November 1995/Vol. 27, No. 11

SCIENCE BULLETIN

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Focal Areas of NSC Policy During the 1996 Fiscal Year

In accordance with the Executive Yuan's administrative directions for fiscal year 1996, and taking into consideration annual expenditures, the National Science Council (NSC) has compiled an administrative plan for the year. The following is a list of the focal areas of the NSC's work:

I. Accelerating efforts to take full advantage of the national laboratories and subsidiary units:

1. We will continue strengthening Synchrotron Radiation Research Center management, promote synchrotron radiation applications and basic research, and conduct functional upgrading and maintenance of the synchrotron facility.

2. We will promote applications and basic research at the Center for High-performance Computing. We will establish an outstanding domestic high-speed computing environment and boost academic and industrial competitiveness by continuing to build and expand computer facilities.

3. We will step up the development of satellite systems, actively put in place space program infrastructure, and push ahead with space technology development, utilization, promotion, and personnel training.

4. We will reinforce management of the Laboratory Animal Breeding and Research Center in order to guarantee a supply of high-quality experimental animals; we will insure the quality of animals by establishing a sound environment in which lab animal research and development can be carried out.

5. We will strengthen management of the Science and Technology Information Center and implement "Up-to-date Sci-tech Information Processing Services" and the "Utilization and Management of National Sci-tech Information Networks."

6. We will continue to boost management efforts at the Precision Instrument Development Center. We will conduct R&D work for new precision instruments and enhance precision technology services and promotional efforts.

II. Actively promoting the utilization of science development funds:

1. We are working to insure that funding is used as effectively as possible and are helping the academic community conduct meaningful and effective research by energetically promoting integrated planning of the development of resources and individual academic fields and helping sponsor integrated research and applications projects.

2. We will continue to plan the implementation of integrated sci-tech projects including natural disaster abatement and cooperative industry-academia research. Our goals are to stimulate cooperative research, accelerate the utilization of research results by industry, and promote economic growth.

3. We will put the science and technology R&D environment on a sound footing, continue to expand common earthquake engineering research facilities, strengthen nano device research, and develop common facilities including a series of costly instrument centers and chip design centers. We hope to improve the R&D environoment by insuring that necessary equipment and facilities are available and in good order.

4. We are strengthening our combined service and promotion activities, continuing to recruit, train, and reward sci-tech workers, increasing sci-tech exchanges between Taiwan and mainland China, enhancing the prize and grant framework, insuring that project evaluations are fair and transparent, and working to protect and apply the results of research.

5. We are actively promoting international science and technology cooperation, implementing sci-tech cooperation agreements and projects involving the R.O.C. and Europe, the U.S., Japan, and other nations, assisting domestic specialists to attend international conferences, and sponsoring international academic symposia held in Taiwan. We are also raising the R.O.C.'s status in the international sci-tech sphere by enhancing the functioning of the NSC's overseas offices and strengthening liaison with overseas academics.

6. We are actively carrying out planning and preparations in conjunction with the Fifth National Science and Technology Conference. In accordance with the Six-Year Science and Technology Development Plan (Mid-Term

Plan), we are coordinating the planning and implementation of this year's sci-tech projects with relevant government agencies and departments to insure that FY 1996 projects dovetail closely with long- and mid-term plans. We are strengthening the planning, deliberation, control and auditing of major sci-tech projects, promoting integrated research projects linking upstream, mid-stream and downstream sectors, putting in place a cooperative framework for the division of labor, establishing sci-tech statistics systems, performing surveys in order to collect and disseminate information concerning domestic sci-tech development, and formulating training programs for sci-tech management personnel. These efforts will enable us to develop science and technology more effectively and reap the full benefits of science and technology resources.

7. We will promote administrative reform, actively work to put our units on a firm legal footing, cut personnel and amend organizational personnel quotas, enhance the functioning of our regulatory framework, and boost the morale and qualifications of NSC personnel, thereby improving administrative efficiency and quality.

III. Planning the development of science-based industrial parks:

In order to nurture high-tech industries and promote the developement of high sci-tech industries, we are energetically proceeding with the overall planning of the nation's science-based industrial parks. Our efforts include promoting R&D projects involving key parts and components, facilitating investment in the parks, and enhancing labor service and safety protection work. We will recently complete an environmental impact assessment for the Tainan Science-Based Industrial Park.

The Center for High-Performance Computing Hosts the "High Performance Computing' Asia 1995" (HPC' Asia 1995)

After a year of preparation, the HPC' Asia 1995 hosted by the NSC Center for High-Performance Computing was held with great ceremony from September 18 to 23 at the Taipei International Convention Center. Over 600 individuals from countries in the Asia-Pacific region attended this event.

The recent economic growth of various Asian nations has caused the global importance of the Asia-Pacific region to steadily increase. The fact that the R.O.C. was able to win the privilege of hosting the Conference not only increased the income of the travel industry due to the influx of foreign guests, but also encouraged local sci-tech personnel to present their research results and papers, thus showcasing the achievements of our national commitment to high-performance computing research.

