

# TECHNO - SCIENTIFIC DEVELOPMENT : IMPORTANT SOLUTION TO VIETNAM'S ECONOMIC RESTRUCTURING

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## 1. Techno-scientific role in economic structuring promotion

Science and technology play a decisive role among the factors affecting the process of economic restructuring, especially in the current circumstance where the international economy is shifting from the industrial to knowledge-based economy. The robust development of science and technology not only boosts the growth rate of industries but also deepens labor division and particularizes industries. Many new industries and economic sectors appear and thus change structure and position between industries or speed up economic structuring in the trends: (1) the output of the agriculture and industry increases but their percentage in GDP drops as compared to the service sector; (2) the economic structure in each sector also changes with increasing share of techno-scientific sectors.

The reality proves clearly this. The scientific achievements in the seventeenth century generated the first technical revolution (late 18<sup>th</sup> century to mid 20<sup>th</sup> century) where the shift from manual to mechanical labor transformed the agricultural economy to industrial one. Then the industry was divided into new particular sectors such as metallurgy, mechanical engineering, shipbuilding...The development of these industries increased the world's wealth by

Table 1: Economic structure in the 1976-1985 period (%)

Sector	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Industry	46.0	48.0	49.8	48.5	45.0	44.4	43.5	44.8	46.1	47.9
Agriculture	39.0	37.0	35.2	36.8	39.9	40.5	41.6	41.6	39.2	38.5
Service	15.0	15.0	15.0	14.7	15.1	15.1	14.9	14.9	14.7	13.6

Source: Statistical Yearbooks from 1976 to 1985

hundred times - this had not been made by the agriculture before then. In the mid 20<sup>th</sup> century, with the leading role of relativism and quantum theory, the second technical revolution burst out and in recent decades it came to the new stage - the boom of information, knowledge and technology. The increasing evolution of hi-tech industries such as information, biology, new materials, energy, automation has speeded up economic growth rate and international economic structuring. While in the 1960s the farming sector accounted for 10.4% of the world's products, the industry 28.4%, the service 50.4%, then the correspondent percentages became 4.4%, 21%, and 62.4% in the 1990s. In developing countries, services are implementing an important role in GDP. The service sector generated 76% of GDP and 73% of total jobs in the U.S.; 79.7% and 80% in Canada; and 64% and 60% in EU respectively.

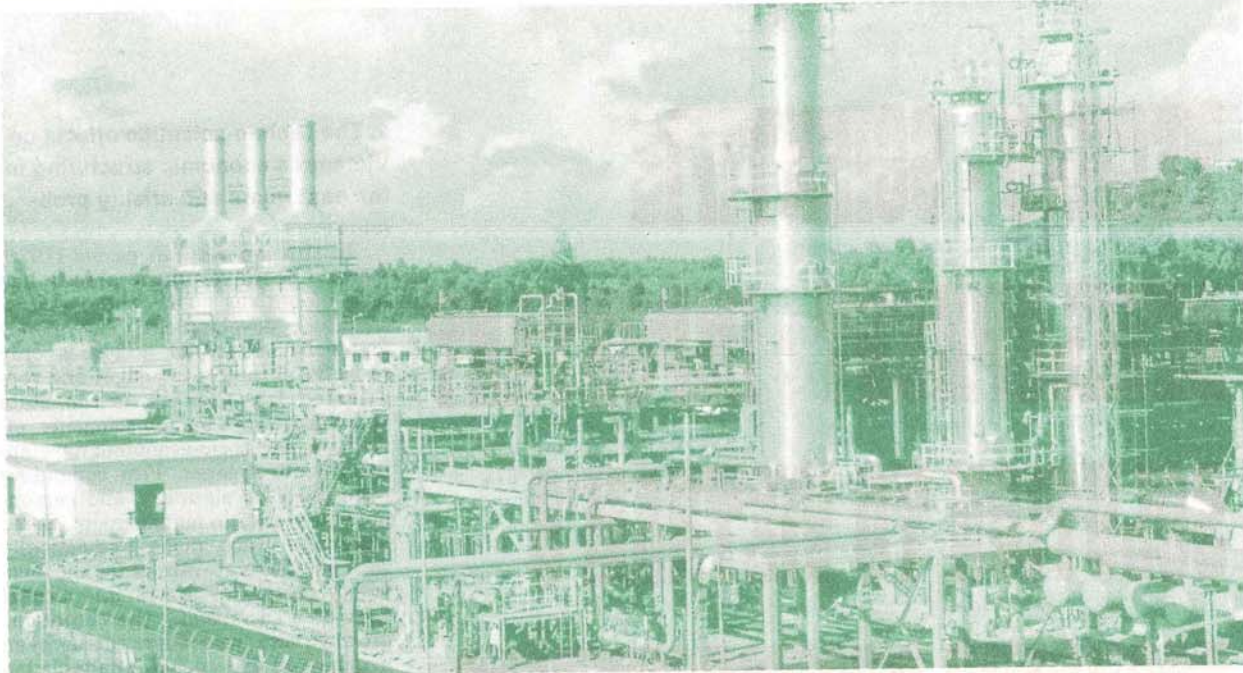
## 2. The techno-scientific effects on Vietnam's economic structuring in the past years and arising problems

