the development of the chemical-fiber industry in the world.

The major problems of the digestion and absorption of imported equipment are as follows:

1. The resources of scientific research, design, manufacturing and application in the relevant quarters have not been organized to form a "fist." Therefore, it is difficult to make any important breakthrough. In designing and manufacturing large chemical-fiber equipment in complete sets, for example, an agency with due prestige should be formed across trade and departmental boundaries and the resources in the scientific research,

design, metallurgic, electronics, chemical industrial machinery and textile machinery departments as well as those of the First Ministry of Machine Building and the Department of National Defense industry must be properly mobilized in mutual cooperation before we can take gigantic strides in reform and creation. For large-scale cooperation, the conditions provided by our national system are far more favorable than those of the capitalist countries, and we can certainly do better, if we only try.

2. There is no reliable source of funds for digestion and absorption. In Japan, the ratio between the funds for importing foreign technology and equipment and the expenses for their digestion and absorption is 6:1. In our country, there is still no regular source and the funds have to be scraped together from various quarters, thus hampering the progress of work. The localities and enterprises importing equipment with their own funds are usually in a hurry to recover their investment and have neither the time nor the money for its digestion and absorption.

3. We are in favor of copying before creating, after mastering the theories behind the imported equipment. In the past, however, we did not make much headway in creation because of the lack of courage and the absence of the necessary organizational measures. Last year, we proceeded to improve, with some creative elements, the equipment for reeling short nylon fibers with an annual output of 15,000 tons. This can be called an important scientific research project. In the future, we must broaden the sphere of our thinking, work hard and take the road of combining copying with creating.

IV. Several Proposals for Future Work

A leading comrade of the central government recently said: "We must take a broad road in importing the advanced science and technology of foreign countries and must not interpret this work in a narrow sense. What we need in this respect can be roughly divided into five major categories: first, advanced equipment of spare parts; second, new materials of fine quality; third, new theories, data and formulas; fourth, new procedures of scientific and technical undertakings; and, fifth, advanced methods of business operation and management." These remarks are entirely applicable to the present realities in the textile industry. Our proposals for the work of importing technology and equipment are as follows:

(1) In the next several years, the central task in textile production will be to improve the quality and increase the designs and varieties. Technical equipment for the dyeing and finishing of chemical fibers is one of the weak links and urgent problems in our textile industry. We must take every possible measure for its solution. In importing technology and equipment, we should give priority to the equipment, the technology and the materials for chemical-fiber dyeing and finishing in order to bring about a fairly significant improvement in the quality, variety and design of chemical fiber products in the near future and to suit the changes in the foreign and domestic markets. This improvement is very necessary.

(2) Our technology of textile production is now of a fairly high standard. We also have a fairly strong foundation for the production of textile machinery, and the equipment we commonly use is not much behind foreign equipment. However, the technical properties of some key machines and key parts are not as advanced as those of some foreign countries. Therefore, we must import some advanced foreign equipment, spare parts and particularly the technology of manufacturing in a planned way. At the same time, we must also import some advanced complete production lines which have not been imported before, such as jute and ramie textile equipment, silk textile and regenerated-wool equipment, the technical equipment for adhesive-bonded fabrics, the finishing equipment for velvet and so forth, in order to meet the requirements of textile development and to serve as reference material in the manufacture of our own equipment. Furthermore, with specific goals in mind, we should import some sample machines that have a promising future for our reference in scientific research and in the design and manufacture of new models.

(3) We should adopt various forms of planning for importing some advanced foreign technology and some equipment for speeding up the development of our textile industry. This is also very necessary and is the way Japan and many countries are using. The result of this measure depends mainly on whether we can do the work of digesting and absorbing effectively and whether we can gather together the strong points of foreign countries for our own use. Therefore, we must adopt a series of realistic measures for the work of digestion and absorption.

The system of differentiated administration should be adopted in the work of digesting and absorbing important technology and equipment. The enterprises should carefully attend to and control this work, and the regions should treat the transplanation of spare parts for the technical transformation of old mills as their main concern, while the ministry should take care of the trial manufacture and the selection and finalization of models for new machines. There should be differentiated administration as well as close cooperation so that the units at all levels will help one another and supplement one another's efforts.

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INDUSTRY

CHANGES IN CHINA'S INDUSTRIAL FIXED ASSETS DESCRIBED

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[Article by Chen Zhenyu [7115 2182 5940] and Lu Chunheng [4151 2504 1854]; "Changes in China's Industrial Fixed Assets" ; Editor in charge: Li Zhuqi [2621 0031 0368]]

[Text] To carry out industrial production, we need two basic conditions, namely, availability of labor and availability of the means of production. The means of production include the subject of labor and the tools of labor, and fixed assets are an important tool of labor. From the increase in our fixed industrial assets since the founding of the People's Republic, we can observe the high speed of our industrial growth, the rational trend of our industrial structure and the continued increase in our economic strength as well as other special characteristics.

In nearly 100 years from the initiation of military industry by the Qing government in the 1860's to the National Liberation in 1949, the value of fixed assets in the old China amounted to only 12.4 billion yuan. After the founding of New China and under the leadership of the CPC, we rapidly completed the work of national economic recovery and began our economic construction according to plan. After basically completing the socialist transformation of the system of ownership of the means of production, our industrial production developed rapidly and in 1956, the fixed industrial assets of the whole country totaled 28.7 billion yuan in value, a 1.3-fold increase over 1949. Later, we began a comprehensive and large-scale socialist construction program which inspired another new development in our industrial production. In 1965, the value of fixed industrial assets in the whole country reached 106.4 billion yuan, a 2.7-fold increase over 1956. In the 10 years of the "cultural revolution," disruptions by the Lin Biao-Jiang Qing counterrevolutionary clique brought tremendous losses to our national economy. However, thanks to the combined efforts of the party and the broad masses of workers, technicians and cadres in common struggle, we could still make progress in industrial production and construction. In 1976, the total value of fixed industrial assets reached 282.5 billion yuan, a 1.7-fold increase over 1965. After the 3d Plenary Session of the 11th Party Central Committee, our industry again achieved great success in readjustment, restructuring, consolidation and improvement. In 1981, the fixed industrial

assets of the country reached 450.7 billion yuan in value, an increase of nearly 170 billion yuan after a 60 percent rise. In 1949-1981, the fixed industrial assets of the country increased by nearly 440 billion yuan, a 35-fold increase with an average progressive increase of 11.0 percent each year. This is a great triumph for all the people under the CPC's leadership. (See Table 1)

Table 1. Growth of Fixed Assets Among Industrial Enterprises with Independent Accounting

年 1 份	固定资产原值 2 (亿元)	3 固定资产增长指数	
		4 以1949年为100	5 以1952年为100
1949	124	100	83
1952	149.5	121	100
1956	287	232	192
1965	1,064	858	712
1976	2,825	2,278	1,890
1977	3,114	2,511	2,083
1978	3,478	2,805	2,326
1979	3,804	3,068	2,544
1980	4,134	3,334	2,765
1981	4,507	3,635	3,015

Key:

1. Year
2. Original Value of Fixed Assets (100 million yuan)
3. Index of Fixed-asset Growth
4. 1949 = 100
5. 1952 = 100

The rapid development of fixed industrial assets in our country also brought marked changes in the role and position of industry in the national economy. In 1952-1981, the share of industry increased the total fixed assets of state-owned enterprises from 44 to 65 percent, total social output from 34 to 54 percent and national income from 20 to 44 percent.

