

S&T development in Vietnam and suggested policies for international cooperation in Biotechnology

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S&T structure in Vietnam

- Ministry of Science and Technology: the focal point, state management body
- Two national centres for R&D: VAST and VASS
- R&D institutes under line ministries: industry, healthcare, agriculture, environment, etc.
- University faculties: little research, mainly teaching

Technology development in Vietnam: priorities and orientation

- One of the two key ingredients of Vietnam S&T development: high-tech development and reform of S&T management mechanism
- Priorities technologies by S&T Strategy until 2010: ICT, *Biotech*, Automation, Advanced material, New energy, Mechanical engineering, Environment technologies
- High-tech priorities by Government Action plan 2005-2010: ICT, *Biotech*, Automation, New Material and nano, Mechatronics

High-Tech development: Vietnam specific features

- Science based development
- Globalisation and economic integration
- Need for shortcut industrialisation and modernisation
- Favourable development conditions: stable growth (6-7% GDP on average), large potential and existing system of organisations
- High-tech focus: R&D, application, industrial production

R&D

- Capability of R&D organisations is still weak, not producing good research, no breakthrough, mainly focusing on adaptation and application of foreign technology
- Weak role in cooperating with firms, especially with foreign firms
- Weak physical infrastructure, shortage of funding, scattered investment, cannot take part in large, international programmes
- Investment policy and other mechanisms are not supporting yet the creation of high-tech

Training

- Skills, level of capability and training structure are not balancing, not contributing to formation of suitable human resources for high-tech
- Imbalance of training system, organisations (more in the North than in the south), less end users are firms in technology training and for high-tech
- Lack of suitable forms of training of human resources for high-tech (top scientists, capable of creating technologies)

Industrial production

- Domestic firms are still passive in technology innovation in general and in high-tech development in particular
- Technology learning is still limited, policies and mechanisms for learning are still not conducive
- Learning from foreign firms (MNC) cannot climb up to level of high-tech, generic technologies or more competitive ones
- There is lack of supporting mechanisms and policies for high-tech development, for creating networks and sufficient concentration of resources for high-tech development

Vision and objectives

- Rely mainly on import of technology, for the foreseeable future, adaptation and mastery of imported ones, gradual creation of new technologies
- Foster the application oriented high-tech development, in wide range of use for the socio-economic development
- High-tech should create new profession and businesses
- To rapidly build up domestic potential for S&T in general and high-tech development in particular

High-Tech development: a market perspective

- Policies to promote *need* on high-tech:
 - ✓ to stimulate users of high-tech (enterprises) by incentives in taxation, credit, training and business facilitation
 - ✓ improve technological capability of industrial firms and farmer sector
 - ✓ support technological innovation in priority areas
 - ✓ promote and use procurement policies by the government (ICT, for example)

High-Tech development: a market perspective

- Policies to promote *need* on high-tech:
 - ✓ Focus more on training of technology management for firms as well as management organisations
 - ✓ Support in enhancing negotiating skills for firms, including for that of consultancy
 - ✓ Focus on utilising the benefit of know-how to master the foreign technologies
 - ✓ Reduce the personal income tax, to encourage using the Vietnamese staff in FDI firms, avoiding tax evasion

High-Tech development: a market perspective

- Policies to promote *supply* of high-tech:
 - ✓ Appropriateness and suitability/relevance of technology solutions produced by high-tech actors
 - ✓ Completeness of technology products for market need
 - ✓ Dialogue for research agenda setting, Foresight exercise
 - ✓ Better conditions for creators of high-tech

High-Tech development: a market perspective

- Policies to develop *intermediaries* for high-tech:
 - ✓ Organise technology transaction centres and portals, other intermediary organisations
 - ✓ Develop institutions to take care of technology appraisal, evaluation, assessment, and pricing, certification in high-tech areas
 - ✓ Create an organisation responsible for information and coordination between suppliers and foreign invested firms

High-Tech development: a market perspective

- Policies to improve *legal and institutional framework*:
 - ✓ Inventory and checking all legal regulations for technology transfer
 - ✓ Improve legal framework for technology development: IPR, technology transfer, etc.
 - ✓ To enforce the reforms in S&T management mechanisms, with focus on priorities
 - ✓ Create the competitive and favourable general business environment

Challenges and opportunities

- Gap between the goals and measures to achieve the goals: weak infrastructure, scarce resources
- Low starting point
- High risk, not necessary high return
- Great impact of application
- Rapid technological change, catch up windows of opportunities
- In need of right policies: right things to do at right time

International cooperation for high-tech (Biotech)

- Mobilization of and using financial resources: non state funding
- Developing human resources, including Viet-Kieu and international experts
- Promoting enterprises to improve their linkages, between R&D and economic linkages, via FDI/international trade
- Structural balance in technology transfer: learning issue, domestic versus foreign technologies

International cooperation for high-tech (Biotech)

- Cooperation with international partners: IDRC, SIDA, APCTT, UN, IFAD, ASEAN COST, APEC, SCA, ICSU, PSA, etc.
- Promoting the dialogues, training, exchange, network of networks
- Promote non-institutional cooperation
- Toward a joint programme in R&D and developing industrial components in Bioscience/Biotech?

International cooperation for high-tech (Biotech)

- Cluster of Biotech international activities: Hanoi May 10-14 2005
 - SCA annual meeting: Bioscience/Biotech
 - IDRC Vietnam-Canada Roundtable
 - A-IMBN Bio symposium
 - SIDA-SAREC: Biotech component
- The role of SCA: SCJ, National Secretariat?

Thank you for comments and remarks