



# **NAST**

## **Annual Report**

### **1994**

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**NATIONAL ACADEMY OF SCIENCE AND TECHNOLOGY**  
**Republic of the Philippines**

**NAST**  
**Annual Report**  
**1994**

**NATIONAL ACADEMY OF SCIENCE AND TECHNOLOGY**  
**TAPI Bldg., DOST Compound**  
**Bicutan, Taguig, Metro Manila**



## FOREWORD



The National Academy of Science and Technology, the recognition and advisory body on science and technology, presents this annual report on the Academy's programs and activities for Calendar Year 1994.

A handwritten signature in black ink, which appears to read "Conrado S. Dayrit". The signature is fluid and cursive, written in a professional style.

**CONRADO S. DAYRIT, M.D.**

*President*

## CONTENTS

NAST Recognition Functions	
National Scientist Awards	1
Newly -Elected Academician	1
Benefits of Academicians	1
1994 Outstanding Young Scientists	3
1994 NAST-TWAS Science Prize Awardee	7
1994 Outstanding Published Paper Award (OPPA)	7
1994 Outstanding Publications	9
Mobilization of the OYS Awardees	10
Media Exposure	11
On Advisory Activities	13
Guidelines for Researchers on Ethics and Procedures	13
16th Annual Scientific Meeting of the Academy (ASM)	13
Bioprospecting	21
Speakers Bureau	22
Science Heritage Center	22
Advice	22
International Linkages	27
Administrative Matters	32
Officers	32
Secretariat	32
NAST Budget	33
Sidelights	34
Appendix A	46
Appendix B	51

# **NATIONAL ACADEMY OF SCIENCE AND TECHNOLOGY 1994 ANNUAL REPORT**

The Academy presents its accomplishments for the calendar year 1994 in pursuit of its mandated functions of recognition, advisory, and establishment of international linkages.

## **1. RECOGNITION FUNCTIONS**

### **1.1 National Scientist Awards**

President Fidel V. Ramos conferred the rank and title of National Scientist, the highest recognition given to a man of science in the country, to Academicians Clara Y. Lim-Sylianco and Pedro B. Escuro.

Academician Lim-Sylianco is one of the foremost Filipino scientists and acclaimed teachers in the field of biochemistry. Her numerous discoveries of environmental mutagens culminated in the designation of her laboratory at the University of the Philippines as an international training center for the detection of chemical mutagens by the Council of Research Planning in Biological Sciences, Washington, D.C., U.S.A. in 1986 and her appointment as a member of the International Advisory Committee on Antimutagens in 1989.

Academician Escuro is an internationally recognized plant breeder, geneticist, scholar, and teacher. His researches led to the development of superior rice varieties, like the classic C4-63, which are high yielding; resistant to many diseases and insect pests, superior in eating quality, and which have become the standard for high quality rice in the Philippines as well as in many other Asian countries.

### **1.2 Newly-Elected Academician**

The Academy elected Dr. Perla D. Santos-Ocampo, pediatrician and chancellor of UP Manila. This brings the membership of the Academy to 47.

Academician Santos-Ocampo is being recognized for her outstanding works and accomplishments in the twin scourges of diarrhea and malnutrition. Her work in diarrheal diseases contributed to the elucidation of etiologic factors and planning of control measures that merited international recommendation for implementation in oral rehydration and nutritional management.

### **1.3 Benefits of Academicians**

- a. The National Academy of Science and Technology supported ten Academicians as research fellows.

**CONFERMENT OF THE RANK AND TITLE  
NATIONAL SCIENTIST**



*His Excellency Fidel V. Ramos conferred the rank and title "National Scientist" to Doctor Pedro B. Escuro and Doctor Clara Y. Lim -Sylianco. Witnessing the awarding are Secretary W. G. Padolina, Acd. C. S. Dayrit, Mr. Sylianco, Mrs. Escuro, and Miss Samarita.*

**TABLE 1. 1994 Research Fellows and Their Projects**

ACADEMICIAN	TITLE OF PROJECT	DURATION
Clare R. Baltazar	Volume III of Inventory of Philippine Insects (Order Hymenoptera)	May 1, 1993 to April 30, 1994
Luz Oliveros-Belardo	Study of the Volatile Oil of <i>Nothopanax fruticosum</i> (L.) Miq.	April 1, 1993 to March 31, 1994
Carmen C. Velasquez	Index Catalogue of Parasites Reported from Philippine Vertebrates	July 1, 1993 to June 30, 1994
Bienvenido C. Juliano	Cereal Chemistry	July 1, 1993 to June 30, 1994
Filomena F. Campos	National Sustainable Geosphere Biosphere Project (NSGBP)	June 1, 1993 to May 31, 1994
Clara Y. Lim-Syllanco	Biochemical Catalysis	July 1, 1993 to June 30, 1994
Melecio S. Magno	Science Policy in the Philippines	Nov. 1, 1993 to Oct. 31, 1994
José Encarnación Jr.	On Two Long-Run Models: A Research Proposal	June 1, 1994 to May 31, 1995
Dolores A. Ramirez and Evelyn Mae T. Mendoza	The Makapuno Mutant Coconut	Sept. 1, 1994 to Aug. 31, 1995