The continued increase in fixed assets and the rapid development of industrial production have greatly changed China's place among all countries in the world

in the output of several important industrial products. In 1981, our coal output was 622 million tons, which elevated China from ninth place in the world in 1949 to third place. Formerly, our crude oil output was very small; now it has reached 101 million tons and put China in sixth place. Our power generation of 309.3 billion kwh elevated China from 25th to 6th place; China's steel output of 35.6 million tons moved us from 26th to 5th in the world.

All of this shows that since Liberation China's industry has undergone an enormous transformation. China has built itself up from a poor and backward agricultural country to an industrial-agricultural socialist country with the beginnings of prosperity.

From these changes in fixed industrial assets, we can see the following characteristics of our industrial development:

I. Establishment of a Socialist Industrial Economy with State-owned Industry in the Lead and the Coexistence of Different Economic Forms

In the old China's industry, about 80 percent of all fixed assets were owned by bureaucratic capital, while national capital owned 20 percent, leaving only a little for individual handicrafts. After National Liberation, the fixed assets of bureaucratic capital were confiscated and a state-owned economy was established. In dealing with national capitalist industry, we devised a whole series of transitional forms of state capitalism from the lower to the higher levels, such as the placing of state orders with private enterprises for the processing of materials or the manufacture of goods, the marketing of products of state-owned enterprises by private shops and joint state-private ownership of individual enterprises or enterprises of a whole trade. In dealing with individual handicraft industry, we adopted the method of "getting organized for cooperation." In 1956, we triumphantly accomplished the socialist transformation of national capitalist industry and individual handicraft industry. In the same year, state-run industry owned 86.8 percent; joint state-private industry owned 11.97 percent; collective industry owned 1.22 percent; and capitalist industry owned only 0.01 percent of the fixed industrial assets.

Industries run by rural communes and production brigades developed very rapidly after 1958, and industries run by the urban neighborhoods also developed rapidly after 1970. After the 3d Plenary Session of the 11th Party Central Committee, the policy of opening to the outside world and invigorating the domestic economy led to a vigorous development of individual handicraft industry, while industrial enterprises with Chinese and foreign investment or with exclusive foreign investment were formed one after another. In 1981, the state sector owned 89.5 percent, the collective sector owned 10.3 percent and the joint state-collective sector owned 0.2 percent of the fixed industrial assets of the whole country not counting those of individual handicraft industry. Altogether there were 47 industrial enterprises with joint Chinese-foreign investment and exclusive foreign investment, which owned fixed assets of 64 million in value, and 113,000 individual handicraft industrial households with a gross industrial output value of 190 million yuan. (See Table 2)

Table 2. Composition of Fixed Assets by Economic Form Among Industrial Enterprises with Independent Accounting in 1981

	固定资产原值 1 (亿元)	固产资产净值 2 (亿元)	固定资产净值占原值的比重 3 (%)	固定资产原值 4 的经济形式构成
5 全国总计	4,507	3,064	68.0	100
6 全民所有制工业	4,032	2,709	67.2	89.5
7 集体所有制工业	463	346	74.7	10.3
8 全民与集体合营工业	11	8	72.7	0.2
9 其 它	0.64	0.56	87.5	...

10 注：1981年个体手工业共有11.3万户，比1980年增加4.4万户。工业总产值1.9亿元，比1980年增加1.1亿元。

Key:

1. Original Value of Fixed Assets (100 million yuan)
2. Net Value of Fixed Assets (100 million yuan)
3. Ratio of Net Value to Original Value of Fixed Assets (%)
4. Composition of Original Value of Fixed Assets by Economic Form
5. National total
6. State-owned industry
7. Collective-owned industry
8. Joint state-collective industry
9. Others
10. Note: In 1981, there were 113,000 households engaged in individual handicraft industry, an increase of 44,000 households over 1980. Total industrial output value was 190 million yuan, an increase of 110 million yuan over 1980.

II. Establishment of an Independent and Fairly Complete Industrial System

Old China's industry was very backward and its development was lopsided. There was very little heavy industry and even light industry was very much underdeveloped. After more than 30 years of construction, we have set up an independent industrial system, including a fairly complete assortment of branches which has supplied more and more technical equipment to the different sectors of the national economy and an increasing number of the articles required in the people's daily lives.

Heavy industry is an important material and technical foundation of our national industry. In 1981, the fixed assets of heavy industry exceeded 360

billion yuan in value, a 45-fold increase over 1952. The proportion of these fixed assets rose from 52 percent in 1959 to 80 percent of the total amount in the industrial sector.

China has abundant energy resources, but they were hardly developed or used in the old China, which had to rely on foreign countries for most of its crude oil. After Liberation, a number of large oilfields and natural gas fields, including Daqing, Shengli, Huabei, Liaohe and Sichuan, were built; a large number of coal mines, including those of Kailuan, Datong, Fushun, Fuxin, Jixi, Huainan, Huaibei, Xuzhou, Pingdingshan, Yanzhou and Shitanjing, were built or expanded; and a large number of hydropower or thermopower stations (or plants), including those in Liujiaxia, Danjiang, Gezhouba, Qinghe, Douhe, Matou and Wangting, were built. In 1981, the fixed assets of the energy industry reached 119 billion yuan in value, and the energy output was increased 25-fold, which was basically sufficient to meet the needs of our national economic development. We even had some crude oil and coal to export.

In the metallurgy industry, we have built or expanded a number of iron and steel complexes in Anshan, Wuhan, Baotou, Panzhihua, Shoudu, Maanshan, Chongqing and Taiyuan and a number of refineries in Baiyin, Tongling, Fushun, Shandong, Yunnan, Shanghai and Shenyang. In 1981, the fixed assets of the metallurgy industry were valued at 60.9 billion yuan and included a large number of blast furnaces, converters, electric furnaces and steel-rolling equipment. The specifications and varieties of steel materials have developed from some 400 in 1952 to more than 20,000 in number. A number of new materials have also been developed.

