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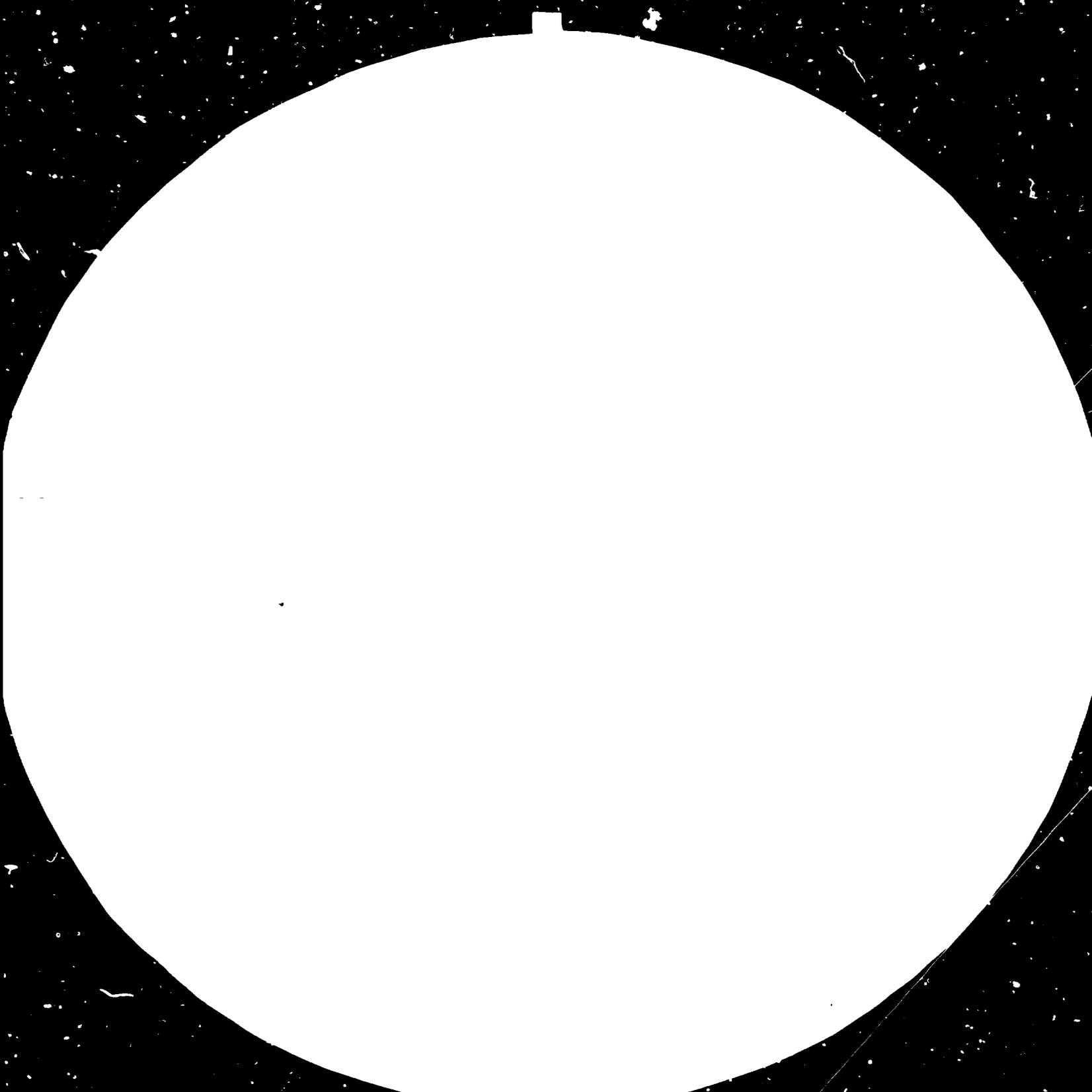
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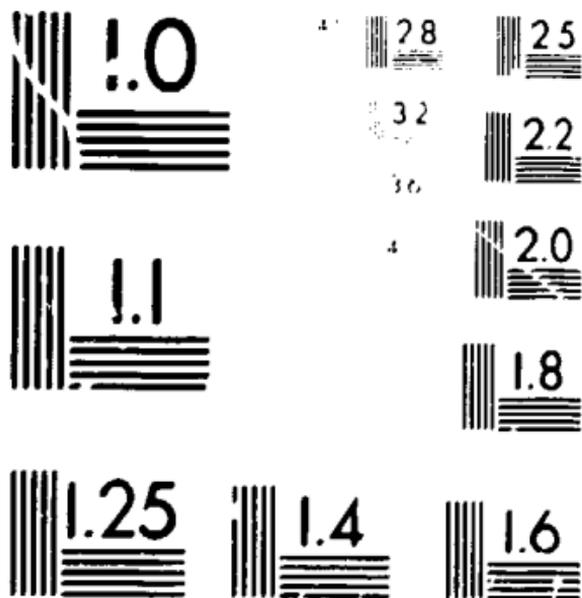
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TAPPING HUMAN RESOURCES FOR CHINA'S INDUSTRIAL DEVELOPMENT