- b. NAST gave travel assistance to Acd. Filomena F. Campos to (a) attend the 81st Session of the Indian Science Congress Association on January 3 - 8, 1994 at New Delhi, India and (b) participate in the International Forum on Biodiversity on September 5 - 9, 1994 in Paris.
- c. In honor of the late National Scientist Dioscoro L. Umali, the Academy held the Second Lecture of the Umali Lecture Series on September 26, 1994 at UP Diliman. The distinguished speaker was Professor Yoichiro Murakami of the Tokyo University.
- d. The Academy coordinated the necrological services and state funeral of the late National Scientist Carmen C. Velasquez. She passed away on October 16, 1994 due to a heart ailment, thus bringing the NAST membership to 46.

#### **1.4 1994 Outstanding Young Scientists**

The Academy gave the 1994 Outstanding Young Scientist awards to ten promising scientists. The awardees were: Teresita H. Borromeo, M.S. Plant Genetics Resources Conservation and Management; Sergio S. Cao, Ph.D. Mathematics; Elda B. Esguerra, Ph.D. Postharvest Horticulture; Desiree I. Menancio-Hautea, Ph.D. Plant Genetics and Breeding; Gil S. Jacinto, Ph.D. Oceanography; Terencio D. Lacuesta,

Ph.D. Physics; Manuel L. Logroño, Ph.D. Plant Breeding and Genetics; Marie Antonette Juinio-Menez, Ph.D. Marine Biology; Cherrie L. Bunag-Pascual, Ph.D. Analytical Chemistry; and Cecilia P. Reyes, Ph.D. Entomology.



*Acad. C. S. Dayrit (NAST Pres.) assisted by Acad. D. R. Ramirez (NAST Vice-Pres.) in placing Acad. P. D. Santos-Ocampo's hood.*



*The Outstanding Young Scientist Awardees: (L-R) G. S. Jacinto, S. S. Cao, D. I. Menancio-Hautea, C. L. Bunag-Pascual, C. P. Reyes, E. B. Esguerra, T. H. Borromeo, M. A. Juinio-Meñez, T. D. Lacuesta, M. L. Logroño, and NAST-TWAS Science Prize Awardee in Biology - Helen T. Yap.*

**Table 2. OUTSTANDING YOUNG SCIENTISTS AND THEIR ACHIEVEMENTS**

<b>AWARDEE</b>	<b>EDUCATIONAL ATTAINMENT</b>	<b>MAILING ADDRESS AND TEL. NO.</b>	<b>SIGNIFICANT CONTRIBUTIONS TO SCIENCE</b>
CHERRIE L. BUNAG-PASCUAL	Ph. D. Analytical Chemistry UP Diliman	Institute of Chemistry UP Diliman, Quezon City Tel. No. 995071 loc. 6410	Pioneering works on the trace metal speciation of Laguna Lake.
TERENCIO D. LACUESTA	Ph. D. Physics Murdoch University Murdoch, Western Australia	Institute of Mathematical Sciences and Physics College of Arts and Sciences UP Los Baños, Laguna	Significant researches fundamental to the development of new technology utilizable in the fabrication of electronic devices.
SERGIO S. CAO	Ph. D. Mathematics UP Diliman	Office of the University Registrar UP Diliman, Quezon City Tel. No. 986084	Outstanding achievement in the field of integration in Mathematics specifically the development of the theory of the "Henstock integral for Banach-valued Functions"
MARIE ANTONETTE JUNIO-MEÑEZ Island, Kingston, RI	Ph. D. Marine Biology University of Rhode Island	Marine Science Institute UP Diliman, Quezon City Tel. No. 974355	Significant multidisciplinary researches on the feeding and the reproductive and larval ecology of marine invertebrates
CECILIA P. REYES	Ph. D. Entomology University of Alberta Edmonton, Canada	Graduate School Emilio Aguinaldo College 918 Gonzalez Street Ermita, Manila	Outstanding contributions in entomology, particularly on the systematics of thrips (Thysanoptera), of which she is a leading authority in the Philippines.
DESIREE I. MENANCIO-HAUTEA	Ph. D. Plant Genetics and Breeding University of Illinois at Urbana-Champaign, USA	Institute of Plant Breeding UP Los Baños, Laguna Tel. No. 2298, 2339, 3304	Outstanding contributions towards the development of the first genetic maps of mungbean and cowpea using DNA markers, species