In the machine-building industry, the old China had only several tens of thousands of machine tools, and most of them were old-model belt-driven lathes. The main job for this industry was mechanical repair, and not a single motor vehicle could be manufactured. Now, it has become a machine-building sector of nearly 100 different trades, including mining, electric power, petroleum, metallurgy, chemical industry, communications and textiles with various special and general equipment. In 1981, the value of fixed assets in the machine-building trade exceeded 120 billion yuan and included more than 2.5 million sets of machine tools of various types. This industry has produced more than 28,000 types of mechanical and electrical appliances and has suppled large quantities of technical equipment to various sectors of our national economy in addition to a number of mechanical and electrical appliances for the international market.

Fixed assets in such heavy industrial branches as the chemical industry, building materials industry and forestry industry have also multiplied, and production has developed rapidly.

The development of agriculture and heavy industry and the improvement of living conditions for the urban and rural population have supplied technical equipment, raw materials, fuel, motive power and a large domestic market for

rapidly developing light industries. In 1981, the value of fixed assets in light industry were more than 90 billion yuan, a nearly 12-fold increase over 1952. (See Table 3)

Table 3. Composition of Fixed Assets by Branch Among Industrial Enterprises with Independent Accounting in 1981

	固定资产原值 1 (亿元)	固定资产净值 2 (亿元)	固定资产净值占原值的比重 3 (%)	固定资产原值 4 的部门构成
5 全国总计	4,507	3,064	68.0	100
6 一、按轻重工业分组				
7 轻工业	901	634	70.4	20
8 重工业	3,606	2,430	67.4	80
9 二、按主要工业部门分组				
10 冶金工业	609	422	69.3	13.5
11 电力工业	516	358	69.4	11.4
12 煤炭工业	386	253	65.5	8.6
13 石油工业	277	151	54.5	6.1
14 化学工业	467	329	70.4	10.4
15 机械工业	1,211	813	67.1	26.9
16 建材工业	222	160	72.1	4.9
17 森林工业	108	79	73.1	2.4
18 食品工业	182	133	73.1	4.0
19 纺织工业	255	175	68.6	5.7
20 缝纫工业	21	15	71.4	0.5
21 皮革工业	18	13	72.2	0.4
22 造纸工业	62	42	67.7	1.4
23 文教用品工业	49	34	69.4	1.1

Key:

1. Original Value of Fixed Assets (100 million yuan)
2. Net Value of Fixed Assets (100 million yuan)
3. Ratio of Net Value to Original Value (%)
4. Composition of Original Value by Branches
5. National total
6. I. Classified by light and heavy industries
7. Light industry
8. Heavy industry

II. Classified by major industrial branches

Metallurgy industry
Electric power industry
Coal industry
Petroleum industry
Chemical industry
Machinery industry
Building materials industry
Forestry industry
Food industry
Textile industry
Sewing industry
Leather industry
Paper-making industry
Cultural and educational supplies industry

III. Rapid Development of Newly Emerging Industrial Branches

With a stronger industrial foundation and the progress of science and technology, the petrochemical industry, electronics industry, nuclear industry, space industry and other newly emerging industries were established and are developing rapidly. The establishment and development of these newly emerging industries have filled a void in our industrial branches and played an important role in changing the industrial structure, improving the production technology and raising the people's living standards. The large increase in oil and natural gas output has also promoted the development of the petrochemical industry. Now, we have a large number of enterprises producing chemical fertilizers, synthetic fibers, synthetic rubber, synthetic plastics, synthetic leather, synthetic fat acid and ethylene. These enterprises have significantly changed the composition of raw materials for our textile, rubber, leather, fat, chemical fertilizer and organic chemical industries. The significant development of the electronics industry has helped increase the output of TV sets, cassette recorders and transistor radios by a wide margin. The electronic computer industry was started from scratch and has grown from small to large. Now, we are capable of serial production. All these developments have improved our production technology and the people's livelihood. The nuclear and space industries have also undergone great developments. Since October 1964, we have successively trial-manufactured and produced atomic bombs, hydrogen bombs and guided missiles. We have also successfully launched artificial satellites and mastered the sophisticated technology of satellite recovery, multi-carrier rockets, submarine-based rockets and so forth. All these achievements have greatly strengthened our national defense and enhanced our international prestige.

IV. The Increasingly Rational Regional Layout

Old China's industry was concentrated along the coast and in a few areas in the northeast, but was almost nonexistent in the vast hinterland. In industrial

construction after Liberation, we carefully brought the role of the original industrial bases along the coast into full play and energetically set up new industrial bases in the hinterland. After more than 30 years of construction, the industrial layout in our country has been greatly improved, as we can see from the distribution of fixed assets in different regions. In 1981, the hinterland's share of fixed assets amounted to 235.8 billion yuan in value, a 57-fold increase over 1952, and the coastal areas' share amounted to 214.9 billion yuan, a 19-fold increase over 1952. Of the fixed assets throughout the country, the hinterland's proportion rose from 27 percent in 1952 to 52 percent in 1981, while the proportion of the coastal areas dropped from 73 percent to 48 percent in the same period. The improved layout of industrial areas plays an important role in the full development and utilization of our natural resources and the acceleration of socialist construction.

Ours is a multinational country. To develop the economy and culture of the minority regions and to raise the living standards of these peoples, the state has paid great attention to their industrial development. In the four autonomous regions, namely, Nei Mongol, Xinjiang, Guangxi and Ningxia, the value of fixed industrial assets in 1981 totaled 26.8 billion yuan, a more than 100-fold increase over 1952. The ratio of fixed assets in these four autonomous regions to the national total increased from 1.6 percent in 1952 to 5.9 percent in 1981.

Industry was almost nonexistent in the vast countryside of the old China. Along with the development of the rural economy after the founding of New China, the industry run by rural communes and production brigades developed very rapidly, and in 1981, the value of fixed assets in this industry amounted to about 24 billion yuan. The coal, iron ores, pyrites, cement, bricks and tiles, limes and edible plant oil all amount to a fairly high proportion of the total national output. These products have played a positive role in developing the rural economy and improving the peasants' livelihood. (See Table 4.)

