

The Vietnam Academy of Science and Technology (VAST), a Governmental agency, evolved from the previous Vietnam Academy of Science which was set up based on Decree 118/CP dated 20 May 1975 by the Council of the Government (or the Government now). On 12th May 2008, the Prime Minister signed Decree 62/2008/ND-CP putting forth regulations on the functions, tasks, powers and organisation of the Vietnam Academy of Science and Technology. VAST realises the basic functions of studying natural sciences and developing technologies based on key orientations by the State, in order to provide scientific ground for scientific and technological management, for the building of policies, strategies, planning and plans on socio-economic development, and for the training of high-quality scientific and technological human resources for the country according to relevant laws.

VAST, a leading scientific and technological agency of the country, plays a leading role in the national scientific and technological system, and conducts basic research on natural sciences and comprehensive and high-standard technological development. VAST is always ready for its high-standard technological and scientific potential to satisfy arising issues in factual situations and train high-standard human resources for the country.

### **Functions and Rights**

VAST is responsible for realising the functions of studying natural sciences and developing technologies based on key orientations by the State, in order to provide scientific ground for scientific and technological management, for the building of policies, strategies, planning and plans on socio-economic development, and for the training of high-quality scientific and technological human resources for the country according to laws

#### **VAST has the following functions and rights:**

1. Submitting to the Government the draft decree on the amended regulations, functions, tasks, powers and organisation of the Academy, submitting to the Prime Minister decisions on the establishment, renaming, re-organization and dissolving of units and agencies of the Academy under the jurisdiction of the Prime Minister.
2. In terms of strategies, planning, plans, programs and implementation:
  - a) Submitting to the Government, the Prime Minister long-term, five-year and annual strategies, planning, programs, important projects of the Academy; implementing the strategies, planning, programs and plans after being adopted;
  - b) Participating in the building of strategies on the development of technological and natural sciences; participating in making policies on scientific, technological, educational and training development, contributing to protecting natural resources and the environment of the country;
  - c) Studying natural resources, natural and environmental conditions of the country to provide scientific ground for the building and issuing of policies, strategies, planning and socio-economic development plans of different regions and of the whole country;
  - d) Conducting natural scientific study and technological development activities based

on key orientations of the State on areas such as: information technology; biological technologies; material sciences; maritime, island and sea work study; ecology and environment; biological natural resources and natural compounds; electronic techniques; scientific devices and automation; forecast, prevention and mitigation of natural disasters; universal technologies;

e) Proposing and hosting the implementation of key State level scientific and technological programs assigned by the Government, the Prime Minister;

f) Carrying out, applying and transferring new scientific and technological study results; organising the production, trading, service consulting of professional fields in production and in life, contributing to building and developing hi-tech industrial sectors in line with the country's socio-economic development plans and regulations of laws;

g) Giving information, forecasting, warning on earthquakes, tsunamis etc;

h) Disseminating knowledge and scientific study and technological development results, satisfying the requirements of the scientific and technological development markets.

i) Assessing or participating in the assessment of technological standards, checking economic and technical facts in key and important construction of the State and localities as required by the Government, the Prime Minister and the suggestions by jurisdiction State-owned agencies;

k) Training hi-tech scientific and technological human resources; organising postgraduate education on natural sciences and technologies based on regulations of laws;

l) Deciding investment projects of the Academy based on regulations of laws.

3. In terms of international cooperation:

a) Doing international cooperation on sciences and technology based on regulations of laws;

b) Organising and checking the implementation of international cooperation programs, cooperation projects that are signed;

c) Participating in conferences, workshops, international cooperation programs and deciding the organisation of conferences, international workshops based on regulations of laws; managing conferences, workshops and international cooperation plans of units in the Academy.