Table 2 Cont.

			relationships in wild soybeans, and <i>Cercospora</i> leaf spot disease resistance in mungbean.
MANUEL L. LOGROÑO	Ph. D. Plant Breeding and Genetics University of Hawaii Manoa, Honolulu,	Institute of Plant Breeding UP Los Baños, Laguna Tel. No. 2298, 2512	Significant contributions to corn breeding research that led to the development of high-yielding yellow corn hybrids, now part of the Grains Production Enhancement Program of the Department of Agriculture and development of the first double endosperm mutant variety approved for release by the Philippine Seed Board.
ELDA B. ESGUERRA	Ph. D. Postharvest Horticulture Ehime United Graduate School of Agricultural Sciences, Kagawa University, Japan	Postharvest Horticulture Training and Research Center UP Los Baños, Laguna Tel. No. 3259, 244	Significant contributions to post-harvest physiology and handling of mango, tomatoes, and onions resulting in economic benefits
TERESITA H. BORROMEO	M. S. Plant Genetics Resources Conservation and Management UP Graduate School College, Laguna	Department of Agronomy UP Los Baños, Laguna Tel. No. 2466, 2468	Significant contributions to the solution of the problems of loss of traditional and wild rice and to the increase of public awareness of the importance of germplasm conservation
GIL S. JACINTO	Ph. D. Oceanography University of Liverpool England	Marine Science Institute UP Diliman, Quezon City Tel. No. 974355	Pioneering work in chemical oceanography, particularly on nutrients and trace elements in seawater and marine sediments

**1.5 1994 NAST-TWAS Science Prize Awardee**

Maria Helena T. Yap, Ph.D., marine biologist and professor at UP Diliman is the 1994 NAST - TWAS Science Prize awardee. This is in recognition of her work in the field of marine ecosystem energy dynamics and ecology of coral reefs and sediment communities contributing to the identification of inter-regional marine environmental problems and cooperation of scientists in this field in Asia.

**1.6 1994 Outstanding Published Paper Award (OPPA)**

To encourage scientists to publish their research results in Philippine scientific journals as well as to give local journals a chance to flourish and improve in quality, the Outstanding Publication (OP) and the Outstanding Published Paper (OPPA) awards were given.

**TABLE 3. 1994 OUTSTANDING PUBLISHED PAPERS AND THEIR SIGNIFICANCE**

<b>TITLE OF PUBLISHED PAPER</b>	<b>AUTHOR/S</b>	<b>PUBLICATION</b>	<b>SIGNIFICANT CONTRIBUTION TO SCIENCE</b>
Higher Order Correlation Functions and Correlation Dimensions of Chaotic Systems without Noise and Chaotic Systems with Noise	Manuela Fe H. Tarroja Victor Arnie Sicam	<i>NRCP Research Journal</i> 1(1): 50 - 70 (1992)	In this paper, other properties such as the phase plots, return maps correlation dimensions, and correlation functions are used to identify signatures of chaos. A period-doubling route to chaos in a xenon laser has been confirmed by a calculation of the correlation dimension. The effect of smoothing on the dynamical properties of the chaotic signal has also been examined. The results suggest that at least for the type of noise associated with the detection process, smoothing can unravel fine features of chaos that are usually smeared by the presence of noise. Finally, signatures of chaos have been identified using higher-order correlation functions.
Facilitated Leaching of Pyrite from a Refractory Gold Ore by <i>Thiobacillus ferrooxidans</i>	Roy Roberto L. Gerona Ernesto J. del Rosario	<i>Philippine Journal of Biotechnology</i> 2(1): 43 - 59 1991	This paper deals with pyrite solubilization from a refractory gold ore by the sulfur bacterium <i>Thiobacillus ferrooxidans</i> . A bacterial concentration of 10 cells/ml was effective in bioleaching; this was enhanced by aeration and CO <sub>2</sub> supplementation. The results show the feasibility of microbial leaching for enhancing gold recovery from refractory ores.
Electrochemical Synthesis of Electronic and Ionic Conductive Polymer Composite Polyaniline / PEO Network	Florentino C. Sumera Naoya Ogata	<i>Kimika</i> 9: 43-51 (1993)	This paper reports the feasibility of constructing a bilayer of functional polymers, one acting as an electronic conducting surface, while the other, as an ionic conducting matrix. This bilayer

# NAST 1994 Annual Report

Table 3 cont.