Table 4. Composition of Fixed Assets by Area Among Industrial Enterprises with Independent Accounting in 1981

	固定资产原值 1 (亿元)	固定资产净值 2 (亿元)	固定资产净值占原值的比重 3 (%)	固定资产原值 4 的地区构成
5 全国总计	4,507	3,064	68.0	100
6 按沿海、内地分组				
7 沿海	2,149	1,421	66.1	47.7
8 内地	2,358	1,643	69.7	52.3
9 按民族自治区分组				
10 四个民族自治区合计（不包括西藏）	268	186	69.4	5.9
11 三、按省、市、区分组				
12 北京	162	104	64.2	3.6
13 天津	119	76	63.9	2.6
14 河北	207	141	68.1	4.6
15 山西	177	125	70.6	3.9
16 内蒙	105	76	72.4	2.3
17 辽宁	450	275	61.1	10.0
18 吉林	159	102	64.2	3.5
19 黑龙江	278	182	65.5	6.2
20 上海	224	137	61.2	5.0
21 江苏	226	157	69.5	5.0
22 浙江	105	76	72.4	2.3
23 安徽	117	83	70.9	2.6
24 福建	62	44	71.0	1.4
25 江西	93	61	65.6	2.1
26 山东	247	166	67.2	5.5
27 河南	202	143	70.8	4.5
28 湖北	239	180	75.3	5.3
29 湖南	169	118	69.8	3.7
30 广东	153	105	68.6	3.4
31 广西	76	56	73.7	1.7
32 四川	336	239	71.1	7.5
33 贵州	89	66	74.2	2.0
34 云南	97	70	72.2	2.2
35 西藏				
36 陕西	147	103	70.0	3.3
37 甘肃	146	96	65.8	3.2
38 青海	36	28	77.8	0.8
39 宁夏	29	21	72.4	0.6
40 新疆	58	33	56.9	1.3

Key:

1. Original Value of Fixed Assets (100 million yuan)
2. Net Value of Fixed Assets (100 million yuan)
3. Ratio of Net Value to Original Value (%)
4. Original-value Composition by Areas
5. National total
6. I. Classified by coastal and inland areas
7. Coastal areas
8. Inland areas
9. II. Classified by nationality autonomous regions
10. Total of four autonomous regions (Xizang not included)
11. III. Classified by province, municipality and region
12. Beijing
13. Tianjin
14. Hebei
15. Shanxi
16. Nei Mongol
17. Liaoning
18. Jilin
19. Heilongjiang
20. Shanghai
21. Jiangsu
22. Zhejiang
23. Anhui
24. Fujian
25. Jiangxi
26. Shandong
27. Henan
28. Hubei
29. Hunan
30. Guangdong
31. Guangxi
32. Sichuan
33. Guizhou
34. Yunnan
35. Xizang
36. Shaanxi
37. Gansu
38. Qinghai
39. Ningxia
40. Xinjiang

V. Building an Enterprise Line-up with Large and Medium-size Enterprises as the Backbone and Made up of Large, Small and Medium-size Enterprises

In the old China's industry, the scale of production was very small and the technical equipment very poor. After the founding of New China, the state devoted its major resources to the establishment of a large number of large and medium-size key enterprises, and in 1981, there were more than 5,000 such

enterprises in the country with fixed assets totaling 285 billion yuan in value, or 63 percent of the national total in industry. These large and medium-size industrial enterprises have advanced production equipment, strong technical work forces, fairly efficient management and fairly good economic results. They form the backbone of our national industry and can carry much weight in the development of our industry. They provide the important material and technical foundations for our "four modernizations."

The development of large and medium-size enterprises has brought about great changes in the technical structure of our industry. For example, exploitation of the key coal mines has changed from the use of dynamite in drilled holes to the use of machinery. At present, more than 100 working faces are equipped with comprehensively mechanized mining equipment of advanced world standards. In the past, the Chongqing Iron and Steel Plant mainly used open hearths for steel smelting; now, converters are mostly used, and more than 40 percent of its steel output is produced by top-blown oxygen converters. This plant is also equipped with new technical equipment of advanced world standards for continuous casting and rolling. In the past, thermopower-generating units of low and medium pressure were mainly used and energy consumption was high. Now, high-temperature and high-pressure power-generating sets account for more than 60 percent of the equipment. Among the machine tools and forging equipment in the machine-building industry, large high-precision lathes were rarely used in the past, and there was not one digital-control machine tool; now, we have nearly 110,000 sets of them. In the past, we had only a small number of large forging machines; now, we have more than 30,000 sets of them and 35 sets of hydraulic press of more than 1,000 tons.

While large and medium-size key enterprises were being built, small industries, including traditional arts and crafts and the production of minor commodities for daily use, are also developing rapidly. In 1981, the fixed assets of small industry were valued at 165.8 billion yuan, 37 percent of the amount of the entire industrial sector, and have become an important force in our industry. The place of small industry in light industry is even more significant, since more than three-quarters of the work in the production of plastic, rubber, wood and metal products; the processing of grain, edible oil and meat; the primary processing of fiber materials; sewing; and leather making are being undertaken by small industry. It thus plays an important role in meeting the daily needs of the urban and rural population.

After more than 30 years of construction, we have on the whole acquired quite a large quantity of fixed assets which have become part of a solid industrial foundation. Our production is now developing rapidly and with very good results. However, because of the "leftist" errors and our mistakes in work, industrial development in our country has not been without setbacks. We have been through three major blind developments. First, during the "Great Leap Forward" of 1958 and under the slogan of large-scale steel production by all the people, small indigenous furnaces run by the broad masses sprang up like mushrooms, causing a serious waste of manpower, materials and money. Second, during the "Great Cultural Revolution," one-sided stress was laid on small

industries for producing iron and steel, farm machines and chemical fertilizers. The technical equipment of these enterprises was backward, producing goods of inferior quality at high level of consumption and at a high production cost and causing great losses. This became a heavy burden on the national economy. Third, in the period between the downfall of the "gang of four" and the 3d Plenary Session of the 11th Party Central Committee, a huge amount of foreign equipment and technology was imported in response to unrealistic slogans. This led to more blind development which further increased the burden on our national economy.

Because of these blind developments in our industry, the industrial front became overextended and the departmental lineup became irrational. Many sets of equipment became obsolete, the technical standards were low and the fixed assets were not fully utilized. Since the economic potential has not been fully tapped, much can be done in the way of increasing output and practicing economy.

From the pattern of industrial production, we can see the slow developments in the energy industry and in mining and tunneling, which cannot meet the requirements of the developing processing industry. Because of the energy shortage, many enterprises have suspended their operations or have operated at half capacity over long periods, thus slowing down the development of industrial production and the improvement of economic results. The development of light industry has also been slow and cannot meet the people's daily increasing demands. Furthermore, in some areas and departments, there is duplicate construction as shown by the number of small industrial plants with crude equipment and backward technology now completing with the large plants for raw materials and markets. These duplications affect the improvement of economic results in industry.

