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ROC to Become Developed Nation In Next Decade, Premier Predicts

Premier Sun Yun-suan predicted last month the Republic of China will become a developed country in the next decade by breaking through the status quo.

Addressing the closing session of the National Development Seminar on July 26, the premier admitted that the nation will "certainly encounter an array of difficulties" in the process of transformation.

The National Development Seminar (NDS) is called upon to suggest measures to overcome these difficulties, he added.

"One crucial problem facing us is how to expedite our scientific and technological development," Sun continued. "To address this situation, the Executive Yuan last year held the second national science and technology conference, revising the nation's science and technology plans on the basis of the conclusions and proposals obtained from that convocation. The resulting plan increased the priority research projects from four to eight. In order to vigorously pursue these projects, the Executive Yuan decided to subject five relevant problems to study and discussion in this year's National Development Seminar. The resulting conclusions and proposals just submitted by the various groups are very valuable and practical. It is gratifying to note that they will significantly affect the execution of our science and technology development plan."

He stated, "when you were discussing the foregoing concerns, all of you indicated that these programs should be expedited and that you felt the major hurdle was talented manpower. In recent years, the government has given much stress to the cultivation and recruitment of talented people. It has employed various channels to enable scholars and experts from at home and abroad to contribute, both directly and indirectly, their experience and expertise to the development of our domestic science and technology. At the same time, the government has enacted many incentive measures – such as tax reductions, provision for preferential loans, and government participation in investment – to encourage scientists and other experts from at home and abroad to introduce the latest technology and to invest here in sophisticated industry. At present, 20 plants invested by scholars and experts have been set up in that connection at our Hsinchu Science-Based Industrial Park. Six others were approved last year for operations outside the park.

"Scholars and experts at home and from overseas have responded warmly to the government's call for assistance. Some have returned to teach for the purpose of cultivating the talented people required to raise research standards; others have introduced advanced scientific precepts and technology and invested in domestic production. Although their approaches differ, their aspirations and their enthusiasm in joining our national development are alike. This is indeed the firmest possible staff on which we can rely for the furtherance of our science and technology and the upgrading of our overall national development. I sincerely hope that you all will maintain contact with the related government departments and that you will continue to benefit them with your timely counsel so that we can join our minds and strengths towards this great undertaking of national development.

"I want to point out further, that this government, by stressing science and technology development, hopes mainly for concrete, effective approaches that will enable highly sophisticated technologies to take root here as early as possible. In this way, we will upgrade our industry, and improve the quality of our lives. The ultimate aim of the five subjects studied in this National Development Seminar is to raise our people's living standards – ensuring security and happiness for us all."

Sun pointed out that "President Chiang Ching-kuo has high expectations for development of our science and technology. At a recent meeting of the ruling party, he urged a concurrent cultivation and concentration of talented people. He expressed his hope that the Executive Yuan will act to improve the research environment, and to give you – scholars and experts – more support. These modalities are intended to further ensure that advanced science and technology will take root and develop here. At the same time, the President expressed his respect and appreciation to you."

A total of 119 scholars and experts, 81 from overseas, attended the seminar. They were divided into five panels dealing with the following topics:

–Computer based education: How to expand related courses in the nation's high schools and universities.

–Electro-optics: Study on the state-of-the-art and future trends in application of electro-optics to applied and basic research.

–Biotechnology: Study of genetic engineering, hybridoma and tissue culture and enzymo technology.

–Epidemic research and prevention: Study includes treatment and prevention of hepatitis disease and other epidemics.

–Food processing technology: On new trends in the industries that process vegetable fruit and meat as well as new package designs of these processed foods.

Bilingual School at Science Park Set Up

The first public bi-lingual school especially for youngsters of overseas Chinese who have come to Taiwan to work at the Hsinchu Science-based Industrial Park has been set up near the science park and will begin enrollment in September.

The government has set aside

NT$231,751,000 (some US$5.8 million) as the experimental school's budget for school year 1983 and 1984.

The school will have two divisions – an experimental department with classes for both junior high and senior high students and a bilingual department with classes for the six grades of elementary education, and three each for junior high and senior high. The experimental department will have special courses in science and technology in addition to regular courses available at ordinary public schools. All the instructors in this experimental school are master degree holders.

Cabinet Signals Green Light On Synchrotron Radiation Facility

The Executive Yuan (Cabinet) has decided to set up a synchrotion radiation facility under its immediate supervision.