TITLE OF PUBLISHED PAPER	AUTHOR/S	PUBLICATION	SIGNIFICANT CONTRIBUTION TO SCIENCE
Protoplast Formation, Regeneration, and Fusion in <i>Bacillus polymyxa</i>	Asuncion K. Raymundo Virginia G. Cadiz-Padre Susana F. de los Santos	<i>Journal of Fermentation and Bioengineering</i> 71(1220): 430-432 (1991)	can be useful in the fabrication of light, thin film and rechargeable plastic batteries where the polyaniline layer serves as redox surface as well as conductor plate; the PEO network serves as a solid electrolyte when soaked in salt solution and then dried. A 3.0 V initial potential was obtained when one of the electrodes is a sheet of lithium metal while the system behaved as a rechargeable battery. One of the future uses of this kind of battery could be in conjunction with solar energy photovoltaic cells for solar energy shortage purposes.
Molluscicidal Activity of <i>Derris elliptica</i> (Fam. Leguminosae)	Prem Naath Maini Belen Morallo-Rejesus	<i>The Philippine Journal of Science</i> 122(1): 61-75 (1993)	This paper demonstrated the toxic action and effectiveness of extracts from <i>Derris</i> roots for controlling golden snail, a major pest of rice in the Philippines. For the first time, the molluscicidal rotenoid principles were isolated. A rotenone - free <i>Derris</i> water extract which is non-toxic to fish but toxic to golden snail was obtained by heating with or without soap. This extract is an environment-friendly and economical control agent for golden snail which can be prepared easily by the farmers.
Commercial Honey in the Philippines. I. Pollen Grain Analysis. II. Physical and Chemical Properties	Ma. Aurora D. Tilde Pacífico C. Payawal	<i>The Philippine Agriculturist</i> 75 (1 & 2): 81-87 & 89-91 (1992)	The research work generated the data needed to promote bee keeping in the Philippines. Bee keeping is a potentially profitable income-generating project in a tropical country like the Philippines with its rich tropical vegetation of flowering plants. Furthermore, honey bees are efficient pollinating agents of crop plants that can boost productivity. But in spite of these realities, bee keeping in the country has not progressed much even though apiculture was introduced as early as the 1930's. This is because of two major reasons, namely:

Table 3 cont.

TITLE OF PUBLISHED PAPER	AUTHOR/S	PUBLICATION	SIGNIFICANT CONTRIBUTION TO SCIENCE
Solving the Philippine <i>Meloidogyne</i> Problem	Sr. Julita S. Ruela Gina Tancinco	<i>University Journal-University of San Carlos Graduate School</i> 10(1): 60-77 (1993)	(1) The local pollen grains and nectar sources of honey bees have not been identified - information vital to honey bee management, and (2) The absence of baseline information for the formulation of national standards for honey products - control measures necessary to prevent honey adulteration and the sale of fake honey products.
Utilization of Goat's Milk in the Local Production of Blue- and Camembert-Type Cheeses	Clara L. Davide C. P. Reforma I. G. Sarmago L. E. Sarmago	<i>The Philippine Agriculturist</i> 73(1): 11-18 (1990)	This paper reports the gross composition of local goat's milk and its technological suitability in Blue and Camembert cheese production. The local technologies for making these mold-ripened cheeses and evaluating cheese yield, quality, and consumers acceptability are described.

**Table 4. 1994 OUTSTANDING PUBLICATIONS AND THEIR SIGNIFICANCE**

TITLE OF PUBLISHED PAPER	AUTHOR/S	PUBLICATION	SIGNIFICANT CONTRIBUTION TO SCIENCE
In the Shadow of the Lingerin Mt. Pinatubo Disaster	Ma. Cynthia Rose Banzon, ed.	Quezon City: College of Social Sciences and Philosophy, University of the Philippines Diliman and Center for Asian Studies Amsterdam, 1993	This book provides an overview of the effects of the eruption of Mt. Pinatubo on the physical, social, economic, and political landscape of Central Luzon. Focusing on the experience of Concepcion, Tarlac, it highlights the dynamics, opportunities, and problems which exist in similarly afflicted municipalities. The book embodies a seldom achieved interdisciplinary cooperation among physical and social scientists as well as the rapport established between the scientists as well as the rapport established between the scientists on one hand, and the communities at risk, on the other.
Fishers, Traders, Farmers Wives: The Life Stories of Ten Women in a Fishing Village	Jeanne Frances I. Ilo Jaime B. Polo	Quezon City: Institute of Philippine Culture, Ateneo de Manila University, 1990	This volume reflects the experiences of a group of women and their families with a changing environment embodied in a shifting coastal resource base, fluctuations in market demand for fishery products, and developments in fishing technologies. These changes, and the effects

Table 4 cont.

TITLE OF PUBLISHED PAPER	AUTHOR/S	PUBLICATION	SIGNIFICANT CONTRIBUTION TO SCIENCE
			they had on women and on their relationship with men, were mirrored in the women's life stories, resulting in layers of stories and in the interweaving of the macro with the micro, as seen and articulated by women. By demonstrating the dynamic relationship between technology and its users, the research points to an alternative not only of assessing technologies but also of understanding women's and men's realities into which technology or other forces interject themselves.