From the technical structure of industry, we can see, on the one hand, obsolete equipment and backward technology. This is largely because in the industrial production and construction of the past, we were only concerned with expanded reproduction in the extensive, not the intensive, form so that very few funds could be used for renovation and transformation. Furthermore, the low depreciation rate and the small depreciation funds for fixed assets made it impossible for the enterprises to replace or transform them. In the case of industrial boilers, for example, a third of the more than 200,000 sets, which we now own, have heat efficiency rates below 60 percent, while another third are in urgent need of replacement. On the other hand, we can see that many machinery plants are producing old-model mechanical and electrical appliances of poor performance and low efficiency at a high rate of energy consumption, and these products are in urgent need of upgrading and updating. As reported by the department concerned, of the more than 28,000 varieties of mechanical and electrical appliances for civilian use, about 60 percent should now be phased out, and only about 5 percent are of the advanced standards of the 1970's. Of all the machines tools in the country, more than 40 percent are ordinary lathes.

For these reasons, in addition to poor enterprise management, the utilization rate of fixed industrial assets is low and the economic results far from ideal. For example, the gross industrial output value for every 100 yuan of the original value of fixed assets of state-run industrial enterprises in 1981 was lower than in 1957 by 30 percent. In other words, if we attain the 1957 level, our present fixed assets will add more than 170 billion yuan to the industrial output value, meaning a 32 percent increase in the gross industrial output value in 1981. Again, the amount of profits and taxes generated by every 100 yuan of the net value of fixed assets among the state-run industrial enterprises in 1981 was lower than in 1957 by 30 percent. In other words, if the 1957 level can be attained, the present fixed assets can add 37 billion yuan to the amount of profits and taxes, meaning an increase of more than 30 percent in state revenues. Of course, there are certain objective factors which make an accurate comparison impossible. Nevertheless, it shows the great potential to be tapped.

Since the 3d Plenary Session of the 11th Party Central Committee, we have resolutely eliminated the prolonged "leftist" errors in the guiding ideology for economic construction, conscientiously implemented the policy of readjustment, restructuring, consolidation and improvement and readjusted the ratio between light and heavy industries in production and construction. Light industry is now developing rapidly, while heavy industry, after the readjustment of the orientation and the expansion of the sphere of its service, is also undergoing a new development. Some enterprises that produce products of inferior quality for high consumption and incur losses over a long period have been closed, either permanently or temporarily. At the same time, we have gradually expanded the enterprises' decision-making power, practiced the system of economic responsibility, implemented the principle "to each according to his work" and brought into play the supplementary regulative role of the market under the guidance of state plans. The economic results of industry have been improved. All these measures have prepared the conditions for the implementation of the spirit of the 12th Party Congress in order to bring about an all-round national economic development and to open new prospects for socialist modernization.

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CSO: 4006/140

INDUSTRY

BRIEFS

TIANJIN TERTIARY INDUSTRY CENTER--The Tianjin Municipal Government decided to build the Nanshi area into a new tertiary industry center. The municipal planning bureau assigned the task of designing the Nanshi Hotel Street to the Tianjin Construction Design Institute. The Nanshi Hotel Street is to be built to the west of Nanshi Food Street. The municipality plans to build five hotels on the street, covering 50,000 to 60,000 square meters of land. [Summary] [Tianjin City Service in Mandarin 0030 GMT 17 Jan 85 SK]

TIANJIN INDUSTRIAL EXHIBIT--An exhibition of industrial technological progress opened in Tianjin Municipality on 17 January. The mayor of the municipality, Li Ruihuan, cut the ribbon at the opening ceremony. Attending the opening ceremony and visiting the exhibition were Zhu Rongji, vice chairman of the State Economic Commission; municipal leading comrades, including Yang Jingheng, Liu Zengkun, Li Zhongyuan, Nie Bichu, and Li Lanqing; and Wu Zhen, commander of the Tianjin Garrison District. [Summary] [Tianjin City Service in Mandarin 1403 GMT 17 Jan 85 SK]

HENAN INDUSTRIAL OUTPUT VALUE--The province's industrial output value for January was 2.46 billion yuan, an increase of 20.8 percent compared with the same period last year and the highest recorded since 1981. [Summary] [Zhengzhou Henan Provincial Service in Mandarin 2300 GMT 4 Feb 85 HK]

HANDICRAFTS GATHERING--Xizang's nationality handicrafts developed rapidly in 1984, with the number of enterprises engaged in producing nationality items rising from 57 in 1979 to 108. Total income of these enterprises last year was 25.66 million yuan, an increase of 27.52 percent over 1983. On 13 February, the Handicrafts Administrative Bureau of the regional Industrial Department held a gathering to greet the Tibetan New Year and the Spring Festival. Present were responsible comrades of the party and government in the region Yin Fatang, Pagbalha Geleg Namgya, Redi, and Yang Zongxin. [Excerpts] [Lhasa Xizang Regional Service in Mandarin 0500 GMT 15 Feb 85 HK]

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CONSTRUCTION

BRIEFS

NEI MONGGOL HOUSING CONSTRUCTION--In 1984, housing administrative departments in Nei Monggol built 310,000 square meters of marketable houses with 64 million yuan of bank loans. In Ulan Hot City from 1981 to 1984, 70,000 square meters of houses were built by organizations, amounting to 27 percent of the houses built in the same period; and 158,000 square meters of houses were built by individuals, amounting to 60.77 percent. Per capita living space in the city increased from 3.6 square meters in 1980 to 4.8 square meters in 1984. [Excerpt] [Hohhot NEIMENGGU RIBAO in Chinese 2 Feb 85 p 2 SK]

CSO: 4006/408

FOREIGN TRADE AND INVESTMENT

SMALLER FRG FIRMS RECORD SUCCESSES WITH PRC JOINT VENTURES

Bonn RHEINISCHER MERKUR/CHRIST UND WELT in German 28 Dec 84 pp 6-7

[Article by August Raeubinger: "Using the Germans to Beat the Japanese"]

[Text] It almost left the managers of the cosmetic group Well, Inc, who had come from Darmstadt, speechless. The Chinese negotiating partners with whom the Germans were trying to work out the contract for a joint venture for production of personal hygiene products in Tianjin submitted a strange proposal concerning the tasks and authority of the unions in the enterprise. The basic role of the union would be, according to the original draft, "to unite the work force and to teach them to provide good production labor, to acquire technical knowledge and to maintain discipline and the contract for the joint venture."

Such a capitalistic understanding of employee representation in distant China went too far for the Wella representatives. They were exporting, along with production equipment and technical know-how, a union philosophy which would suit their Chinese colleagues better. After several discussions, the wording in the contract for the Tianjin Liming Cosmetics Joint Industrial Company is now: "The venture's union is a popular organization of employees and workers and represents their rights."