4. Deciding and directing the implementation of administrative reform programs based on the target and contents of the State administrative reform programs after being adopted by the Prime Minister

5. In terms of regular staff and officials

a) Making plans on staff of the Academy to send to the Ministry of Home Affairs to be submitted to the Prime Minister for adoption; deciding the distribution and management of regular staff of units and agencies in the Academy; inspecting the compliance of regular staff management in units and agencies of the Academy;

b) Deciding to perform concrete measures to increase administrative discipline among staffs; fighting and preventing corruption, practicing thrift, and avoiding bureaucratic,

authoritative behavior in VAST's operation;

c) Checking and abiding by policy, law, and duties that were entrusted to staffs and workers under management and dealing with complaints related to staffs under legal regulations

6. In assets and finance management:

a) Setting up VAST's annual budget estimate to submit to state relevant agencies for approval under legal regulations of the state budget

b) Deciding to allocate norms and plans; checking spending; and being responsible for balance and having adjustments suitable to approved financial income and expenditure to follow duties without any changes in approved duties and plans

c) Managing finances and assets, using state's assets and others effectively; and carrying out accounts and statistics under legal regulations.

7. In managing state businesses

a) Directing arrangement and innovation of businesses managed by VAST under the Government's regulations that will be implemented after Prime Minister's approval;

b) Implementing some duties and authorities on State capital holders in businesses under VAST's management;

8. Reporting to the Government, Prime Minister or Minister under legal regulations

9. Carrying out other duties and authorities by the Government and Prime Minister under legal regulations.

## **Organization of VAST**

Vietnam Academy of Science and Technology has 30 National Institutes and 7 Non-academic Units (Vietnam National museum of Nature, Publishing house for science and technology, Institute for Scientific Information, Center for Training, consultancy and technology transfer, Center for Information Infrastructure Development, Center of technology development assistance and service, Center for Food technology and technique development), 9 State-Owned companies, over 20 production unions and 35 Units of Institutes. All of these are main in Hanoi, HoChiMinh city, Haiphong, Nhatrang, Dalat, Hue.

## **Infrastructure and Facilities**

### **Infrastructure**

The Vietnam Academy of Science and Technology has in possession about 2 millions square meters of land area, of which

- Land area for research: 170,000 sq. m,
- Land area for technology development: 65,000 sq. m,
- Land area for field experiments, bases and stations: 1,760,000 sq. m.

The building surface area of VAST is about 150.000 sq.m, of which

- Building surface area for research:127,000 sq.m,
- Building surface area for technology development:13,000 sq.m,
- Building surface area for experimental bases and stations: 11,000 sq.m.

### **Facilities**

VAST has

+ 04 National key laboratories (among a total of 17 Vietnam national key laboratories):

- Gene Technology (Institute of Biotechnology),
- Multimedia and Networking Technology (Institute of Information Technology),
- Electronical Materials and Devices (Institute of Materials Sciences),
- Plant Cells Technology, in the South (Institute of Tropical Biology);

+ 01 Centre for high performance scientific computing (Institute of Mathematics);

+ Many advanced scientific equipment (35 units) for measurement, analysis and the field of physics, chemistry, mechanics, etc.

+ 70 cars.

### **Investment in infrastructure and facilities in recent years**

In the period 2001-2008, VAST invested approximately 480 billion VND (approx. 30 million USD) into more than 30 projects (including 04 National key laboratories, around 50 billion VND for each key laboratory). The investment for key laboratories went mainly into equipment (about 85% of the spending); the equipment bought are advanced and imported from developed countries. The other projects are mainly for rising research buildings with a total capital of about 280 billion VND.

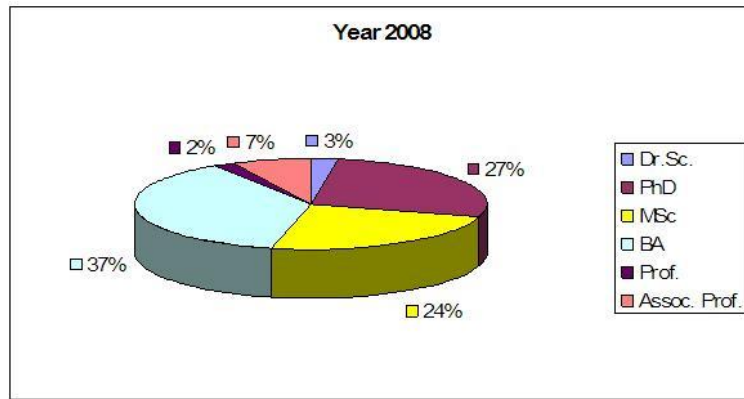
At present, every year VAST invests around 60 billion VND for infrastructure, 40 billion VND for scientific equipment and 10 billion VND for maintenance of infrastructure (repair work, small building work).