**1.7 Mobilization of the OYS Awardees**

The Academy in coordination with DOST started the project called "OYS on the Go" where OYS awardees were given financial assistance to do research work.

**TABLE 5. DOST-NAST "OYS ON THE GO" UPDATES**

PROJECT TITLE	PROPONENT	STATUS	AMOUNT
Chemistry of Selected Plants with Antituberculosis Potentials	Dr. Alicia M. Aguinaldo	Ongoing with PCHRD as the monitoring agency. P111,000.00 was given to PCHRD to fund the project last April 1994.	P 111,000.00
Across-Arc Variation in the Pinatubo-Arayat Transect: Source Region Characteristics: Partial Meeting Signatures or Distinct Tectonic Blocks	Dr. Graciano P. Yumul, Jr.	Ongoing with PCIERD as the monitoring agency. P100,000.00 was given to PCIERD to fund the project last July 1994.	P 100,000.00
Enhancement of the Growth and Survivorship of Laboratory-Cultured Sea Urchin <i>Tripneustes gratilla</i>	Dr. Marie Antonette Junio-Meñez	MOA for signature of Dr. Rafael D. Guerrero III, Dr. Conrado S. Dayrit, and Secretary William G. Padolina. Requested amount to fund the project is P176,828.00	P 176,828.00
Agronomic and Biochemical Evaluations of "Nutrisweet"	Dr. Manuel L. Logroño	MOA for signature of Dr. William D. Dar, Dr. Conrado S. Dayrit, and Secretary William G. Padolina. Requested amount to fund the project is P100,000.00	P100,000.00

Table 5 Cont.

PROJECT TITLE	PROPONENT	STATUS	AMOUNT
Postharvest Behavior of Promising Banana Cultivars with Export Potential	Dr. Elda B. Esguerra	MOA being revised by UPLB for signature P 99,633.00 of Dr. Ruben L. Villareal (UPLB Chancellor), Dr. William D. Dar, Dr. Conrado S. Dayrit, and Secretary William G. Padolina. Requested amount to fund the project is P 99,633.00	
A General Theory of Banach-valued Henstock Integration	Dr. Sergio S. Cao	MOA was transmitted to PCARRD for P 100,000.00 signature of Dr. William D. Dar, Dr. Conrado S. Dayrit, and Secretary William G. Padolina. Requested amount to fund the project is P 100,000.00	
		T O T A L	P 687,461.00
		Fees for Evaluators	P 8,100.00
			P 695,561.00

**PROJECT PROPOSALS STILL BEING EVALUATED FOR APPROVAL**

PROJECT TITLE	PROPONENT	STATUS	Amount to be Funded
Surface Photovoltage Study of Device Type Silicon and III-V Compound Semiconductors	Dr. Terencio D. Lacuesta	Revised copy of proposal based on comments received was transmitted to PCASTRD for final evaluation last 11-29-94.	P 107,400.00
Electroanalysis of Selected Organo phosphorus Pesticides in the Aquatic Environment	Dr. Cherrie Bunag-Pascual	Awaiting PCARRD's Evaluation. Referral letter sent	P 100,000.00
Thrips ( <i>Haplothrips gangibaueri</i> Schmutz, as Biological Control Agent of Rice Stemborers	Dr. Cecilia P. Reyes	Awaiting PCARRD's evaluation. Referral letter sent	P 178,000.00
Synthesis of Novel Macrocycles Containing the Tetrathiafulvalene and sugar units	Dr. Gerardo C. Janairo	Awaiting PCASTRD's evaluation. Referral letter sent	P 152,000.00
		T O T A L	P 537,400.00

**1.8 Media Exposure**

NAST members and awardees were interviewed in radio and television stations.