There could hardly be a more striking illustration of how far the Chinese have removed themselves from Marx and Lenin as well as their teachings. Since Mao's death 8 years ago, an almost breathtaking change has occurred in the direction of the market economy. And the catchword "socialist," at least according to the observation of Heinrich Weiss, chairman of the board of the German equipment and mechanical engineering group Schloemann-Siemag, Inc (SMS), "hardly ever surfaces at all."

Prices and Wages Increasingly Influenced by the Market

As an experienced China expert, Weiss is a man who is much in demand nowadays, who frequently shares inside information about the details and perspectives of Chinese business with managers and employers. And he can offer his attentive listeners much hope. For, by the year 2000, planners in the great Far Eastern empire hope to double steel, cement and fertilizer production and also to create entire new industrial groups.

In this effort, economic decisionmaking processes are being increasingly transferred from state authority to entrepreneurs themselves. Setting of prices is even being left more and more to the free play of market forces, much to the surprise of Western observers. And even salary and personnel policy has recently begun to be based on the actual performance of workers.

The moving force behind this dynamic economic reform is the 81-year-old Deng Xiaoping, who intends to quadruple the GNP of his country in the next 15 years. With strong backing from a new cadre of officials, above all from the great mass of the people, 80 percent of whom earn their living in agriculture, the wise old leader has greatly relaxed the control of private economic activity--originally in the enormously important agricultural sector, which is responsible for feeding a billion people, but also in the production and service sectors. Practically overnight 17 million independent enterprises have developed. "Whoever does not work for others is allowed to work for himself," Weiss describes the transformation.

Even Midsized Firms Have Hope for Business in China

And the country is luring foreign investors and exporters of high quality industrial goods, which will offer it strong support for the fulfillment of its ambitious economic plans. At the largest Chinese investment symposium ever, in Hong Kong in November, 500 delegates from 200 Chinese firms presented their wish lists to Western businessmen who came in droves. And they concluded contracts for 43 joint ventures with a total value of $250 million and placed additional orders for about $2.5 billion.

Not only the large industries such as Volkswagen, Mannesmann or Schloemann-Siemag who have been involved in China for sometime now hope for thriving business with China but midsized German industries do too. But the offers do not come in by themselves. Thus it cost the concrete manufacturer Elba-Werk, Ltd, a lot of talk and 4 years before the Swabians from Ettlingen could finally gain a foothold there. But patience, it seems, has paid off. Now Chinese orders valued at more than DM 3 million are on the books.

It all started in 1979, when Elba first presented its products at a building machinery fair in the provincial city of Shenjang, but could unload nothing but prospectuses and business cards. Not until 6 months later did the Chinese show any interest; they sent a delegation to Ettlingen for further assessment of the machines, and finally ordered only after they saw how a foreign builder in China was able to build one floor per week in a high-rise project using the German concrete pump.

"The initial investment is considerable, compared with the European market," according to F.J. Hardy, sales manager of the Stolberger Maschinenfabrik Group, Ltd and Co. This midsized firm from the Rhineland, manufacturer of special machines for the production of steel

cables and telephone cables, settled on a license contract with the Chinese. Like the Japanese, according to Stolberger's experience, the Chinese do not allow themselves to be pressured into hasty decisions.

In preparation for a visit to China, Hardy first recommends consultations with the Asia expert of the bank. Then two people should make the trip, a technical person and a sales person, both of whom "know their business." Documents must be meaningful to the target group and written in Chinese and English. And then "you must be prepared to revise the offer at night in your hotel in order to present it again the next day."

The Chinese react openmindedly and with interest to equipment which conserves raw materials and to durable products. One of the pioneers in German-Chinese cooperation in the realm of machine tool building is H. Wohlenberg Group, Ltd and Company of Hannover. The Lower Saxons are having their V 100 motorized lathe produced by a machine tool factory in Shanghai. Manager Hans Ruediger sees the "giving away of know-how without payment as a farsignted and profitable "investment in our common future."

The two partners have divided up specific regions of the world market between each other "with delimitation of spheres of interest." Simply stated this means: The Chinese earn valuable foreign currency with the export of the machines produced under contract, and the Germans can penetrate further into a portion of the world market through the repurchase of the products which are manufactured much more profitably in China.

The movement of midsized firms in China's direction is increased thanks to the ample financial reserves held by the Far Eastern partners of choice, in marked contrast to the mostly deeply indebted third world countries. Experts estimate gold and foreign currency reserves at more than $20 billion.

Strong support for penetration of this immense market is offered not only by large businesses but also by major German banks. They are all represented by affiliates or branches in the large business centers of the ancient nation of culture.

From time to time the Chinese reveal in spectacular fashion that they have a real nose for business. For example, with the purchase of the remains of formerly proud German midsized firms. Thus in November, the bicycle industry union of the city of Tianjin bought out the bankrupt moped manufacturer Zuendapp and transported the entire inventory from the stamping machines to the galvanization equipment to China. It will be the foundation of a flourishing Chinese motorbike industry. "With your know-how and ours," gloated the managers who had traveled from China to Munich, "even the Japanese can be beat."

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FOREIGN TRADE AND INVESTMENT

BEIJING OPTICAL FACTORY TO MAKE SWEDISH SURVEYING INSTRUMENTS

Stockholm SVENSKA DAGBLADET in Swedish 28 Jan 85 p IV

[Article by Lotta Welinder: "Surveying Instruments--Swedish Product for China"]

[Text] The Chinese market is being opened to Geotronics, one of the world's largest manufacturer of surveying instruments. Shortly before Christmas, a new factory, where the Swedish measuring devices will be built and assembled, was opened in Beijing.

Geotronics has made an agreement about cooperation with Beijing Optical Factory, one of China's major companies within the surveying industry, with about 60-70 percent of the Chinese market.

Beijing has the know-how for manufacturing the lower part, i.e. an angle gauge, for the measuring devices, but does not have access to the technology needed for constructing the supplementary electronic length gauge.

"When the first contacts were made between Beijing Optical Factory and Geotronics, the Chinese were solely prepared to buy finished units from us," says Karl Ramstrom at Geotronics.

Unusual

"But during the course of the negotiations, they became more and more interested in an exchange of technology. The idea of starting an assembly line in China emerged--according to our understanding a relatively unusual phenomenon. We don't know of any foreign competitor who has a similar cooperation."

The agreement between Geotronics and Beijing Optical Factory means that the Swedes on the one hand train Chinese technicians to assemble and service the length gauge, Geodimenter 112, on the other hand deliver all components of the instrument to the new factory in Beijing.

"But in the long run, the agreement also means that the Chinese are going to start manufacturing some of the parts themselves," comments Karl Ramstrom.