Wang Sung-mao, vice chairman of the National Science Council, reported that a supervisory committee will be set up and Dr. Luke Chia-liu Yuan, a member of Academia Sinica and senior physicist of Brookhaven National Lab in Upton, New York, has been appointed chairman of the committee. Another academician, Dr. Lee C. Teng, will be in charge of the design and construction of the accelerator.

Construction of the projected facility, estimated to cost NT$700 million, will be financed with special funds the Cabinet will set aside for the purpose. The project will take five years to complete, but the construction site has yet to be decided by the supervisory committee.

Dr. Yuan said that overseas Chinese scientists are very concerned about the government's ambitious plan and most of them with expertise in this field have expressed their willingness to make a contribution.

The government is eagerly recruiting experts from home and abroad to join the supervisory committee to help realize the project.

The facility under planning will have four departments engaged in designing and construction, operation and maintenance, applications and research, and general affairs respectively.

Dr. Teng, who took charge of the design and construction of three such accelerators in the United States, said that he is confident that 90 percent of the equipment and parts of the accelerator can be supplied by domestic industries. He also pointed out the advantages of using domestically-produced equipment in terms of operation and maintenance.

NSC Orders New Research Ship From Norway

The National Science Council has signed a contract with a Norwegian shipbuilder for the construction of a lab ship.

The ship will cost NT$240 million, with delivery scheduled for October 1984. The government is building a wharf exclusively for the ship at Suao.

Premier Sun Yun-suan, in approving the deal, told the NSC to take good care of the ship, and got a pledge from the NSC that no second lab ship would be needed for the next 20 years.

The NSC will treat the ship as a "valuable floating instrument" and make it available to public and private research institutions. The National Taiwan University is drafting a measure on the utilization and maintenance of the ship.

The yet unnamed ship will be 50 meters long, 10 meters wide, and 1050 tons in weight. It is slightly bigger than the research vessel "Chiu Lien," the only one the NSC has. The Chiu Lien is a gift from the United States. It was built as a rescue tug during World War II. It was rigged as research vessel after it was given to the Republic of China over a decade ago.

The new lab ship will be better equipped than the "Chiu Lien" in every respect. The "Chiu Lien" needs 24 crew members to operate. The new ship, with automation and the latest electronics equipment, needs only 14. Thus, there will be more space to accommodate researchers.

While the "Chiu Lien" can operate only between 120 and 150 days a year, the new ship can remain at the sea for 200 to 250 days a year.

Science Park Exports High-tech Products Worldwide

The sophisticated products manufactured in the Hsinchu Science-based Industrial Park have been exported to more than 20 countries in five continents. The products included sophisticated electronics products, computers, telecommunications equipment and instruments, and materials.

The park's exports reached Japan, Hongkong, Singapore, Thailand, Indonesia, Saudi Arabia, the United States, Canada, Colombia, England, France, Austria, West Germany, Holland, Belgium, Greece, Sweden, Switzerland, Norway, Denmark, South Africa, Australia, and New Zealand, the official said.

During the first six months of this year, export volume of the products manufactured in the park totaled US$34 million. The export is projected to reach between US$80 million and US$100 million by the end of June next year, up three to four folds as compared with the export volume of 1982, it was predicted.

Up to the end of last June, the industrial park has attracted NT$3 billion investment from 45 foreign companies.

Of the total, 33 companies have started their operations, with most of their products sold abroad.

Premier Sun instructed the council to further simplify application procedures to facilitate prospective foreign firms to invest in the industrial park, when he inspected the council in mid-July.

In addition, the Premier asked the officials of the council to keep constant contacts with the existing companies in order to understand their problems. "We should do our best to help them solve their problems," Sun said.

Overseas scholars, who were attending the National Development Seminar in Taipei last month, were deeply impressed with the operation of the science industrial park after visiting the place. Some of them have presented proposals to the council for further improvement.

Of the 33 firms now in operation, thirteen are invested by overseas Chinese scholars. Until now, 58 overseas scholars have returned here to work at the park, he said.

Total employment at the park now exceeds 2700. About 40 percent of the employees are scientists and technological experts and 36 percent are college educated.

Gov't to Use NT$2.2 Billion To Step Up VLSI Development

The government will use NT$2.2 billion (US$55 million) to step up a VLSI (very large scale integrated circuits) program in this country over the next five years.

A five-year development plan for the nation's largest science and technology research program has been approved by responsible government agencies.

The Electronics Research and Service Organization of the Industrial Technological Research Institute will spend NT$240 million (US$6 million) to engage in VLSI design study and buy more necessary equipment this year.