**TABLE 6. NAST RADIO INTERVIEWS REPORT**

DATE	NAME OF INTERVIEWEE	STATION / HOST
February 15, 1994	Acd. Alfredo V. Lagmay National Scientist NAST, TAPI Building DOST Cpd., Bicutan, Taguig, M. M.	Ms. Julie Fernando DZEM, 11:00 - 12:00 Noon
August 5, 1994	Ms. Luningning E. Samarita Executive Director NAST, TAPI Building DOST Cpd., Bicutan, Taguig, M. M.	Ms. Mely Tenorio DZRB, 10:00 - 10:30 A.M.
August 8, 1994	Ms. Luningning E. Samarita Executive Director NAST, TAPI Building DOST Cpd., Bicutan, Taguig, M. M.	Ms. Susan Layos DZRM, 11:00 - 12:00 Noon
September 16, 1994	Dr. Clara Y. Lim-Syllanco National Scientist NAST, TAPI Building DOST Cpd., Bicutan, Taguig, M. M.	Ms. Betty Mendez DWAN, 11:00 - 12:00 Noon
October 14, 1994	Mr. Redocindo L. Santillan Information Officer V NAST, TAPI Building DOST Cpd., Bicutan, Taguig, M. M.	Ms. Betty Mendez DWAN, 11:00 - 12:00 Noon
October 28, 1994	Prof. Teresita P. Acevedo Member, Steering Committee International Conference on Food Preservation and Security	Mr. Francis Flores DZNN (Radio Veritas) 8:00 - 9:00 A.M.
October 31, 1994	Dr. Cecilia P. Reyes Outstanding Young Scientist '94 Graduate School Emilio Aguinaldo College, Manila	Ms. Susan layos DZRM, 11:00 - 12:00 Noon
November 7, 1994	Dr. Conrado S. Dayrit President NAST, TAPI Building DOST Cpd., Bicutan, Taguig, M.M. & Hon. William G. Padolina Secretary Department of Science and Tech. Bicutan, Taguig, Metro Manila	Mr. Bobby Guanzon DZBB, 8:00 - 9:00 A.M. & Ms. Jessica Soho Kape at Balta, 8:00 - 9:00 A.M. Channel 7 (Simulcast in radio and TV stations)

**2. ON ADVISORY ACTIVITIES**

**2.1 Guidelines for Researchers on Ethics and Procedures**

Acad. Magno and the Committee on Ethics finalized, after several consultations, the first edition of the guidelines. It was printed and disseminated to research institutions.

**2.2 16th Annual Scientific Meeting of the Academy (ASM)**

The 16th Annual Scientific Meeting of the Academy with the theme "Visions for Philippines 2000" was held on 13-14 July 1994 at the Philippine International Convention Center, Manila. The keynote speaker was Dr. Cielito F. Habito, Director-General, National Economic and Development Authority. Six plenary papers were presented.

**TABLE 7. 16TH ASM PROGRAM COMMITTEE**

Name	Position
Acad. Jose O. Juliano	Chair
Acad. Dolores A. Ramirez	Member
Acad. Gelia T. Castillo	Member
Acad. Mercedes B. Concepcion	Member
Acad. Teodulo M. Topacio, Jr.	Member
Acad. Melecio S. Magno	Member
Acad. Magdalena C. Cantoria	Member
Acad. Edgardo D. Gomez	Member
Acad. Ernesto O. Domingo	Member
Acad. Ramon F. Abarquez, Jr.	Member

**TABLE 8. PLENARY SPEAKERS AT THE 16TH ANNUAL SCIENTIFIC MEETING**

SPEAKER	ADDRESS	TITLE OF PAPER
Dr. Ernesto O. Domingo	Academician Liver Study Group UP-PGH Taft Avenue, Manila	Issues on Population: Nutrition, Children, Public Health, and Healthcare Financing
Dr. Ponciano S. Intal, Jr.	President Philippine Institute for Development Studies NEDA sa Makati Building Amorsolo St., Makati, Metro Manila	The Challenge of Economic Restructuring Toward NICdcm: Issues for the Economics and Statistics Research Sector

## NAST 1994 Annual Report

Table 8 Cont.

SPEAKER	ADDRESS	TITLE OF PAPER
Dr. Ruben L. Villareal	Academician; Chancellor University of the Philippines Los Baños College, Laguna	Filipino Plant Scientists' Answer to STAND 2000
Dr. Cecilia R. Arboleda	Dean College of Agriculture University of the Philippines Los Baños College, Laguna	State of the Art in Animal Sciences
Mr. Maximo T. Kataw, Jr.	President Haribon Foundation, Inc. Liberty Building, Pasay, Metro Manila	Issues on Environmental Science and Sustainable Development
Dr. Francisco L. Viray	President National Power Corporation Quezon City	Energy Needs in Industry

Some 80 poster papers in different fields were presented.