The cooperation with the Beijing Optical Factory means that the Swedes immediately enter a very large market, which gives them an advantage over their competitors. Geotronics also gains access to its Chinese partner's sales organization, leaflets, catalogs, etc.

Long Term

"That is why we look on this as a long term commitment," says Rudolf Wiklund, vice-president of Geotronics. "Our products fit well with China's modernizing program. Communications are among the prioritized areas and the demand is increasing for the kind of instrument we have to offer.

"This business is also the beginning of an exchange, where we can use what is manufactured by Beijing Optical Factory. The Chinese, for instance, are very knowledgeable both in optics and precision engineering."

The Swedish trade with China is still very small. During 1984, up to and including October, Sweden exported products in the amount of 900 million kronor to China. Imports amounted to 725 million.

"Still very small amounts," says Ulf Gebjorn at the Export Board. "But it is a fact that exports to China more than doubled during 1983, from 375 to 800 million and the increase remains steady this year."

The First Step

"We have only taken the first, cautious step into an enormous market, where the advantage to Sweden lies in what is a priority with Chinese, agriculture, energy and transportation. Those are areas where we excel."

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FOREIGN TRADE AND INVESTMENT

DANISH TRANSFER KNOW-HOW IN CONSTRUCTION JOINT VENTURE PACT

Copenhagen BERLINGSKE TIDENDE in Danish 19 Jan 85 Section III p 9

/Article by Henrik Damm: "Danish Firm First with Joint-Venture Agreement with China's Ministry of Housing"/

/Text/ After only half a year of negotiations, a contract has been signed establishing a joint Danish-Chinese consulting engineering firm.

As the first consulting engineering firm in the world to do so, Dangroup International A/S has signed a joint venture agreement with the Chinese Ministry of Housing and Environment. Together with China Building Technology Development Centre, CBTDC, the Danish firm will supply the Chinese with know-how on the business of consulting engineering, and the new firm will make offers on concrete building and planning projects.

The joint Danish-Chinese consulting firm will be headquartered in Peking with branches in different Chinese cities. As part of the political and economic opening of the country, the Chinese leaders have designated a series of special economic growth areas, the Special Economic Zones, and it is here in particular that the new collaboration should show its strength. In the long terms, Dangroup's involvement can pave the way for large exports of Danish know-how in the areas of building and planning. Quite unusually, the joint venture pact was signed after only half a year's negotiations. This is due not least to Director Gunnar P. Rosendahl of Greenland's Technical Organization, who for years has had contact with CBTDC. Mutual trust, combined with Dangroup's international experiences and suggestions for collaboration, opened the doors to the world's most populous nation. China has an extensive program of development projects in almost every area, so there is a large market for consulting.

Two Elements in the Agreement

"The joint venture agreement consists of two elements. We will supply our Chinese partners with know-how on consulting engineering, and we will make offers on concrete projects," explains the leader of Dangroup's negotiating delegation, Director Helge Sorensen. "When

we come to the concrete projects, we will be in competition with other firms, but we will be in a strong position with CBTDC, which has the all important knowledge of Chinese conditions." In the course of the fall, a Danish-Chinese joint-stock company will be founded which eventually is expected to be able to operate outside China as well, especially in the ASEAN countries. Director Helge Sorensen hopes that with the founding of the corporation resources from the Fund for the Industrialization of Developing Countries can be added to the company. So far, Dangroup International A/S has itself set aside a couple of million crowns for the joint venture agreement, but in the project phase it has also received important support from the Council for the Development of Exports.

To begin with, the Danish-Chinese company has directed attention to two areas. Shen Zhen, just north of Hong Kong and the oldest Special Economic Zone, and Dalien, the country's second most important port after Shanghai, which is situated on a peninsula east of Peking. Shen Zhen has, from being a bare field, become a modern city with housing, hotels, industry and 300,000 inhabitants. It serves as a model for what can happen in the other economic zones. Dalien has 1.3 million inhabitants with 4.5 million in the surrounding area. On a 20 square meter /sic/ agricultural area just outside of the city there will be built in the course of a few years a new society with housing, factories, multi-purpose roads, etc. A new city--with room for 300,000 inhabitants, housing manufacturing and transportation--naturally influences, as well, the daily traffic situation in Dalien.

"Three hundred foreign firms are participating in the solution of this problem, and they need Chinese as well as international advice. In Dalien, we get our first concrete opportunity to solve a problem in the form of a traffic and transport study. We and our Chinese partners have just sent off a proposal for a solution," says Helge Sorensen.

Since every fourth person on the earth lives in the People's Republic of China, the Chinese housing market is of scarcely imaginable dimensions. The existing dwellings are too few and too small, but now the standard is to be raised. This decision and Danish-Chinese collaboration can help to speed up the establishment of factories in China by Danish firms. Helge Sorensen points out that there are fantastic marketing possibilities for everything that has to do with housing equipment and accessories: doors, windows, floors, surfacing, lamps, etc. Moreover, the Danish Ministry of Housing is in close contact with the Chinese so that through this connection, too, the Danish building industry can penetrate the world's largest housing market.

Employs 2,000

Dangroup International A/S consists of the firms of Birch and Krogboe K/S, Carl Bro Group A/S, Nielsen and Rauschenberger A/S and Romboll and Hannemann A/S. Together they employ 2,000 people, and Dangroup International A/S takes in over a half billion kroner yearly in consulting fees. The consulting firm covers a wide field of activities: agriculture, fishing, hospitals, offshore, hotels, city planning, industry, harbors, roads, airports, energy, etc. The abilities of Dangroup International A/S in the housing area are illustrated by a project in Iraq's capital, Baghdad, where the firm since 1981 has been in charge of the management and inspection of the building of three residential areas that together amount to 568,000 square meters of multi-story space. The total project cost is more than than 3 billion kroner.

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LABOR AND WAGES

LIVING STANDARDS IN GUANGDONG 'GREATLY IMPROVED' IN 1984

HK22110 Guangzhou Guangdong Provincial Service in Mandarin 0400 GMT 22 Feb 85

[Excerpt] According to NANFANG RIBAO, last year the province rapidly developed both industrial and agricultural production, so that the people's living standards were further greatly improved.

According to preliminary statistics, last year was one in which the province rather rapidly improved people's living standards. One of the major manifestations of the people's improved living standards was the general increase in income and greatly lightened their burdens. Last year, the peasants' per capita annual income increased by more than 4 percent. At the same time, the abolition of the state monopoly on purchases gave a greater degree of decision-making power to the peasants. Thus, the peasants' burden was lightened and their production initiative was mobilized. Last year, the number of employees in towns and townships sharply increased, totaling 310,000 people. The increase eventually pushed up the average monthly income of residents for living expenses by 13.98 percent compared with the previous year. The average annual wage for workers in the province increased by 16.2 percent. Because of the increase in both income and savings, by the end of last year, the province's bank deposit balances for town and township residents totaled over 11.7 billion yuan, an increase of 47.1 percent compared with the previous year and reaching a record high level.

