TRAINING HUMAN RESOURCES FOR INDUSTRIALIZATION AND MODERNIZATION

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I. RELATIONS BETWEEN TECHNO-SCIENTIFIC REVOLUTION AND HUMAN RESOURCES TRAINING

The techno-scientific revolution is a leap forward in the quality of productive forces. In the past, if the industrial revolution has caused a hundredfold increase in the labor efficiency, the techno-scientific revolution can make a millionfold increase. In the past, the technology could progress more quickly than the science but at present, the science is always well ahead of the technology, because the grey matter fathers the technology. If the technology is considered as a machine for renovating the economy, then the science is the fuel to the machine.

Thus the techno-scientific revolution has many characteristics which bear organic relations to the orientation of human resources training and employing. These characteristics are:

1. The accelerating development of the science: In our time, the sum of knowledge can double for a period of 13 to 15 years. While the amount of scientific information can double after five years, thus the knowledge can become obsolescent rapidly. A graduate or an expert who has no ability to study by himself or can't adapt to new conditions will fall behind in keeping abreast of new information.

2. Information as a typical tool of the third wave of civilization: In realities, the information technology is a way for the human being to conquer the physical world and make use of new materials and energy. The information technology leads to multilateral labor division and co-operation in the world.

3. Fast applicability of the science to industry: This applicability has changed the importance of each factor of production. In the past, the most important factors were raw materials, labor and power. At present, the grey matter plays the leading role and represents 60% to 75% of the value added to the product.

The fast applicability enables us to shorten the time to innovate technology. The development of Japanese industry illustrated this feature: within three months, a new generation of TV set is developed.

4. Close relationship between the science and technology: The science becomes a perfect system developing into two directions: dividing into more specialized disciplines or mixing together to form new interdisciplinary sciences.

All four characteristics of the techno-scientific revolution have organic relations to the orientation of human resources training which should aim at producing an army of technicians and experts who could keep abreast of accelerating development of the science.

A close and interactive relation connecting the techno-scientific revolution and the socio-economic development and the education has been affirmed. This relation showed itself in the following five factors and three conditions:

Five factors are: capital, technology, market, management and human resources. All these factors are organized into a specific structure appropriate to a certain stage of development: introduction to industrialization, industrialization and developed industrialization. The following table presents changes in the structure over time:

Stages of development % of labor force	Introduction to industrialization	Industrialization	Developed industrialization
in farming industry	75	35	10
in manufacturing industry	12	30	20
in service industry	13	35	70

Three conditions ensuring the successful industrialization are: developing intellectual powers of the people and training an army of experts and technicians; ensuring interests and rights of workers in order to stimulate them to work harder; uniting economic strength of all provinces of the country and uniting with the region and the world.

These factors and conditions, in fact, are human resources and the appropriate labor division. Speaking of human resources, one should refer to the education and training, including giving refresher courses. Training human resources should aim at building a labor structure appropriate to economic changes caused by the development and characteristics of the techno-scientific revolution. The labor force should have the ability to access to new technologies and adapt itself to the industrialization process. It's the long-range planning.

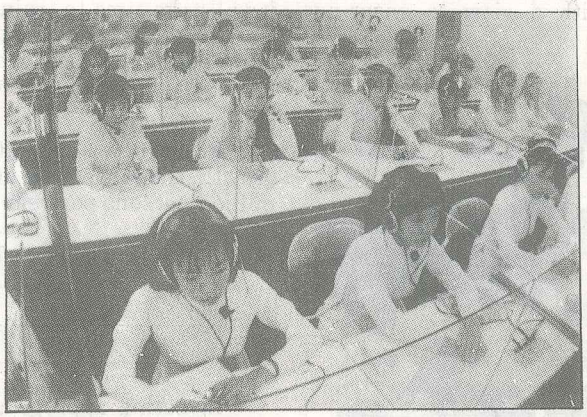
II. REALITIES OF HUMAN RESOURCES IN VIETNAM TODAY

While the mechanism for economic management has changed drastically, facilities for education have seen no basic improvement. In 1992, outlay on vocational training accounted for only 13% of the education budget, however, the vocational training service was still maintained and developed, its training process was diversified with a view to expanding its size and scope of activities. In 1992-1993 schoolyear, 196,127 students finished their vocational training in 27 provinces and cities, although only a third of them has officially passed the entrance examination.

