

## TO LINK TECHNO-SCIENTIFIC RESEARCH WITH ECONOMIC DEVELOPMENT IN VIETNAM

by MEcon. NGUYỄN THỊ THOM

Ten years after the economic reform was launched, techno-scientific researches have basically moved forward in parallel with the economic development making profound changes in the socio-economic life, however they aren't well linked with each other and sometimes there are signs of divergence. That is why techno-scientific researches haven't developed as expected and their impact on the economic growth is limited.

### 1. Imbalances between techno-scientific research and economic development

#### a. Uneven distribution and unreasonable structure of technicians

At present, the amount of technicians represents only a small proportion in the labor force of many industries: 1.6% in light industry or 0.31% in fisheries for example, and they are nearly absent from

high-tech industries except for some scientists who have been assigned to work in these industries. The proportion of technicians working in companies is very small in comparison with neighboring countries (28% in 1987 and 32% in 1992 while this figure in Thailand was 58.2%; South Korea: 48% and Japan: 64.4%) with the result that they couldn't solve all problems arising from companies' operations. The proportion of technicians to trained laborers is also small: 15.4%. The distribution of these technicians is even more unreasonable: in 1992, over 94% of technicians worked in centrally-run organizations and only 6% of them worked in provinces; 89.9% of agricultural technicians are working in cities. Most of technicians have succeeded in finding jobs in Hà Nội and HCMC, and nobody wanted to work in depressed areas (1).

#### b. Difference between

#### technicians' skills and requirements by the industrialization program

Most scientists aren't provided with good working conditions, and therefore, their skills and knowledge become worse; they can't keep abreast of new scientific achievements; and poor foreign language skills prevent them from getting access to new knowledge of industrial management and organization. Up to now, all leading experts are coming to retirement age while the army of understudies hasn't made its appearance yet and the young generation has no aspirations for a career in scientific fields. The youth usually want to go to foreign trade, finance or diplomacy schools but they look for jobs in foreign-invested companies.

#### c. Poor facilities in research institutes

At present, there are 233 research institutes in Vietnam and most of them

were established under the centrally-planned mechanism, before the economic reform was launched. In the past decade, some 20% of total budget expenditure (or more exactly, VND89 billion in 1997 and some 269 billion in 1998) was spent on research facilities (2). These investments didn't produce intended results because they were distributed among too many institutes. Up to now, research facilities in these institutes are obsolete and insufficient. Some private companies even have better equipment than certain institutes.

#### d. Gaps between research centers and production

Research centers should have aimed at supplying services needed for technical innovations, developing new products and helping with R&D activities in companies, but in fact, they are far from undertaking this role. Of 233 research institutes,



only seven (some 3%) are completely self-financing, 162 ones (69%) have to depend totally on grants-in-aid and 64 ones depend partly on subsidies from the Government (3).

Universities in Vietnam haven't become R&D centers yet. Scientific researches there are carried out irregularly and seasonally; and they almost have no relation with production or realities. Everything is done only in laboratories and results haven't been applied to production.

Most research programs lack exact orientation and goals. In four high-tech research programs financed by the Government, no attention is paid to such problems as market for their products, their rivals and partners, etc.

*e. Difficulties in receiving new technology through foreign investment*

Due to the Asian financial crisis, flows of foreign investment to Vietnam are on the decrease and this fact has affected badly the technology transfer (the value of technology transfer in 1995 was US\$8,528 million; 1997: 4,453 million and 1998: 4,059 million) (4). Regarding the structure of foreign investment in the years 1988- 1996, 18.7% of it was put in hotels and tourism; 23.5% in oil business and only 32.2% in manufacturing industry. This structure is also unfavorable for the technology transfer. However, we must accept that all foreign investors are only interested in making profit, not in introducing new technologies to Vietnam. Local parties, because of limited knowledge and experience, usually suffer losses and pay too much for old technologies.