*prepared by Mr. Su Linje*

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## Tapping Human Resources for China's Industrial Development

Old China was a semicolonial and semifeudal country. It was extremely backward in industry. Since the founding of New China, an independent and integrated industrial system with comparably comprehensive sectors has been formed after the thirty-odd years of construction.

China's industry is socialist in nature, built on the basis of socialist public ownership.

China's industrial enterprises fall into two major categories of ownership as manifested in the ownership of means of production, i.e. the ownership by the whole people (or the state-owned) and the ownership by the collectives. The former, in view of the administrative system, can be subdivided into enterprises directly under the central government and those under the local authorities. The latter are owned by people either living in cities and towns or in rural areas. Accordingly, they are called respectively urban collective industrial enterprises and rural commune's and brigade's collective industrial enterprises.

The number of industrial enterprises totaled 382,000 in 1981, 84,000 of them being state-owned of which 5,000 were large and medium-sized.

Industrial investments in China from 1952 to 1981 totaled 417.045 billion yuan, and the newly added fixed assets amounted to 293.444 billion yuan. The gross industrial output value of 1982 was 550.6 billion yuan, accounting for 66.4% of the gross industrial and agricultural output value, an increase of 5.7% over the previous year. Of this the light industry contributed 267.5 billion yuan and the heavy industry, 252.4 billion yuan. Following is the output of major industrial products in 1982: steel 37.16 million tons, coal 666 million tons, electricity 327.7 billion kwh., crude oil 102.12 million tons, cement 95.20 million tons, sulphuric acid 8.17 million tons, machine-made paper and paper boards 5.89 million tons, sugar 3.384 million tons and 5.92 million T.V. sets.

China's industrial workers in 1981 numbered 57.96 million, accounting for 13.4% of the total labour force and 15.68% of labourers engaged in both industry and agriculture; 24.53 million of them were in light industry sectors while 33.43 million were in heavy industry sectors. There were 34.07 million workers and staff members in

the state-owned enterprises and 14.95 million workers and staff members in the urban collective enterprises. The number of workers and staff members of the state-owned industrial enterprises in 1981 was eleven times that of 1949. The composition of workers and staff members of the state-owned industrial sectors in 1981 was as follows: workers 68%, apprentices 6.4%, engineers and technicians 3.1%, administrative personnel 9.9%, service personnel 9.5% and others 3.1%. The average annual wages in cash of each labourer at the state-owned industrial sectors in 1981 was 825 yuan. The yearly labour productivity, i.e., the gross industrial output value divided by the number of workers and staff members, was 11,815 yuan.

The road of development for China's industry was tortuous. During the rehabilitation period ( from the founding of New China in 1949 to 1952), industrial production increased by 145%, an average annual growth of 34.8%. And during the first five-year plan period (1953 - 1957), industrial production increased by 128.6%, an average annual growth of 18%. The proportion of the gross industrial output value in the gross industrial and agricultural output value increased from 30% in

1949 to 56% in 1957. During the second five-year plan period (1958 - 1962) as a result of seeking for unrealistic high speed of development, the national economy experienced a major dislocation. Development of industry suffered greatly. We were compelled to readjust the national economy from 1963 to 1965. Through the readjustment, industrial production was not only rehabilitated but was further developed. The gross industrial output value increased by 17.9% in those three years. The subsequent three five-year plans were hampered and interfered by the "great proletarian cultural revolution" and "the gang of four". The normal order of industrial production was seriously affected. However, since 1979, with the implementation of the principles of "readjustment, restructuring, consolidation and improvement", our industry has switched to the road to sound development and has scored marked results.