Many localities have tried their best to supply the vocational training service in order to help the public find jobs in the market economy: 95,000 people received short-term training in HCMC, so did 14,790 adults and 9,000 students in Hà Nội. Hải Phòng, Quảng Nam-Đà Nẵng, Nam Hà, Thừa Thiên-Huế, Vĩnh Phú, Long An are provinces where this service has been developed and has produced good effects on the socio-economic life in rural and mountainous areas.

Besides national training colleges, there are 232 training schools (135 of which are public ones) whose facilities for study are becoming obsolescent. Many teachers there have graduated some decades before. They didn't attend any refresher course and therefore, they can't train their students in high technology.

The VII Resolution of the Central Committee of VCP recorded that an army of technicians and skilled workers has graduated from various colleges. Up to 1992, in this army, 700,000 of it were graduates (60,000 of them working in R&D departments). In 1993, the number of regular attenders at central technical schools is 34,000 and 29,500 at provincial ones.



As regards worker, there are 1.76 million workers in the public sector, 3.64 million ones in private or personal sectors and 45,000 in joint ventures or foreign companies. In recent years, many skilled laborers working in oil business, telecommunications, navigation, aviation, informatics, national defence have been trained. And there were around 200,000 laborers coming back the country after working abroad on fixed-term contracts.

The army of laborers from various sources of training has had a remarkable contribution to the development of the country in the renovation process. However, generally speaking, the level of knowledge and technical skill of this army is still low. There are only 6.7% of this army getting grade 1/7 or grade 2/7 skill, 21.8% of grade 3/7. Only 30.1% of them got secondary education, 2.6% got primary education and 0.2% is illiterate.

We haven't got an army of high-level skilled laborers. At Orion-Hanel joint venture in Sài Đồng industrial estate (Hà Nội), some dozen skilled laborers are needed but they couldn't find anyone, so they have to pick the best workers and have them trained in South Korea. If we invest more in high-tech equipment, the shortage of skilled laborers will become more serious.

Besides training human resources in various training colleges or technical schools, we should also think of an army of Vietnam intellectuals who will work in universities, colleges and research institutes, and teach both knowledge and skill to the young generation.

What is the reality of the present Vietnamese intellectuals?

Among some 700,000 graduates of both local and foreign universities, over 7,000 (around 1%) are Masters. Surveying 89, among 103 universities and colleges, 0.9% had doctorate, 11.1% are Candidate Doctors (phó tiến sĩ) .Considering the age of members of teaching staff at 17 universities, 8% are under 35 , 75% of professors are over 51. As regards Candidate Doctors, 0,8% are under 40 , but 55% of them aged between 51 and 60.

Another survey carried out in 252 research institutes shows that, only 7.6% of their personnel are Doctors or Candidate Doctors. As for social sciences, the percentage of Doctors and Candidate Doctors is lower (only 2%).

If we have no strategy for bridging this gap in education system, this situation will have bad effects on the training of human resources, and so will our socio-economic development plan for this decade.

Experience of developed countries shows that the number of postgraduates should occupy at least 30% of the teaching staff in universities (or researching staff in institutes). In Vietnam, however, the proportion of university students to the population is only 25 per 10,000 people. This proportion is lower than Thailand (130 per 10,000 people) or South Korea (680). The proportion of high-level skilled workers to the population is even lower.

The UN reported that there must be at least 50 university students per 10,000 people for an economy to take off. Nowadays, this proportion becomes an important indicator of intellectual standard of a people and of conditions for development of a country.

III. RENOVATING THE VOCATIONAL TRAINING IN ORDER TO MEET REQUIREMENTS OF THE INDUSTRIALIZATION

The Resolution of the IV Central Committee on the vocational training pointed out: "(we should) develop the vocational training into the technical education in order to produce an army of high-level skilled workers". To realize this Resolution, we must pay attention to enhancing efficiency of the vocational training by making it more popularized and specialized.

- Specializing the vocational training means forming high-level institutes and standard technical schools specialized in training high-level skilled laborers, technicians and professionals who could access to high-tech equipment.

- Popularizing the vocational training means giving short-term training courses to laborers through various kinds of school. The vocational training high school (such as Lý Tự Trọng High School in HCMC or Lê Quý Đôn High School in Hà Nội) is also an appropriate way to improve the quality of our labor force.