### **Human Resources**

**SURVEY OF QUALIFICATION OF SCIENTIFIC STAFF**  
(As of 31 October 2008)

| No | Qualification | Quantity |        | Age  |       |       |       |     |
|----|---------------|----------|--------|------|-------|-------|-------|-----|
|    |               | Total    | Female | ≤ 30 | 31-40 | 41-50 | 51-55 | >55 |
| 1  | Prof.         | 44       | 0      | 0    | 0     | 4     | 8     | 32  |
| 2  | Assoc. Prof.  | 158      | 30     | 0    | 4     | 20    | 38    | 98  |
| 3  | Dr. Sc.       | 55       | 5      | 0    | 1     | 5     | 11    | 38  |
| 4  | PhD           | 603      | 135    | 14   | 99    | 178   | 146   | 170 |
| 5  | MSc           | 560      | 200    | 108  | 318   | 107   | 24    | 11  |
| 6  | BA            | 848      | 322    | 198  | 206   | 234   | 141   | 95  |

*Number of scientific staff by qualification 2004-2008*



*Percentage of scientific staff in 2008 by qualification*

At present, VAST has 2.464 permanent staff including 207 Profs and Assoc.Profs, 673 PhD. and 538 Masters of Sciences.

### **Annual Activities**

#### **VAST's major activities include:**

- + Following research duties and implementing them in line with state-ranked major scientific and technological programs and 9 VAST-ranked prioritised scientific and technological methods; carrying out projects about environmental protection in East Sea and islands and other unscheduled duties directed by Prime Minister.
- + Further applying research results in science and technology to life and production reality; including projects about rural fresh water and environment hygiene, pilot production projects, and other contracts about science and technology with state businesses.
- + Implementing duties on constructing and developing infrastructure construction for scientific and technological research; especially building working infrastructure, enhancing research equipments, and constructing laboratories.
- + Carrying out VAST's frequent duties, especially management, effective use of state budget, international cooperation enhancements, and research coordination expansion at university and under-graduation levels.

#### **VAST is hosting or participating in some national important projects:**

- Strategy about researching and applying universe technology 2020: a project involved in the construction and launching of a small satellite, a program about universe technology, and a project of building Hoa Lac Universe Centre.
- Project of building Vietnam Museum of Nature.
- General project of managing maritime natural resource environment by 2010, with a view to 2020: studying East Sea and international cooperation in studying East Sea.
- Implementing regulations on earthquake and tsunami warning. Earthquakes measuring below 3.5 on the Richter scale in Vietnam and the Gulf of Tonkin were announced in good time to relevant agencies and in communications.

#### **VAST's major scientific and technological aspects approved by Prime Minister**

## **Nguyen Tan Dung:**

- Information technology and automation;
- Science and technology in materials;
- Eco-agriculture and biological technology - Ecology and Organism resources;
- Natural disaster prevention;
- Compounds with active biology
- Electronics and Universe technology;
- Sea and sea projects;
- Environment technology.

### **Achievements**

VAST is proud of its achievements obtained in science and technology which have supported greatly to the socio-economic developments also fostering scientific potential in Vietnam.

From 1995 up to now, VAST's research institutes carried out every year more than 20 State-level research and development projects, more than 10 ministerial-level research projects and dozen of national surveys on natural resources and environment.

VAST has co-operated with 52 Academy sciences and scientific institutions in the world (Europe: 22; Asia: 19; America: 7; Oceania: 4). VAST has established international MOUs and agreements with 13 foreign scientific institutions (AASA, MAAH, CERN, AIT, UNESCO, UNDP...). The Cooperation has also been conducted in the forms of experts exchange; MSc and PhD degrees training; Post-doctoral training, conducting joint research projects; organizing meetings, symposia, seminars; developing foreign-financed research projects in Vietnam.