**TABLE 9. POSTER PAPERS PRESENTED AT THE 16TH ANNUAL SCIENTIFIC MEETING**

POSTER SESSION	AUTHOR/S	TITLE OF PAPER
Mathematical, Physical, and Engineering Sciences	Leonorina G. Cada Institute of Chemistry College of Science, University of the Philippines, Diliman, Quezon City	Side Chain Liquid Crystal Polymers as Binders in PDLC Films
	Raoul E. Cawagas SCITECH R & D Center Polytechnic University of the Philippines Sta. Mesa, Manila	Foundations of Pseudogroup Theory
	Raoul E. Cawagas and A. Z. Rosal SCITECH R & D Center Polytechnic University of the Philippines Sta. Mesa, Manila	AXIOMS - An Algorithm for the Analysis of Finite Algebraic Structures
	Samuel S. Franco, R. C. Castro, C. S. Sambo, and H. L. Layaoen National Tobacco Administration Batac, Ilocos Norte	Passive Solar Energy System for Crop and Food Drying
	Chay B. Pham and N.C.G. Liwag BIOTECH, University of the Philippines Los Baños College, Laguna	Development of New Process for Coconut Oil Extraction
	Samuel S. Franco, R.V. Dejepto, and D.C. Pondoc National Tobacco Administration Batac, Ilocos Norte	Lahar and Sand Dunes as Raw Materials in the Manufacture of Structural Clay Products
	Nena V. Rodriguez and O.S. Wolfbeis Research Center for the Natural Sciences, University of Sto. Tomas España, Manila	Design of Highly Stable Optical pH for Bio-Reactor Monitoring

Table 9 Cont.

POSTER SESSION	AUTHOR/S	TITLE OF PAPER
	Fortunato B. Sevilla III Research Center for the Natural Sciences, University of Santo Tomas España, Manila	Piezoelectric Quartz Resonator as a Biosensing Device for Odorant Molecules
Biological Sciences	Cecilia B. Amoroso Department of Biology Central Mindanao University Musuan, Bukidnon	Morpho-Anatomical Studies of <i>In Vitro</i> Cultured Node Explants of <i>Dioscorea</i> <i>alata</i> L.
	Victor B. Amoroso Central Mindanao University Musuan, Bukidnon	Studies of Some Useful Ferns in Mindanao
	Adoracion T. Arañez and M. B. I. Bacano Natural Sciences Research Institute College of Science, University of the Philippines Diliman, Quezon City	Homozygosity and Field Performance of Spineless <i>Ricinus communis</i> L.
	Evelyn Battad-Bernardo, S. Negoro, and I. Urabe Natural Sciences Research Institute College of Science University of the Philippines Diliman Quezon City	Screening and Characterization of Microorganisms for Coal Biosolubilization
	Nellie C. Lopez Institute of Biology, College of Science University of the Philippines Diliman Quezon City	Metazoan Parasites from Three Species of Philippine Groupers
	Glorina N. Pocsidio and E.S. Catap Institute of Biology, College of Science University of the Philippines Diliman Quezon City	Glycine in Fish Central Nervous System After Exposure to Manganese
	Prima C. Ragudo-Franco and K. H. Neelson Mariano Marcos State University Batac, Ilocos Norte	Cloning of the Red Pigment Genes of <i>Xenorhabdus luminescens</i> HM1 <sup>o</sup>
	Asuncion K. Raymundo Institute of Biological Sciences University of the Philippines Los Baños College, Laguna	Utilization of Polymerase Chain Reaction in Cloning and Sequencing of Genes: <i>Xanthomonas oryzae</i> pv. <i>oryzicola</i>
Agricultural Sciences	Elizabeth B. Alupias and B.T. Gayao Benguet State University La Trinidad, Benguet	Impact of Sweetpotato Based Household and School Gardening Project
	Zosimo M. Battad and G. M. R. Recta Mariano Marcos State University Batac, Ilocos Norte	Growth Performance of Goats Fed with Napier, Supplemented with Des- manthus at Two Rates and Feeding Intervals
	Ricardo C. Braza Paper Industries Corporation of the Philippines Tabon, Bislig, Surigao del Sur	Stem Borers Attacking <i>Gmelina</i> <i>arborea</i>

# NAST 1994 Annual Report

Table 9 Cont.