At present, China's industry is still facing a series of urgent problems. Chief among them are: deficient managerial system, unsatisfactory planning,

structural disproportion, backward technology and techniques, inferior management and administration, poor economic results, over-sized investment in the capital construction, etc. In order to solve these problems, it is imperative to formulate a correct strategy for the development of China's industry and the tapping of industrial human resources.

The Chinese Government has made clear its strategic objective for China's economic construction in the future: "the general objective of China's economic construction for the two decades between 1981 and the end of this century is, while steadily working for more and better economic results, to quadruple the gross annual value of industrial and agricultural production - from 710 billion yuan in 1980 to 2,800 billion yuan or so in 2000". In fulfilling this objective, the task China's industry should undertake will far exceed that of merely quadrupling its gross output value. Thus, it follows that the task of China's industry is arduous for the years to come. Nevertheless, the future is quite bright.

In order to realize the grand goal of developing China's industry, we have taken and will keep on taking

the following measures. During the period of the Sixth-Five-Year Plan starting from 1981, our main task is to continue with the restructuring, reforming and integration of the existing industrial enterprises, going hand in hand with technical transformation in key enterprises so as to markedly raise business and managerial level, technological level and economic results. A number of modern enterprises will be set up with the development of energy resources as the focal point. During the period of the Seventh Five-Year Plan to be started in 1986, we shall carry out extensive technological transformation in enterprises, reform in industrial management systems, and at the same time continue to accomplish the rationalization of structural build-up in enterprises. With the materialization of this two five-year plans, a good foundation will have been laid, potentials gathered, and conditions created for the further development of China's industry during the last decade of the present century. China will then be able to effect a speedy take-off in industry in the nineties.

Experience in the Chinese modern and contemporary history tells us that the task of developing China's industry can only be accomplished by relying on China's

own efforts. However, we should also actively seek international cooperation in equality and mutual benefit.

China is a country rich in human resources and at the same time a developing socialist country. The strict planning of Chinese national economy and social development provides a powerful guarantee for the effective tapping of human resources needed for the industrial development.

The Chinese Government takes as its own valuable assets the wisdom, the well-practised skills and the rich creative power of the people of the whole country and tries every possible ways and means to raise their educational, technological and cultural levels.

In tapping human resources for China's industry, basically three ways are used - school education, apprentice training and in-service training.

The task of school education is to bring up cultured labourers with high socialist consciousness and technical knowledge.

Since the founding of the People's Republic of China in 1949 till 1981, universities and colleges of science and engineering in China brought up 1,151,400 graduates;

secondary technical schools of engineering, 1,397,000 graduates. In 1981, there were altogether 207 universities and colleges of science and engineering with 485,000 students. and 658 secondary technical schools of engineering with 203,000 students. Since the founding of the People's Republic of China till 1981, 33,000 post-graduates finished their studies in graduate schools, a little over one third of which took courses in science and engineering. Meanwhile about 20,000 were sent abroad to study, among them were students, postgraduates, visiting scholars and personnel for specialized training, the majority of which were in science and engineering, studying in dozens of countries. In addition, there were about 170,000 students of science and engineering attending T.V. University. There are also many correspondence departments and evening school departments run by institutions of higher learning. It is stipulated in the Sixth Five-Year Plan of our country that the total recruitment over the nation of full-time university and college students on entrance examination shall increase from 260,000 in 1980 to 400,000 in 1985, a rise of 42.2%; and that the total number of university and college students shall amount to 1.3 million, an increase of 13.6% over 1980. Within the period of the five years university and college graduates shall total 1.5 million.