Another manifestation of the people's improving living standards was the great improvement in society's purchasing power. Last year, the province's retail sales volume totaled more than 25.4 billion yuan, an increase of 20.84 percent over the previous year and reaching a record high level.

CSO: 4006/408

LABOR AND WAGES

HENAN MAKES ARRANGEMENTS FOR EMPLOYMENT IN 1985

HK190921 Zhengzhou Henan Provincial Service in Mandarin 1030 GMT 18 Feb 85

[Text] The provincial Labor and Personnel Department has recently made new arrangements for labor employment in our province this year. Last year, [we] planned to arrange jobs for 150,000 urban young people who were awaiting employment, but actually arranged some jobs for 171,000 people, accounting for 114.1 percent of the plan. The number of people for whom jobs were arranged in units under ownership of the whole people accounted for 30 percent and the number of people for whom jobs were arranged in enterprises run by collectives of various kinds accounted for 58.7 percent. The number of people who engaged in individual undertakings accounted for 5.9 percent and the number of casual laborers accounted for 5.4 percent.

However, the tasks of labor employment are still very arduous. Every year, the province not only has some 100,000 urban young people awaiting employment but also must arrange jobs for redundant laborers in enterprises and surplus laborers in rural areas. Therefore, this year, the provincial Labor and Personnel Department has decided to continue to implement the principle that the state, the collectives, and individuals must make concerted efforts to arrange jobs for people and to arrange jobs for 150,000. It is necessary to mainly develop the collective economy and the individual economy and to do well in running enterprises operated by joint capital and in running joint ventures. Where conditions are favorable, enterprises can issue share certificates. It is essential to vigorously develop tertiary industry and to speed up arrangements. It is imperative to do a good job in pre-employment training and to vigorously implement the system of conducting training before arranging for employment. When enterprises under ownership by the whole people recruit workers in 1985, they must select workers from among those who have received training. Zhengzhou, Pingdingshan, Xinxiang, Hebi, Anyang, Luohe, Sanmenixa, Xuchang, and Nanyang Cities and some counties must ensure that people who have not received training cannot have jobs arranged for them.

CSO: 4006/408

LABOR AND WAGES

BRIEFS

NEI MONGGOL EMPLOYMENT--According to statistics, Nei Monggol Autonomous Region has established 910 labor service companies and more than 5,700 collective enterprises to place 300,000 youths. These enterprises have 140 million yuan in fixed assets and pay 16.3 million yuan in taxes to the state annually. In 1984 alone, labor service companies at various levels found jobs for 198,000 youths. [Excerpt] [Hohhot NEIMENGGU RIBAO in Chinese 4 Feb 85 p 1 SK]

SHANXI URBAN INCOME--According to a survey of 760 households conducted in Taiyuan, Datong, Yangquan, Changzhi, Linfen, Xinzhou, Jincheng, Yuncheng, Hunyuan, Fenyang, and Pingyao cities and counties, average per capita monthly income in urban households in the province last year reached 43.5 yuan, a rise of 21.8 percent over 1983. This marked the biggest increase since 1977. On average, each person spent 230.4 yuan on food during the year, an increase of 13.9 percent over 1983. On average, each person spent 80.4 yuan on clothing, a rise of 22 percent. [Summary] [Taiyuan Shanxi Provincial Service in Mandarin 2300 GMT 18 Feb 85 HK]

NEI-MONGGOL PEOPLE'S INCOME INCREASES--Following the development of industrial and agricultural production in 1984, Nei Monggol Autonomous Region achieved a relatively great increase in people's incomes and further improved their livelihood. According to simple investigation data compiled by the Regional Statistical Bureau, the region's per-peasant net income reached 336 yuan, a 42 yuan and 14.3 percent increase over the 1983 figure. The per capita income of urban staff members and workers reached 529.2 yuan, a 36.2 yuan and 15.77 percent increase over the 1983 figure. Among urban people, each 100 households possessed 49 washing machines, a 13-machine increase over the 1983 figure; 72 television sets, an 11-set increase over the 1983 figure; and 26 recorders, a 6-recorder increase over the 1983 figure. [Excerpts] [Hohhot Nei Monggol Regional Service in Mandarin 1100 GMT 22 Feb 85 KS]

CSO: 4006/408

TRANSPORTATION

BRIEFS

TIANJIN BRIDGE CONSTRUCTION--On 6 January, the installation of steel beams for the grand bridge spanning the Hai He in Tanggu District, Tianjin Municipality, was completed. In Tianjin, this is the first steel bridge that can open vertically opened. Composed of a main bridge and two bridge approaches, this bridge has a total length of 907 meters, and a width of 24.4 meters. The span of the main bridge is 260 meters. Construction of this bridge was begun at the end of 1982. When the bridge vertically opens, a 5,000-ton vessel can pass through it. [Summary] [Tianjin City Service in Mandarin 1430 GMT 8 Jan 85 SK]

TIANJIN CARGO HANDLING CAPACITY--The Tianjin Port Office made marked progress in handling cargo in 1984. As of the end of November 1984, the municipal harbor office prefulfilled the target set forth the Sixth 5-Year Plan by 1 year. The municipal office handled 16.11 million tons of cargo in the year, prefulfilling its annual work assignment by 1 month and overfulfilling it by 11 percent. The municipal port office realized more than 170 million yuan in profits. [Summary] [Tianjin City Service in Mandarin 0030 GMT 21 Jan 85 SK]

CIVIL AVIATION BUREAU ESTABLISHED--(Li Xianzhong), deputy secretary of the CPC committee of the Chengdu Administrative Bureau of the Civil Aviation Administration of China [CAAC] announced at a reception in Lhasa on 13 February the official establishment of the Xizang Regional Administrative Bureau of the CAAC. The reception was attended by leading comrades of the party, government, and army in the region, and by principal responsible comrades of departments and bureaus. The regional administrative bureau of the CAAC has been established with the approval of the CAAC. This shows the great concern of the CPC Central Committee and State Council for the people in Xizang and the region's economic construction and demonstrates that aviation in Xizang has entered a new stage of development. Its establishment is bound to play a positive role in opening up to the world, developing tourism, strengthening exchanges with the major cities in China and with foreign countries, and promoting the four modernizations in the region. [Excerpts] [Lhasa Xizang Regional Service in Mandarin 0500 GMT 14 Feb 85 HK]

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END