Development of VLSI technology is currently in its initial phase in many advanced countries. Its success will be deeply related to their achievements in the electronics and national defense industries, according to the institute.

The National Science Council is planning to send young professors to study VLSI design in the United States. Moreover, it will intensify teaching programs in various universities here and combine their manpower to build up the nation's capability in basic VLSI research.

It is generally recognized that VLSIs will be the focus of design efforts by the world's electronics industry over the next 10 years. The institute called on Chinese scholars and experts at home and abroad to dedicate their wisdom to the ROC's efforts to establish a footing and a viable position in the world VLSI market.

NSC Will Keep Close Contact With Experts Abroad

Prof. Chang Ming-che, chairman of the National Science Council (NSC), said last month the NSC is consulting with the Ministry of Foreign Affairs about a plan to assign more high-tech affairs coordinators to the United States in order to bring NSC into close contact with Chinese scientists and technology specialists there.

Chang said the NSC will follow President Chiang Ching-kuo's instructions to keep close contact with experts, domestic and abroad, and appoint one high-tech affairs coordinator to each of the seven major American cities in accordance with a project mapped out by the Executive Yuan for the purpose of recruiting Senior Chinese experts.

He pointed out the NSC is now discussing this plan with the Foreign Ministry and will dispatch the additional coordinators to the United States in the near future.

The NSC has already stationed a science affairs representative in Washington D.C. charged with setting up a file on the nation's requirements and those experts qualified to fill the slots, Chang said.

The NSC reportedly also has similar representatives in Japan and France.

NSC-Supported Research Projects

Tan-feng Cheng
NSC72-0409-B002-24
A study on the commercial production of steviosides by ion-exchange resin purification

Wen-chang Chiang
NSC72-0409-B002-26
Establishment of a new flowsheet for the separation of munbean starch

Cheng-hong Chen
NSC72-0204-M002-02
Petrological study of neogene alkali rocks in northern Taiwan (II)

Jing-jer Jwo
NSC72-0204-M006-01
The application of ceric ion in organic synthesis (III)

Fu-shong Kuo
NSC72-0204-M008-02
Study of nonlinear plasma behavior in space physics by numerical simulation

Yen-shiang Shih
NSC72-0204-M011-
Thermodynamic and kinetic analysis of the reduction of carboxylic acid to alcohols

F. E. Budenholzer
NSC72-0204-M030-01
Studies in molecular scattering

Ivan J. B. Lin
NSC72-0204-M030-02
Transition metals of ylide complexes

H. M. Wan
NSC72-0204-M076a-01
Investigation of sedimentary zeolite resources in coastal range, eastern Taiwan

H. J. Shyr
NSC72-0204-M005-01
Some algebraic properties of the monoid of languages and its applications

Yang Hua
NSC72-0204-M008-03
Computational complexity and related problems in probability and statistics

Kan-nan Chen
NSC72-0204-M032-03
The catalytic applications of iron complexes in organic reactions

Ta-hsin Chow
NSC72-0204-M001-01
Diazene coordination with metal complexes

L. Y. Chen
NSC72-0204-M006-03
Strong metal support interaction in iron catalysts

Wen-jwu Wang
NSC72-0204-M032-04
The study of magnetic exchange interaction in binuclear complexes

S. N. Yang
NSC72-0204-M002-01
Unified description of pion-photoproduction and elastic pion scattering on the deuteron

C. J. Tung
NSC72-0204-M007-02
Penetration of electrons in condensed media (V)

T. H. Hseu
NSC72-0204-M007-03
19 F-nmr spectroscopic study of trifuloroacetylated proteins

Chih-kang Chou
NSC72-0204-M008-04
Plasma astrophysics and neutrino reactions

Ying-sheng Huang
NSC72-0204-M011-02
Optical and electrochemical investigation of Ruthenium dioxide; First year: Single crystal growth and properties study

Shang-shing Chou
NSC72-0204-M030-03
Stereoselective synthesis of functionalized trisubstituted and tetrasubstituted olefins

Y. C. Lai Liu
NSC72-0204-M001-03
Organonitrile complexes of transition metals

Yeau-long Tsai
NSC72-0404-E006-04
The study of water treeing phenomena in cross-linked polythylene insulation power cable