The training, as an important function of VAST, is implemented in the maintaining and developing human resources of VAST. In VAST there are 17 research institutes offering doctoral programs and 6 research institutes offering Master programs. Every year, more than 100 postgraduates are working for the PhD thesis and 200 MSc students in different natural sciences, and more than 700 trips are made abroad annually for the study and research purposes.

Recently, VAST jointly with the Ministry of Education and Training are working on a project to establish a new university named Hanoi University which aims for education and training for the highest international standards.

With over 30 years of development, VAST has maintained its roles as a biggest research center of the country in science & technology fields, and has the honour of being awarded the First Class Independence Medal by the State in 2000.

### **Future Activities**

In the coming years, VAST will focus the resources on the following activities:

1. Preparing a development plan of VAST for the period 2011 – 2020, with a vision to 2030; carrying out important projects: Vietnam Museum of Nature, High-Tech Branch in Hoa Lac (including Hoa Lac Space Center), High-Tech Center in Thanh Loc (Ho Chi Minh City), network of Earthquake Monitoring and Tsunami Warning Stations, Central Building of VAST; actively cooperate with the Ministry of

Education and Training in the project of establishing Hanoi University of Science and Technology.

2. Carrying out important S&T projects: VNREDSat-1, Space S&T program, overall project on the investigation and management of marine environmental resources by 2010, a vision to 2020 (Decision 47/2006/QĐ -TTg dated 1/3/2006 by the Prime Minister).

3. Operating VAST key laboratories.

4. Improving of information and communication infrastructure: wide area network, internet connection, website.

5. Standardizing and institutionalizing the management, application of ISO standards in management.

6. Organizing VAST-wide activities, coordination of joint activities of subordinate units.

7. Promoting international co-operation.

8. Intensifying fundamental research development of technology, publishing more scientific publications in famous international journals.

## **Research & Development Directions**

### **Maritime Science and Technology**

- Survey and study of sea's natural resources and making proposals to set up marine preservation areas
- Establishment of a national oceanographic database
- Integrated marine and coastal management
- Sea pollution control technology
- Construction of durable maritime structures

### **Biologically Active Natural Substances**

- Study, survey and discover of the sources of biologically active natural substances
- Use of biologically active natural substances in the medical and agricultural industries
- Development of highly biologically active natural substances

### **Environmental Technology**

- Manufacture of materials and equipment for environmental protection and waste treatment.
- Anti-pollution technology for solid, liquid and gaseous wastes
- Environmental detoxification technology for dioxin, oil spills and toxic algae

### **Biotechnology**

- High quality plant and animal breeding, fast propagation technology and development of biological products from plants and animals.
- Molecular biology and its medical applications.
- Microbiotechnology and its applications to environmental pollution control and the production of fertilizers and animal feed.
- Genetic technology.
- Plant cell Technology.

### **Information Technology and Automatization**

- Research and development in software technology
- Artificial intelligence
- Multimedia and network technology
- Parallel computing techniques
- Numerical simulation
- Process control and robotics
- Voice processing technology

### **Material Science and Technology**

- Research and production of inorganic and polymer materials for use in medical, agricultural and environmental applications
- Optical components and materials with optical properties
- Nanotechnology
- Magnetic materials and superconductors and their applications
- Rare earth materials and their applications
- Electronic materials and components

### **Natural Disaster Prevention and Mitigation**

- Survey of past natural disasters in Vietnam
- Forecast of possible natural disasters in the future
- Establishment of scientific procedures and solutions to mitigate future natural disasters

### **Ecology and Biological Resources**

- Survey and evaluation of Vietnam's biologically diverse ecological systems
- Categorization of the fauna and the flora systems of Vietnam
- Establishment of a biodiversity database
- Proposing the creation of nature reserves
- Development of the technological processes required to restore and develop Vietnam's ecological systems

### **Electronics and Equipment**

- Research and development of optical instruments
- Space technology equipment
- Development of custom software packages for scientific equipment

## ORGANIZATION CHART OF THE VAST