The recruitment of secondary technical schools for 1985 shall be 500,000 and the total number of students in these secondary technical schools will reach 1.25 million. Within the period of the five years, there shall be a total of 2.3 million graduates from the secondary technical schools. In 1985, the enrollment of new post-graduates will be 20,000, 4.5 times the figure of 1980. The total number of post-graduates in school will hit 50,000. Within that five year period, 45,000 post-graduates will finish their studies. It is planned that 15,000 people will be sent abroad to study in this period, and that 11,000 people will return after the completion of their studies abroad, with natural sciences and engineering technology as their chief subjects. In the meanwhile, there will be considerable expansion in such higher educational institutions as T.V., correspondence and evening universities. What is more, the structure of secondary education shall continue to be reformed and secondary vocational schools of different specialities shall be developed. The Chinese Government has all along shown great concern for the funding of educational undertakings. The percentage of the funds for educational undertakings in the national budget has increased from 5.1% i.e. 1.347 billion yuan in 1952 to 9.4% i.e. 17.217 billion yuan. Our Government gives

top priority to the training of high and secondary industrial technical personnel because the perspective of Chinese industrial development, to a great extent, depends on the quantity and quality of well-educated high and secondary industrial technical personnel.

Technical training schools provide an important channel for training skilled workers. As early as in the First Five-Year Plan, technical training had been established as the major form in training skilled workers. By 1957, 144 technical training schools had been set up, with a total enrollment of 65 thousand students. Schools of this kind mushroomed later when high speed and high quotas were blindly sought after in industrial development, and expanded to 2,021 in number by the end of 1961, with 540 thousand students enrolled. Yet the graduates were poorly trained. What is even worse is that technical training suffered much during the ten years of turmoil. Thanks to the attention of the state in recent years, it has returned to normal and made some development. 700 thousand students are now studying in 3,389 technical training schools and 280 thousand more will be recruited in 1983. Technical training schools are run by local authorities and departments as well as certain industrial enterprises, all of them attaching great importance to

expanding such schools. In Shanghai, there are 525 technical training schools, offering over 200 specialities, with 83% of the students therein taking engineering courses. 84% of these schools are small-sized, factory-run ones giving irregular courses. They are currently undergoing readjustment and restructuring.

To train skilled workers through apprenticeship has for a long time been the major approach in building up skilled labour force. Most of the skilled workers in our country have undergone this type of training. As a rule, enterprises recruit young apprentices and assign them posts in various specialities, where, instructed by master workers, they learn to operate and gain necessary fundamental knowledge till they master the skills.

Different professions dictate different durations for apprenticeship. The maximum period is three years. Such practice has many shortcomings and limitations and is just a method derived from handicraft industry. The level of technical workers trained by such method, depends to a great extent on the quality of master workers. This kind of training cannot ensure the standardization of theoretical knowledge and technical operation; nor can it ensure the balanced development of the workers. Therefore, technical training school education will be the main approach

in the technical training for skilled workers in the future and will be further promoted.

Education for those on the job is a continuation of technical training. It is necessary to continually raise their level of skills so as to meet the needs of the overall development of industrial production and construction. At the Fifth Session of the Fifth National People's Congress of China, when Premier Zhao Ziyang of the Government of the People's Republic of China talked about China's education for workers and staff members, he said: "It is a strategic task to devote major efforts to raising the ideological and political level as well as the level of modern science and culture and productive skills of the broad masses of cadres, technical personnel and workers." As pointed out by Premier Zhao Ziyang, the purpose of education for workers and staff members is "to bring into better play the revolutionary spirit of loving the motherland, the people, labour, science, socialism and the determination for developing China, to enhance the nation's self-respect and honour and to turn more and more workers and staff members into labourers with lofty aspirations, high morality, culture and discipline."

The All-China Administrative Commission of Education

for Workers and Staff Members was established in April, 1980. Its task is to deliberate and formulate important guiding principles, policies, to unify programmes for the education of workers and staff members and to inspect its implementation and coordinate relevant parties of the work. On February 20, 1981, the State Council issued "The Decision on Strengthening the Work of Education for Workers and Staff Members", stipulating that the cultural and scientific level of the workers and staff members be appreciably improved on the job before 1985. On May 8, 1981, the Ministry of Finance issued "Provisional Stipulations concerning Regulation and Spending of Funds for Education of Workers and Staff Members" which provided that 1 per cent of the total wages be used as funds for the education of workers and staff members and the funds should be listed directly into the production cost. The object is to have all the workers and staff members trained in rotation within five years.

At present, the whole country pays great attention to the education of workers and staff members. Take Beijing as an example, in 1980, 0.4 million people took part in the education which consisted 16% of the total number of workers and staff members of Beijing while in 1983 the

figure reaches more than 1 million, which is 30% of the total of workers and staff members in the Capital.