From now until 1997, we should try our best to build two or three high-level institutes and some standard technical schools. The system of vocational high schools will be rearranged, the number of disciplines will be reduced from 100 to 22. Many schools will be changed into vocational training centers or upgraded to high-level institutes.

Another way is to expand the size and diversify the forms of vocational schools by encouraging the formation of semi-public schools, private schools, etc., specialized in training skills appropriate to the real and open economy. Besides that, we should pay attention to the task of controlling the quality of these schools in doing their business (syllabus of training courses, organizing examinations, realizing rules and regulations set by the Ministry of Education and Training, etc.). At the same time, we should take measures to encourage the development of these schools because their efforts can contribute remarkably to the training of human resources.

Along with building vocational centers or technical schools in every locality, we should determine the function of these centers and schools in preparation for new stages of development.

- As for the target, content and method applied to these schools, they should be modernized and flexible in order to suit specific conditions of each locality and at the

same time, reach the standard required. In training skilled laborers, we can pilot the double training method which provides trainees with both theoretical knowledge and practical skills, especially for laborers working in EPZs, joint ventures with foreign partner or certain industries (construction, mining, electronics, engineering, etc.)

After rearranging the system of vocational high schools, we should give refresher courses to existing work-force. The entrance and final examinations should be improved and innovated with a view to ensuring trainees an acceptable quality.

- Standardizing the teaching and managing staff of vocational high schools is also an urgent task which should be done properly in order to meet requirements of the training of human resources. The following is the plan for the immediate future:

- The teaching staff of vocational high schools will not increase but its quality will be improved. The following are targets:

+ 95% of the teaching staff will be standardized, 7% of which will get Master's degree.

+ 70% of them will take elementary course in informatics.

+ 50% of them will get B degree in foreign language, 10% of them will master at least one foreign language.

- As for the army of vocational instructors; by 2000 we need around 14,000 instructors, that is, we should produce 1,500 to 1,800 ones per year. Most of them will specialize in training laborers necessary for developing industries such as agriculture, service, construction, informatics, garment, tourism, etc. These instructors should graduate from technical education universities or colleges. They can be graduates of technical universities and have a degree in pedagogy. The following are targets:

+ 80% of instructors reach the standard required, 35% of them have postgraduate degrees, 5 to 10% will get grade 7/7 of skill.

+ 60% of them will take elementary course in informatics.

+ 40% of them will get B degree in a foreign language, from 5 to 10% of them will master one foreign language.

The standard required of high-level institutes should be much higher.

To realize these targets, there must be the co-operation between the Ministry of Education and Training and related governmental bodies in mapping out general policy and carrying it out at each locality. This task requires changes in viewpoint on the vocational training, especially on training high-level skilled workers. The Ministry of Education and Training has submitted to the Government a strategy for training human resources which includes the issue of vocational training.

Of 232 vocational schools, from 30 to 50 ones will receive appropriate investment in order to train laborers necessary for leading industries. Foreign investors are also allowed to put money in education service. There are 10 projects of various sizes waiting for approval.

It's easy to import the most modern equipment, but it will take time to train workers in operating it.

From the said orientation, each locality can map out plans suitable to local conditions in order to train laborers necessary for local economic development.

IV. CONCLUSION

From now until 2000, because of the population growth, the labor force of our country will increase by one million persons per year as shown by the following table:

The labor force (1,000 persons)

1990	1993	1994	1995	2000
37.614	40.814	41.810	42.810	48.000

Investing appropriately in training the labor force and making plan to employ it are decisive factors in developing the economy.

Developing education and vocational training is a way of improving quality of the labor force which, in its turn, will determine the labor efficiency and achievements of the economic development. Although we are facing a shortage of funds but we can't let the education fall farther behind other countries. The Resolution No 7 of the VCP Central Congress dated July 30,1994 stressed the point that we should change from using manual labor to using labor along with modern methods and technologies to get higher labor efficiency.

These arguments force the Ministry of Education and Training along with related organizations to take the task of training the labor force in both general knowledge and professional skill, and more importantly, of producing an army of intellectuals and high-level skilled workers with a view to meeting the demand of the socio-economic development and helping the Vietnam Working class play its leading role in building the socialist society according to the development strategy of the Government and the Party. The human being always takes the central position in economic development process. The laborer is trained to work more efficiently, not to do more jobs■