



DIRECTION FOR SELECTING HIGH-TECH INDUSTRIES IN HỒ CHÍ MINH CITY

by Prof HOÀNG ANH TUẤN

The Vietnam economy is making good progress towards the integration into the world market. In this process, high-tech industries are indispensable for developing the economy faster.

Vietnam, and HCMC as well, is opening door to foreign investment with a view to attracting modern technologies and techniques. Many export processing zones have come into being. They are necessary factors but can't meet the strategic demand for modernization of the economy of the country, and of the HCM City as well.

Building a high-tech industrial park is one of ways to find out the right answer to the problem of economic development.

The high-tech industrial park aims at attracting high-technologies from foreign countries and improving local technological capacity in order to modernize the HCMC economic structure.

1. Standards of selected high-tech industries

- High degree of automation.
- Applying various technologies.
- Making use of many inventions.
- Increasing remarkably the added value of finished products, especially when they are made from local raw materials.
- Increasing economic and labor efficiency.
- Having high return on capital.
- Having the effect of pushing up other industries.
- Being science - intensive industries.

tries.

- Producing goods of international standard and high exactitude degree.

- Making use of Vietnam potentialities (labor, raw materials etc.)

- Being technologies of long durability.

- Being pollutant-free technologies or having measures to handle pollution.

2. High-tech industries encouraged to develop

a. Science-intensive industries producing goods for export and local users (these goods substitute imports but don't compete with local products).

- Electronics and photoelectric technologies:

- + Producing micro-electronic components and special parts.

- + Designing and producing high-grade electronic products

- + Laser and photoelectric techniques and products.

- + Photomagnetic and electromagnetic techniques and products.

- + Telecommunications techniques and equipment of new generation.

According to many forecasts, from now until the early XXI century, there will be tremendous demand for electronic products in the world markets. So if these industries can produce goods of international standards, they can export products from the very first.

These industries require much grey matter, modern laboratories, clean and newest technologies.

- Information technology:

- + Designing and producing computers and spare parts.

- + Producing software of various kinds, importing and exploiting foreign software.

Vietnamese people have outstanding gifts for this technology.

- Optics technology used for producing optical instruments of high quality which can be exported or substitute imports.

b. High-tech industries using local raw materials:

- Producing new materials:

- . For electronics industry: superconductors, magnetic materials, high-grade ceramic products, luminous materials, raw materials for producing semiconductors.

- . Composite materials: rare and precious alloys; ultra-light; ultra-hard and ultra-porous materials;

- . New molecular materials: conductive rubber, special rubber, membranes, composite materials substituting for traditional ones; special paint and glue.

- High-priced microelements.
- Special additives.

New materials are usually used for producing diverse goods and substitutes. Electronics industry could make use of local natural resources (rare earth metals for example) and help with developing chemical, metallurgical, mining industries...

- Biotechnology producing new and high-priced products:
 - . Genetic technology
 - . Cell technology.
 - . Microbiological technology.
 - . Pharmaceutical technology and essential oil extracting technology.
- Other technologies: such as technologies used in aviation, exploration of outer space, automation and making robot, etc.

3. Harmful technologies

- They are technologies using radioactive materials, causing pollution, requiring large areas or not conforming to Vietnamese traditions.

4. Measures

a. Establishing research institutes:

The establishment of research institutes in high-tech industrial parks should be realized step by step and appropriate to speed of investment, installations of equipment and training laborforce. At the first stage, we had better try our best to make use of existing research institutes. In HCMC, there are many institutes with modern equipment and well-trained experts such as: Experiment Analyzing Center, Plastics Center and a lot of university laboratories and institutes at ministerial level. Providing necessary investments, we could help these institutes complete tasks assigned by the Government and fill orders placed by high-tech industrial parks.

All firms should be forced to spend from 6% to 10% of their annual sales on R & D activity. Moreover, we had better take measures to encourage foreign and local investors to build research organizations in high-tech industrial parks.

b. Training:

Dissemination of technological knowledge is an important part of the process of technological development.

- National universities are responsible for supplying basic and full-time training programs.

- Businesses in high-tech industrial parks can have their workers trained (on-the-job training) by HCMC-based research institutes.

- There must be regulations which force businesses in high-tech industrial parks to send Vietnamese employees abroad to make studies in

parent companies.

- Foreign universities are encouraged to open their branches in high-tech industrial parks. Curricula of these universities must be approved by the Ministry of Education and Training. In these universities, at least 50% of students must be Vietnamese people and they should enjoy tuition reductions.

Location of universities or training centers mustn't cause inconvenience to production activity of the parks.

c. Technological activities in businesses

- Businesses can use foreign investment of various forms.

- Businesses in the parks can recruit university students, experts, scientists, skilled workers, etc. living in HCMC as their workers. If they want to recruit experts whose training was financed by the Government, or who are working in key industries, the business should obtain permission from the expert's superiors.

- Some scientists and experts can supply technological consultant service to businesses.

4. Technology transfer

Building high-tech industrial parks is a strategy for economic development based on technology transfer.

At the first stage, technologies are transferred from abroad by foreign companies. At the second stage, technologies are transferred from one firm to the others or from research institutes to firms. Local authorities could help local firms have contracts with foreign companies in the parks for supply of raw materials, semi-finished products, parts and components. Incentives must be given to newly-formed firms. These are ways to make the high-tech industrial park the center of technological diffusion in HCMC.

In some first years, the local authorities have to provide much assistance to change the city structure of industry.

Relations between scientists working inside and outside the parks should be formed; various workshops, exhibitions, conferences should be organized with a view to avoiding competition between firms inside and outside the parks and spreading technological knowledge to local firms.

To transfer technologies from the parks to the outside is the main goal that we pursue in building the high-tech industrial park.

(Speech delivered at the workshop "On Founding the High-tech Industrial Park in HCMC")