The opening ceremonies for the Conference and associated exhibition were held on the morning of September 19, and both NSC Chairman Dr. Nan-hung Kuo and Vice Chairman Dr. Chang-hung Hsieh were on hand to deliver speeches. In general, the Conference was held along the lines of America's super-computer conferences; all materials including symposium subjects, academic papers, exhibition information from participating firms, and registration materials were accessible on-line via the World Wide Web. The event as a whole consisted of an exhibition and conference proceeding simultaneously. Apart from inviting internationally-prominent specialists and academics in the field of high-performance computing, executives from wel-known international information technology firms (including IBM, Cray, Fujitsu, Convex, Hitachi, and HP, etc.) were invited to give lectures. This gave workers from domestic industry, government, universities, and research institutions a chance to exchange experience and share research findings with each other and the outside world. The exhibition event was networked so that attending firms could peruse on-line information concerning exhibit contents. Besides domestic and foreign firms connected with the field of high-speed computing, exhibition participants also included research units working in this area.

High-performance computing applications technology is currently widely seen as an important advantage in the face of future technological and economic competition. The fact that the Center for High-Performance Computing was able to conduct this event without a hitch has significantly raised awareness within the Asia-Pacific region of the R.O.C.'s achievements in high-performance computing technology.

The Science and Technology Information Center (STIC) Hosted the 'ASCA Sci-Tech Information Management Workshop'

From September 11 to 23, the STIC of the NSC hosted the 'ASCA Sci-Tech Information Management Workshop' at the Institute of Earth Science of the Academia Sinica. At this workshop, the R.O.C. relied on its experience and successes in the field of science and technology information services to assist member economies of the Association for Science Cooperation in Asia (ASCA) understand new concepts and new technologies in such areas as information

processing, database construction, information retrieval, and information services. It is hoped that this event will create economic opportunities, increase the R.O.C.'s contribution to the international community, and promote international exchange.

The workshop included 16 participants from the eight nations of India, Nepal, Malaysia, Indonesia, the Philippines, Sri Lanka, Thailand, and Vietnam. The opening ceremony held on the morning of September 11 in NSC conference room was hosted by NSC Chairman Dr. Nan-hung Kuo and attended by representatives of the various participating countries, domestic libraries and information centers, as well as the workshop instructors, NSC unit heads, and many other NSC colleagues.

Besides engaging specialists to lecture on the building of bibliographic databases, indexing and abstracting, the construction of sci-tech thesaurus, the functions of on-line information retrieval systems and information services. It also featured hands-on training and field trip activities. In order to facilitate the mutual exchange of knowledge, the participating members introduced the current status of information resources, processing and services in their respective institutes at the beginning of the workshop. At the conclusion of the workshop there was a general discussion, deliberation of routes for future cooperation, and suggestions to the planning of future similar workshops.

The genesis of this event occurred when NSC Chairman Dr. Nan-hung Kuo was invited to attend the 13th ASCA conference last year in 1994. Dr. Kuo proposed the NSC's plan for the "ASCA Sci-Tech Information Management Workshop" on the occasion.

During the final discussion of the workshop, various participants raised specific suggestions for increasing cooperation among ASCA member economies. Suggestions included those on personnel training and exchanges, exchange of sci-tech information, compiling of directory of sci-tech information institutes in member economies, compiling of directory of sci-tech databases in member economies, employing the Internet to set up a dedicated listserv discussion group, and bolstering document delivery services among member economies. Developing these various means of cooperation will provide the R.O.C. many new direct routes of acquiring sci-tech information. Long a leader in promoting the international exchange of sci-tech information, on this occasion STIC obtained even more effective routes for supplying the R.O.C.'s sci-tech information and sci-tech research results to the Asia-Pacific region and the world.

The 16 participants from eight nations of South and Southeast Asia who came to this two-week workshop expressed great satisfaction with the curriculum, tours, food and lodging, and the services provided by STIC. They expressed admiration for Taiwan's economic accomplishments and felt that, in terms of both content and quality, Taiwan's current sci-tech information service framework has many features that deserve to be emulated by their respective nations. In addition, they felt the workshop content will be of great benefit to their current work and future professional growth.

The participants at this event recommended that the workshop be held every year or once every two years. If this type of workshop will continue to be held in the future, consideration should be given to adding the following areas: database planning and design, hardware and software selection and management, information service standards, information service management, and information service marketing. Chairman Dr. Nan-hung Kuo noted that if, for the time being, other ASCA member economies do not intend to conduct similar events, the R.O.C. is still willing to continue holding workshop under the auspices of the NSC. Besides workshop, consideration should also be given to allowing personnel from sci-tech information centers in ASCA member economies to come to the Taiwan for in-service training; such inservice training ought to be particularly able to meet the needs of the various nations' different levels of development of sci-tech information services.

The success of this Asia-Pacific regional sci-tech information management workshop demonstrates that the hard work the R.O.C. Has put into international sci-tech information exchanges has already generated outstanding results. After the successful conclusion of this workshop, the NSC announced the workshop results to concerned international organizations in order to highlight the R.O.C.'s contribution to regional cooperation.