## 2. Causes

In my opinion, the causes of these imbalances are as follows:

a. Officials and authorities of all levels didn't

have full knowledge and right conceptions of roles and functions of scientific researches. Great importance is attached to the techno-scientific research on paper only, not in reality. Investment in techno-scientific research which is considered as investment for development, is still included in the Government's regular expenditures. There is no project on relations between the techno-scientific research and socio-economic development at both macrocosmic and microcosmic levels, in both theory and practice.

b. The current bulk of subordinate legislation isn't perfected and fails to cover techno-scientific

activities. Many law documents are backward, inconsistent and even contradictory, so they couldn't encourage creative energy of scientists and connection between scientific research and production.

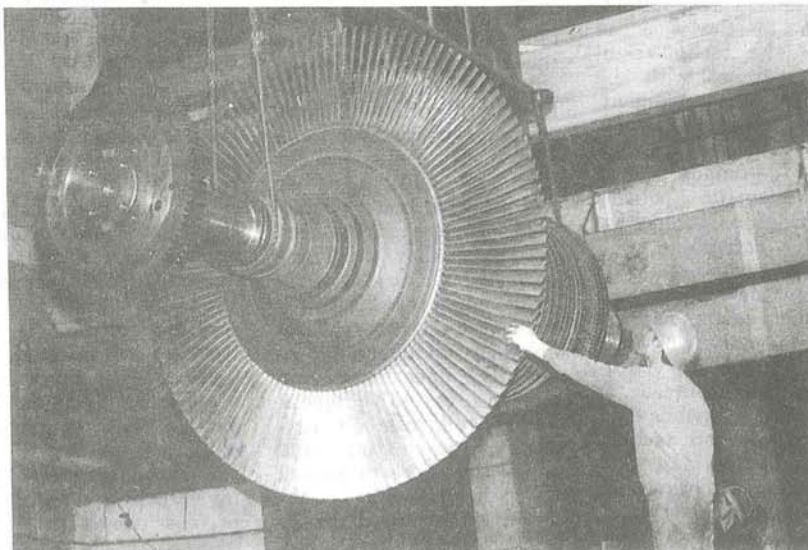
c. A philosophy and a strategy to develop the techno-scientific research in coordination with the socio-economic development strategy haven't been worked out. In identifying objectives of the techno-scientific research, full attention hasn't been paid to the role of market (or the "invisible hand"). That is why most research projects didn't mirror demands posed by the industrialization process

and science wasn't linked with production.

The act of dividing or merging research institutes totally originated from subjective will or administrative requirements, and characteristics of techno-scientific activities and persons who carry them out weren't taken into consideration while these activities are far different from production and trade.

Tasks of evaluating and approving scientific studies and projects are carried out carelessly and leniently, and fail to estimate the results exactly. Ministries and organizations undertaking these studies and projects didn't give full attention to those tasks.

d. The army of technicians is of poor quality, unevenly distributed and not present in all scientific fields. The cause of this situation is the fact that the education service concentrated too much on studying theories and neglected practice. For example, in 1996, the amount of students in technical schools was 69,000, in vocational schools was 172,400 while the amount of students in universities and colleges was 509,300 (5)- that is, there was a surplus of white-collar laborers and a shortage of blue-collar ones.





The personnel organization is also poor. There is no policy to give preferential treatment to talent or technicians ready to work in depressed areas.

e. Investment from the Government in techno-scientific activities is small (no more than 1% of the national budget expenditure every year). In 1996, the government expenditure on a person working in R&D department in Vietnam was 31 times lower than in developing countries, and 55 times lower than the world average in 1992.

### 3. Solutions

+ Communicating new concepts of the importance of science and technology to the socio-economic development to authorities of all levels; introducing new concepts of investment in techno-scientific research and trying to link the techno-scientific researches with production.

+ Reforming the task of techno-scientific planning with a view to linking the policy on techno-scientific development with socio-economic development: In the process of making and realizing the techno-scientific policy, the central authorities should give consistent directions instead of assigning everything to subordinate bodies. Office-holders of all levels should pay full attention to the task of linking the techno-scientific researches with the economic development, thereby providing economic policies with scientific grounds and techno-scientific policies with positions in law on economic activities.