Different ways and means are used in the education for workers and staff members, i. e., in the continued education. Many regions and departments have established their own bases for training or set up in-service-training colleges, carrying out regular training in rotation for workers and staff members temporarily released from production or spare-time training for them. Curriculum is arranged according to the actual needs. Seminar, single course or systematic teachings of specialized profession are offered. Most of the teachers are part-time teachers invited from universities and colleges, the rest are regular teachers. From October, 1980 to the end of 1981, the in-service-training colleges of science and technology in the City of Shenyang enrolled 2,758 workers and staff members for training, among them 656 completed the courses, 525 passed the examinations and got diplomas.

The second practice is that colleges of engineering take up the task to train the workers and staff members for the enterprises. The colleges offer courses according to the needs of the enterprises, compile and print

teaching materials and select teachers, while the enterprises do the funding. For example, the College of Science and Engineering of Tianjin has trained personnel for the departments of machinery industry. There are many colleges like this.

Some regions and departments choose appropriate places to run self-advancement classes for the senior technical personnel. This enables them to set their minds at reading, writing or summing up their experiences. Benxi city held successively three terms of self-advancement classes in 1981, which yielded many results. Hu Gaoqiang, senior engineer of the Research Institute of Benxi Iron and Steel Plant, wrote two articles, namely "Injection of Coal Power to the Blast Furnace" and "Desulfurization Outside the Blast Furnace" in which he put forward some new ideas. Qiu Hongji, deputy engineer-in-chief of Benxi Machinery Bureau, wrote an article "Carbide-base Friction Parts" and thus completed the research work of this important subject. Many people have summarized the experiences in the work of readjustment of enterprises and put forward valuable suggestions.

Lots of enterprises set up training classes on specialized subjects individually or in cooperation with others. Sometime a comprehensive study on a special subject was organized.

What is more, many enterprises jointly run study classes on enterprise management so that a number of subjects can be taken up systematically. Study classes and training courses are also used as principal forms for the training of workers.

We also adopt some special means and ways. Among them are: technical exchange, exchange of new techniques, new technology, and results in technical innovations, etc., learning good management methods, handling of new installations and equipments, application of new technology, etc. from advanced enterprises; technical performance competitions and improvement of operational skills through such competitions.

In order to bring the industrial workers' initiative into full play, the Chinese Government also implemented a series of policies in addition to the above-mentioned measures for the tapping of their wisdom and ability, thus guaranteeing their political and material benefits. All the staff members and workers in our country enjoy the broad democratic right to participate in the management of the country and the enterprises as well. In the allocation of national income, we practise the principle of "taking the state, the collective and the individual interests into an all-round consideration"; in distribution we practise the principle of "from each according to his ability, to each according to his work". In order to enliven the cultural life of the staff members and workers during their spare time

and to alleviate their burden of daily life, the state develops in a big way collective welfare and issues appropriate subsidies to individual staff members and workers. Our country has a relatively complete labour protection system to ensure the safety and health of the staff members and workers. The state has also issued special rules and regulations to provide material guarantees to the old-age, illnesses, death, injuries, and invalidity.

In the realization of the great historical mission of building a modern Chinese industry, the intellectuals are on key positions in as much as in a country like ours, which used to be backward in economy and culture, mastery of modern science and culture is crucial to the success of the mission. Therefore, it is stipulated in the constitution of the People's Republic of China: "The state trains specialized personnel in all fields who serve socialism, increase the number of intellectuals and creates conditions to give full scope to their role in socialist modernization." The Chinese Government has taken a series of effective measures for the realization of this mission. So it is quite fit and proper to dwell a little on technical and

engineering personnel in industry.

In 1982 there were one million and three hundred thousand technical personnel in industry in China. Among them about 50% got higher education, 76% or so were under 45 years, 17% were female and 98% were trained and brought up in new China. This is a strong contingent. This contingent in the process of growing up in force has made outstanding contributions to the developments of machine-building, metallurgical industry, coal industry and so on and to the creation of nuclear industry, electronics industry, airplane industry, space industry and petroleum industry of our country.