In the pre-*đổi mới* period (1976-1986), the Government almost had no incentives for the techno-scientific development. The money for techno-scientific activities only came from the State budget and represented less than 1% of the State spending. The techno-scientific effects on the socio-economic development were meager. Few computers were used for planning, and personnel and stockpile management. Some materials were made domestically such as silicon, ceramics for the electricity sector, fertilizers, and animal feed. As a result, the economic growth rate was very small, even negative in this period. The table below will indicate this:

It is obvious that during these ten years the share of sectors in GDP showed a very small change. In 1976 the industry accounted for 46% of GDP, and inched up to 47.9% only ten years later; the agriculture re-

duced its share only by 0.5% during 10 years, from 39% in 1976 to 38.5% in 1985; and the service sector's percentage dropped from 15% in 1976 to 13.6% in 1985.

In the *đổi mới* period (1986 until now), the techno-scientific role to the socio-economic development and economic restructuring promotion has been recognized better. The social science and humanity have contributed to the planning of focal economic regions, the country's industrialization, and modernization, the road maps to join AFTA, APEC and so on...The natural science and technology have helped enhance the research on and use of new strains and cultivation method. Thereby the country's farming has made significant progress. While the country's rice output reached only 3.09 tonnes per hectare in 1990, then the figure soared to 4.08 tonnes/ha (ranking second among Southeastern countries behind Indonesia) and the food productivity increased fast in consequent years from 22 million tonnes



in 1990 to 34.2 million tonnes in 1990. The country has been able to ensure its food security and became the second biggest rice exporter in the world. According to experts' estimation, the techno-scientific renovation has contributed to 30%-40% of food growth rate. In the industry sector, local manufacturers have soon adopted new technologies and operated imported machinery and equipment, manufactured digital lathe, cultivation and processing machines and automated some stages in production. The industry sector has posted an annual growth rate of 13% on average in the past 10 years due to increase in investment capital and application of new technologies. The industry's high growth has boosted the country's economic structuring in the trend of industrialization and modernization. The service sector has also developed fast with many diversified forms and an average of growth rate of 8%-10% per year. Some new modern services occurred such as telecoms (up 9%-10% per year), banking, finance and credit (up 8%-14%); insurance and others. The Table 2 will show positive changes in the country's economic structuring in the past 10 years.

However, that restructuring is not really stable and does not meet the requirement to integrate into the

regional and global economies. The reason is that the techno-scientific effects on the restructuring remain modest and limited. The robust growth in agriculture is attributed to policy reform which liberates all production potentials of farmers, not to effects of techno-scientific achievements. The farming equipment and method are still obsolete, food quality low and export capability poor. The labor force in agriculture still represents a large percentage (66% in 1997) and includes mainly unskilled workers. The high increase in the industry sector comes mainly from increased investment capital. The technology innovation rate reaches only 8-10% per year, while this figure is 15%-20% in regional countries. The country's picture of technology structure is now gloomy: state-of-the-art technologies account for only 20%-25%, and medium ones 50%. The mechanical engineering industry is extremely out-dated (50-100 years behind developed countries). The above situation is attributed to the weakness of the country's techno-scientific activities, first the backwardness of the capacity of basic and application studies.

### 3. Some trends of techno-scientific development to promote economic structuring

(1) Coordinating scientists to devise solutions to major tasks such as strategic planning, management system renovation, and reform of state-owned enterprises, perfection of road maps to AFTA, APEC, and WTO...

(2) Developing biology technology for farming production and processing; applying biology technology to the processing and preservation of food with a view to enhancing the value and competitiveness of farm products and moving farming labor to the industry and service sectors.

(3) Developing information technology and animation technology with the aim to modernize such industries as post and telecommunications, aviation, finance, banking, insurance, and tourism; innovating technologies in major industries such as oil and gas exploitation and processing; electronics, informatics, mechanical engineering, building materials, transport, and energy.

(4) Actively selecting and applying state-of-the-art technologies and building spearhead industries to integrate into regional and global markets.

(5) Strengthening basic and application studies to improve imported technologies and invent new technologies in the future. ■

Table 2: Economic structure in the 1991-1999 period (%)

Sector	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Industry	38.7	40.5	33.9	29.9	27.4	27.2	27.8	25.8	25.8	25.4
Agriculture	22.7	23.8	27.3	28.9	28.9	28.8	29.7	32.1	32.5	34.5
Service	38.6	35.7	33.8	41.2	43.7	44.0	42.5	42.1	41.7	40.1

Source: *Facts and Events*, August 2000, p.27