

Current Programs

The NSC's current programs include:

Research in the Natural Sciences

1. Reinforcing cooperation between NSC and public or private colleges, universities, and institutes, such as the Academia Sinica, in order to promote basic research in mathematics, physics, and chemistry.

2. Promoting basic research in geology, geophysics, and atmospheric science, and enhancing the standards of oceanography.

3. Coordinating with the Republic of China Ten-year Science and Technology Development Plan (1986-1995); mapping out twenty-seven development projects; and combining manpower and resources to promote research cooperation.

4. Paying special attention to the further development of the research centers of mathematics, physics, and chemistry, including planning and promoting, coordinating each research program and activity, and extending library services with more books and journals.

Research in the Life Sciences

1. *Biotechnology*: Promoting research programs on the development of a Hepatitis B vaccine with recombinant DNA; monoclonal antibodies in hepatoma, cervical cancer, and breast cancer cells, through the Hybridoma Research Center; and tests for the diagnosis of Hepatitis B virus surface antigens. NSC also cooperates internationally in the exchange of biotechnology and has made progress on the Development Center for Biotechnology.

2. *Prevention of hepatitis*: Six programs are stressed in this field: (1) support of the Hepatitis B vaccine test; (2) establishment of a plasma vaccine plant in cooperation with the French Pasteur Institute; (3) follow-up research of hepatitis in newborn babies; (4) study of pathological changes of the liver in surface antigen-carrying children with Hepatitis B and no-symptom vertical infection; (5) study of hepatitis' e-antigen in human milk; and (6) study of molecular levels in the relationship of hepatoma and the Hepatitis B virus.

3. *Agricultural research*: Supporting field research in agriculture, forestry, fisheries, and animal husbandry; emphasizing agricultural and biological resources development, environmental maintenance of agricultural production, improvements in forest genetics and cultivation; developing new pisciculture technology; using biological technology to stimulate fish cultivation and genetic improvement, and research on nutrition and vaccines of fish.

Research in Engineering and Applied Sciences

1. *Information technology*: Four programs are stressed: the made-in-Taiwan operation system, the expert system, the intelligent work-station, and integrated multiproject chip programs.

2. *VLSI circuit research*: Research includes (1) study of various VLSI CAD tools, (2) development of chip design and simulated package programs, and actual production of chips through MPC multiproject chip programs, (3) computer development of the integrated large system, and (4) establishment of technology relevant to the process of producing VLSI circuits and planning aimed at the development of submicron technology.

3. *Materials technology*: This field emphasizes research on metal materials (the study of Fe-Al-Mn stainless steel), photoelectronic materials (III-V compound materials), polymer materials (composites, functional polymer, and processing technology), and silicon materials (an interdisciplinary research program for solar and electronic silicon materials).

4. *Photonic technology*: Research programs in the fields of laser chemistry and laser physics are supported. The former includes transient studies of laser-induced photochemical processes, electric deflections of V3-excited octahedral molecules, and studies of physical photochemistry. The latter concentrates on research of reinforced radiation and activation on metal surfaces with the Raman spectrum of laser-detected particle molecules to establish a laser holography laboratory, and the use of holographic techniques to study three-dimensional dynamic particle fields and to produce CO₂ lasers for the creation of neutral atoms.

5. *Automation technology*: The upgrading of teaching facilities for automation technology and the training of manpower in automation engineering are stressed.

Research in the Humanities and Social Sciences

1. Coordinating plans concerning culture and economy; planning and supporting special research programs on manpower development policy, international trade, financial policy, social changes, urban development, housing policy, advanced education, management science, and juvenile psychological development.

2. Promoting research programs in philosophy, history, linguistics, anthropology, and archaeology in order to elevate the level of domestic academic research.

3. Planning and supporting the systematic compilation and organization of historical records and data files, and special research to preserve and promote traditional culture.

4. Providing plans to solve or improve social,

economical, legal, educational, and managerial problems for the government's reference.

5. Holding symposiums on the humanities and social sciences in order to improve international academic exchange.

6. Cultivating talents in the humanities and social sciences.

Research in Science Education

1. Subsidizing research on basic science courses development to meet future demands of science education, such as the study of courses and teaching

material, development theory, theory regarding students' learning and conceptual development, teaching methodology, teaching environment, and ways to assist talented students.

2. Promoting experimental projects regarding science education development. At present, two fields are being emphasized: (1) discovering, assisting, and cultivating talented students; and (2) studying and developing instructional materials for software systems for computers.

3. Assisting the national, provincial, and local educational authorities in studying and improving

A display in the Institute of Ethnology at Academia Sinica.