Our Government has implemented the following policies in order to bring the Chinese scientific and technical personnel, including those engaged in industrial work, into full play in the construction of the country's modernization. Being clearly aware that the scientific and technical personnel are the intellectual factor which is of absolute necessity to the Chinese socialist modernization and the valuable assets of the country, the state has full confidence in them and protects them. It has provided with all

opportunities to enable them to realize their aspirations in building their motherland into a prosperous and strong socialist country. It pays great attention to drawing them into the work of national administration and policy-making, and into the work of the management and policy-decision in industrial enterprises. Special organs have been set up to handle affairs related to them in a unified way. The state is committed to the advancement of their education and has persistently enhanced their ability. Those who make outstanding contributions to the country are encouraged and rewarded. Effective measures have been taken to improve their working and living conditions.

For more than 30 years we have been adopting effective means to meet the needs in man-power in the process of the development of Chinese industries. Those measures will retain their significance in the future development. Chief among them are as follows:

- 1) To pool and transfer man-power for developing industries in border areas. Technical contingents have been on many occasions called up throughout the country and sent to border areas to take part in the construction of the industries there. Since the founding of New China, this has been applied to the construction

of industries in the Northeastern Industrial Area as well as in the less developed areas in the Northwest and the South-west. Many of the industrial technical personnel who went to the border areas then are still conscientiously working there to this day;

2) To pool the backbone of the scientific and technological forces for resolving key technical problems or for developing burgeoning industries. For example, our nuclear industry has been developed by concentrating the specialized experts on physics, mathematics, chemistry, geology, machinery and metallurgy who did the learning while constructing. The space industry and the petroleum industry have been developed in much the same way;

3) To implant the indispensable backbone technical forces in the new and developing areas while readjusting the industry layout and moving some industrial enterprises there. The rest of the required man-power can be recruited from among the local people, who will be trained by the technical personnel and eventually become skilled workers;

4) To pool entire sets of technical backbone force from an industrial enterprise with a relatively long history and abundant skilled workers so as to dispatch

them to new and developing areas to participate in the construction and operation of the new enterprises of the same kind. The Anshan Iron and Steel Company which has a long history with rich technical personnel has provided several major iron and steel complexes with whole sets of technical backbones;

5) To pick out technical backbone personnel in newly-built enterprises and dispatch them to an old enterprise to practice for a certain period of time. They will go back and participate in their own production after mastering the skill and technical knowhow;

6) To dispatch one or several backbone personnel to other enterprises for learning new technology and skill whenever necessary;

7) Job readjustment is made for those technical personnel whose schooling is not properly used or whose outstanding ability is not brought into full play, thus enabling them to "rejoin their proper ranks".

These methods are workable in our country mainly because we practise planned economy.

In the course of tapping human resources, it is beneficial to have international cooperation and exchanges which are of mutual benefits and help each other. The Chinese Government has scored some experience

in this respect. From 1952 to 1978, our country accepted 9,724 students from dozen of foreign countries. Our country also sent experts and technicians to a number of foreign countries to participate in projects of industrial construction. We have also sent many specialists in technology and engineering to various countries in the world to conduct surveys, study and exchange of experience. We also invited specialists from many countries to China to disseminate their experience in business management and quality control. Our country has set up special economic zones where foreign enterprises are permitted to invest in and establish enterprises, to employ Chinese workers and staff members. This is also a good method in enhancing the exchange of technological know-how. Our country also imports many sets of facilities. The foreign technical specialists coming together with the facilities not only impart their experience to their Chinese colleagues, but also learned from their Chinese colleagues methods of tackling some technical problems. However, our experience in international cooperation in the field of tapping human resources in industry is limited and it is necessary for us to make persistent efforts in this regard.

It is an undisputed fact that our country has made some achievements in the exploitation of industrial human resources. However, we should see that the exploitation of the industrial human resources in China left much to be desired. It falls far short of meeting the needs of the development of the Chinese industries.

We have to provide jobs for 29 million persons by the year of 1985. A considerable proportion of them will enter industrial enterprises. Their technical training will be an arduous task.

Not a few problems exist currently in the contingent of workers and staff members in the industrial sectors. Up to 80% of them have not completed their junior middle school education, while scientific and technical personnel counting for only 3.1%. And most of them are staffed in the national defence and heavy industries, though the light industries are badly in need of them. State-owned enterprises enjoy superiority over collective ones both in the number and in the professional levels of the scientific and technical personnel and workers. Compared with major cities and coastal areas, the inland and remote areas are rather weak in technical strength. As for the age structure, the older the key enterprises are, the more senile the backbone technical force have.