C. N. Chen
NSC72-0404-E006-13
The implementation of a FORTRAN 77 compiler

R.C.T. Lee
NSC72-0404-E007-02
An RSX-11M-like task builder

Daniel Buehrer
NSC72-0404-E007-03
Pascal compiler front end

Chi-chang Lee
NSC72-0404-E009-06
Design and implementation of C compiler

Sin-min Tsai
NSC72-0404-E011-01
Design and implementation of C compiler

Shi-lin Chen
NSC72-0404-E007-04
Decomposition method approach to power and energy systems planning

Hoo-cheng Liu
NSC72-0404-E032-01
Design and implementation of FORTRAN 77 programming language on PDP/11 series computer

K.J. Chen
NSC72-0404-E001-01
A system for Chinese typesetting

Nai-cheng Liu
NSC72-0404-E002-16
Automatic design for software system

L.Y. Kung
NSC72-0404-E006-15
Information outlet design

Chung-len Lee
NSC72-0404-E009-07
Two improved versions of electroptic light beam splitter and deflector

M. C. Chen
NSC72-0404-E009-08
Preparation, characterization and application of metal silicide film

Chung-yu Wu
NSC72-0404-E009-09
Design and fabrication of new bipolar static random access memory cells

C.M. Kwei
NSC72-0404-E009-10
Mean energy expended in silicon per electron-hole pair formed

Frank K. H. Yu
NSC72-0404-E009-11
Implementation and development of the base line CMOS and NMOS processes

Beverly C. Yu
NSC72-0404-E010-01
Computer aided electrocardiographic diagnosis (II)

Shao-shiun Chuang
NSC72-0404-E011-02
Practical design of universal active filterusing generalized-immittance converters (GIC)

Meng-kun Lu
NSC72-0402-E006-11
Effects of surface area and degree of cross linkage of ion exchange resin containing metal ion catalyst for the production of peracetic acid from acetaldehyde

Chau-jen Lee
NSC72-0402-E007-07
Performance charac terization and evaluation of dialyzers and its clinical strategy on patients' administration

Winnie Wu
NSC72-0402-E002-08
Exploratory study of metal borides (II) Reaction engineering study of hydrodealkylation of tolence and the hydrogenation of phenol and nitrobenzene

Min-hsiung Hon
NSC72-0405-E006-07
Sintering of high-purity alumina

Min-shiung Hon
NSC72-0405-E006-08
Effects of the additives in the sintering of SiC

Nan-chung Wu
NSC72-0405-E006-09
Effect of sintering parameters on the magnetic properties and structure of iron-silicon strip

Tso-min Shih
NSC72-0405-E006-10
The feasibility studies of the underground stage mining method for mining Chin-Chan-Shan Dolomite Vein, Hualian Hsien, Eastern Taiwan

Jong-min Liu
NSC72-0405-E030-01
High performance epoxy coatings from UV irradiation

Frank Tieh-yin Fu
NSC72-0405-E030-02
The synthesis of sodium naphthalene sulfonate-formal dehyde condensate, and the effect of its molecular weight distribution on concrete admixtures

Chao-kung Chen
NSC72-0201-E026-01 (a)
Robotic system: Microprocessor control of articulated rovot arm with three degree of freedom 764,000

Chien-Ming Chao
NSC72-0201-E006-01(b)
Robotic system: Rudimentary vision and tactile sensing system for robot 897,000

You-li Chou
NSC72-0201-E006-02
Dynamic stress analysis and experiment of human ankle joint under various locomotions/application to the design and development of specific functional shoes 3,398,400

Cheng-ping Chiu
NSC72-0201-E006-03
Diagnostic analysis of an injection molding by time series of the cavity pressure data 1,436,857

Yin-mou Wang
NSC72-0201-E006-04
Study on the model tests of five-story precast panel walls under quasistatic loadings 289,000

Kon-kee Liu
NSC72-0407-M001-01
Hydrogen and oxygen isotopic studies of meteoric waters of Taiwan, hydrous minerals in altered igneous rooks of Tatun Volcanic area, and foraminifera from S. China Sea 516,000

Su-cheng Pai
NSC72-0407-M019-01
A study on the determination of dissolved phosohorus in sea water at low levels 365,000

C.T. Shyu
NSC72-0407-N002a-01
Heat flow survey in the I-lan offshore area 1,675,000

Kuang-lung Fan
NSC72-0407-M002a-02
The study of the currents in the vicinity seas along the eastern and northern coasts of Taiwan (I) 489,000

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NSC72-0407-M002a-03
The structure of the bottom current of Kuroshio at east-Taiwan offshore 346,000

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