A Report on the NSC's "Integrated Research Project on the Cognitive Psychology of the Chinese Language"

Due to the rapid advance of technological civilization over the past twenty years, all of the world's advanced nations have devoted great efforts to researching their mother tongues. The goals of this research include, on one hand, gaining an awareness of the essential features of one's own culture through a better understanding of one's language, and, on the other, utilizing linguistic research to develop more effective educational methods. Broadly implemented linguistic education can help increase the knowledge level of a nation's citizens and consequently raise national productivity. From this point of view, it is urgent that we gain a deep understanding of the characteristics of the Chinese language and use this to establish suitable cognitive models.

In addition, the problem of how to harmonize the Chinese language's diversity of dialects with its unitary writing system has been a matter of debate among linguists. With the rise of cognitive psychology, this "many to one" operational method has led scholars in many fields to investigate its implications from the point of view of different levels of mental activities. From the question of whether the nervous organization to the brain are affected to discussions of linguistic relativity, the Chinese language—with its unique characters and grammatical structure—has become a center of atten-

tion for the world's cognitive scientists.

We can use Chinese to prove some controversial doctrines in linguistics, and we can also use the existing framework of cognitive theory to increase our understanding of the language's phonetics, syntax, and semantics, thereby gaining a deeper awareness of its nature.

In order to utilize the techniques of neuroscience and cognitive psychology to perform a broad yet discriminating analysis of the process of learning Chinese and the on-line operation of reading Chinese, during this fiscal year the NSC's Humanities & Social Science Division is supporting an integrated research project on the cognitive psychology of the Chinese language. Below is a list of scholars participating in this project together with their research topics:

1. Prof. Ovid J.L. Tzeng, National Chung Cheng University "Exploring the Cognitive Process of Recognizing Chinese Words; Model and Verification Construction".
2. Prof. Jong-Tsum Huang, National Taiwan University "Structure and Dynamics of the Lexicon in Chinese Character Recognition".
3. Prof. Jei-Tun Wu, National Taiwan University "Exploring the Variables Affecting Chinese Word Segmentation".
4. Prof. Chih-wei Hue, National Taiwan University "Recognition Processes of Chinese Heterophonic Homographs".
5. Prof. Daisy L. Hung, National Chung Cheng University "Exploring the Process of Lexical Access in Reading Chinese Words".
6. Assoc. Prof. Jenn-Yeu Chen, National Chung Cheng University "Speech Errors and Speech Production".
7. Assoc. Prof. Shih-Jay Tzeng, National Taitung Teachers College "Deaf Chinese Readers' Recoding Strategy in the Lexical Access and Short-term Retention of Chinese Characters.

We hope that the joint efforts of several universities and academic research organizations to strengthen basic knowledge of Chinese cognition will lead to a better understanding of mental functioning and human wisdom.

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A Report on the NSC Humanities & Social Sciences Division's "Study of the Globalization of R.O.C. Enterprises" Integrated Research Plan

In order to systematically study and analyze the potential problems that Taiwanese enterprises will encounter on the road to globalization, the NSC Humanities & Social Sciences Division's management group has appointed Professor Shih-chun Hsu of the Chang Gung College of Medicine and Technology's Industrial Management Department to lead the integrated research project—"A Study of the Globalization of R.O.C. Enterprises" during fiscal year 1996. We hope to pool of the knowledge and energy of the academic sector and conduct a comprehensive discussion and analysis of the challenges and complexity faced by globalizing enterprises. This research plan encompasses the following four aspects:

I. The macro environment and industries: This area will include analysis of national and political risks, the relationship between the government and multinational corporations that have invested locally, an analysis of the status of global industries and competition, and a study of financial organizations and standards connected with international trade.

II. Business strategies and management functions: This will include the stages of and progress towards globalization, operating and competitive strategies of global rationalization, strategies for entering international markets, conducting international acquisitions and joint ventures, the organization and structure of international enterprises, resource allocation in international enterprises, the leadership and command of international enterprises, internal control and coordination, a discussion of key factors for success, and international comparative management styles.

III. Functions of business: This category will encompass technological cooperation and technology transfer, the management of overseas production units, and financial, marketing, and human resource management strategies for international enterprises.

IV. Interactions between overseas investment and the domestic economy: This area will cover the contribution made by overseas investments, foreign trade and internal transactions of transnational corporations, government policies governing overseas investments, and the domestic macroeconomic impact of direct overseas investments.

The participants in this integrated research plan will meet at regular intervals to exchange findings and uncover potential pitfalls, thus maintaining the study's focus and raising research quality. Apart from this, it is planned to collect and present papers each year on management in the R.O.C. for the use of domestic enterprises or academic researchers. This will increase the effective impact of this study and awaken interest in research concerning the globalization of enterprises.

行政院新聞局出版事業登記證局版台誌字第〇九三三號
中華郵政北台字第一一六五號執照登記爲新聞紙類（雜誌）交寄