The techno-scientific planning should take all economic sectors, not the public one only, into consideration; and aim at mobilizing all sources of capital, not the public fund only, to develop techno-scientific activities.

+ Forming markets for techno-scientific services:

- Encouraging the supply of techno-scientific services: technicians and researchers should be well-paid as their grey matter deserves. The salary scale for this army should be based on personal abilities and labor productivity, instead of on their academic titles or seniority as it is now. As for bonuses, the technical innovation bonus should be satisfactory and separated from other bonuses. In addition, regulations on industrial property rights should be made.

The Government had better allow researchers and research centers to produce and trade in goods or services they can supply. To achieve this goal, the Government should devise new management mechanism for techno-scientific development; and research centers should aim their projects at technical innovations needed for the development of production. Other measures are to increase government investment in techno-scientific activities and research centers and encourage Vietnamese expatriates working for foreign research centers to come back and work in Vietnam.

- Attracting techno-scientific achievements from abroad through technology transfer: This is the main channel now. We should observe the principle that only technologies that are modern, appropriate to local conditions and eco-friendly are allowed to be transferred to Vietnam. The Foreign Investment Law and Ordinances on technology transfer, industrial property rights and product quality should be perfected. The Government should take measures to inspect and control technologies transferred, especially ones used in foreign-invested projects. To do well this job, necessary information and competent experts should be gathered.

- Encouraging demands

for techno-scientific services: The Government could force both state and private companies to apply new techno-scientific achievements by, for example, cutting all subsidies to state companies and supporting fair competition; giving tax incentives to production of import substitutions, study facilities or programs to train and retrain employees in new technologies; offering soft loans to companies that want to replace their technologies; financing projects to apply new techniques to production; allowing faster amortization in order to encourage technology replacement; etc.

+ Rearranging the system of research centers with a view to making them linked with the production:

- Using administrative measures and financial mechanisms to rearrange the system of research centers according to above-mentioned direction.

- Combining universities, research centers and techno-scientific institutes to carry out basic researches and develop an army of high-class researchers.

- Encouraging private sectors to form their own R&D departments.

- Making regulations on research centers that could be part of companies, or self-financing organizations or partners in joint ventures.

- Adjusting the structure of government investment with a view to increasing investment in techno-scientific researches in order to make them a dynamic of development and a real productive force (in the years 1991-1997, investment in techno-scientific researches represented only 0.3% of gross investment, a too small figure in comparison with neighboring countries).

- Reducing government investment and increasing private investment in

techno-scientific researches by offering tax incentives and other financial measures.

- Subsidizing only research centers that work for the good of communities.

- Applying the method of assigning tasks directly to research centers, and putting projects out to tender.

+ Developing and employing techno-scientific resources:

- Changing the structure of education goals by increasing amount of students in technical schools.

- Developing as quick as possible a new generation of researchers in key industries, and sending them to make studies abroad if need be.

- Retraining the existing army of technicians.

- Making policies to encourage creative labor of this army.

- Giving specially preferential treatment to technicians working in depressed areas.

- Using effectively funds for developing the young talent.

- Giving satisfactory encouragement to excellent students and pupils.

(1) Tổng kết 10 năm đổi mới chính sách và quản lý công nghệ (Report on ten years of reforming technology policy), Ministry of Science, Technology and Environment, 1996.

(2) Báo cáo một số kết quả thực hiện kế hoạch KH-CN và MT năm 1997 và kế hoạch năm 1998 (Report on realization of the plan on science, technology and the environment in 1997 and the plan for 1998), MSTE, 1998.

(3) Thông tin lý luận (Logic Review), ASugust 1998.

(4) Tài Chính (Finance Review), February 1999.

(5) Niên giám thống kê 1997 (Statistics Yearbook 1997), Thống kê, Hà Nội, 1998.