POSTER	SESSION	AUTHOR/S	TITLE OF PAPER
Agricultural	Sciences (Cont.)	<p>Neñita D. Cacayorin, M. D. Damo, A.D. Solsoloy, and T. S. Solsoloy Cotton Research and Development Institute, Batac, Ilocos Norte</p> <p>Rogelio R. Caluya and C. C. Sevilla Mariano Marcos State University Batac, Ilocos Norte</p> <p>Rogelio R. Caluya and C. C. Sevilla Mariano Marcos State University Batac, Ilocos Norte</p> <p>Reynaldo C. Castro, S. C. Agrupis J. R. Garcia, J. L. Lorenzo, and M. L. M. Palada, National Tobacco Administration, Batac, Ilocos Norte</p> <p>Luciana T. Cruz, F. P. Julian, El. V. Santiago, and G. A. Rosario Cotton Research and Development Institute, Batac, Ilocos Norte</p> <p>Bayani M. Espiritu, J. E. Remoquillo, L. B. Willauer, and C. Coroza BIOTECH, University of the Philippines Los Baños College, Laguna</p> <p>Zenaida N. Ganga, E. O. Badol, B.A. Anselmo, M. C. T. Posa, and C. C. Sagudan Benguet State University La Trinidad, Benguet</p> <p>Dominador G. Gonzal, L. U. dela Cruz, and D. P. Garrity Department of Forestry Visayas State College of Agriculture Baybay, Leyte</p> <p>Betty T. Gayao, E. B. Alupias, J. M. Sim, H. L. Quindara, I. C. Gonzales, and E. O. Badol Benguet State University La Trinidad, Benguet</p> <p>Manuel L. Lagroño, A. B. Burgonio, F. M. Rodriguez, and E. P. Gibas Institute of Plant Breeding College of Agriculture University of the Philippines Los Baños College, Laguna</p> <p>Jab M. Matias Dairy Training &amp; Research Institute</p>	<p>Beneficial Arthropods Regulating Population of Major Insect Pests on Cotton</p> <p>Effects of Calcium and Phosphorus Supplementation on Some Production and Reproduction Parameters in Growing Philippine Indigenous Sheep</p> <p>Calcium and Phosphorus Requirements of Growing Philippine Indigenous Sheep</p> <p>Development of Other Uses of Tobacco</p> <p>Performance and Constraints to Adoption of Cotton Production Technologies</p> <p>Microbial Inoculation for Quality Organic Fertilizers from Farm Wastes</p> <p>Participatory on-Farm Sweetpotato Varietal Evaluation Selection in the Philippine Highlands</p> <p>Performance of <i>Gmelina arborea</i> with Vam Inoculation in Acid Soil</p> <p>Sweetpotato Household Gardening Development</p> <p>Development of Double Endosperm Mutant Varieties in Maize</p> <p>Body Temperature, Respiratory Frequency, and Heart Rate Patterns</p>

Table 9 Cont.

POSTER	SESSION	AUTHOR/S	TITLE OF PAPER
Agricultural Sciences (Cont.)		University of the Philippines Los Baños College, Laguna	under Thermoneutral and Short-Term Thermal Stress in Goats
		Teodoro C. Mendoza Department of Agronomy University of the Philippines Los Baños College, Laguna	Challenges and Prospects of Sustaining Sugarcane Productivity
		Mariano B. de Ramos Institute of Mathematical Sciences and Physics, University of the Philippines Los Baños College, Laguna	Maximum Likelihood and Bayesian Estimators for Insect Damage on Rice
		Violeta B. Saldá Benguet State University La Trinidad, Benguet	Postharvest Loss Assessment in Yambean and Ginger of Various Handling Points
		Aida D. Solsoloy and B. M. Rejesus Cotton Research and Development Institute, Batoc, Ilocos Norte	Hormonal Effect of <i>Jatropha curcas</i> L. Oil on <i>Helicoverpa armigera</i> (HUBN.)
		Leonila M. Tolentino, E. A. Alcala, A. G. Bautista, R. S. Callano, R. O Sarmiento, A. C. Bandy, and E. Z. Lim University of Southern Mindanao Kabacan, Cotabato	Comprehensive Rubber Technology Transfer Program (CRTTP)
		Gina Villegas-Pangga, A. J. Alcantara, C. Basilio, D. D. Manalo, and C. Mejorada Farming Systems and Soil Resources Institute, University of the Philippines Los Baños College, Laguna	Agrotechnology Suitability Evaluation System (ASES): Development and Improvements
		Alfinetta B. Zamora and S. Sm. Gruezo Institute of Plant Breeding University of the Philippines Los Baños College, Laguna	<i>In Vitro</i> Propagation of Buho Bamboo ( <i>Schizostachyum lumampao</i> )
		Alfinetta B. Zamora, C. S. Ramos, and T. M. Espino Institute of Plant Breeding University of the Philippines Los Baños College, Laguna	Isolation of Plantlets Freed of Banana Bract Mosaic Virus from Infected CV Señorita
		Nonnatus S. Bautista, R. R. Yumol, R. E. Tabien, R. Ikeda, and T. Imbe International Rice Research Center Los Baños, Laguna	Development of Near-Isogenic Lines with Resistance or Tolerance Genes to Tungro Disease in Rice
		Victoria PC, Lapitan Institute of Plant Breeding University of the Philippines Los Baños College, Laguna	Callus Induction and Maintenance in Chinese Cabbage ( <i>Brassica Pekinensis</i> L.) cv. Corazon
		Gerard B. Magpantay, N. S. Bautista, J. R. Bongon, S. V. Siar, J. M. Vitareal, and T. L. Rosario	Anatomical Differences Between a New CMS Source and its Maintainer Line in Rice

Table 9 Cont.

POSTER	SESSION	AUTHOR/S	TITLE OF PAPER
Agricultural Sciences (Cont.)		International Rice Research Institute Los Baños, Laguna	
		Gerard B. Magpantay, B. delos Reyes, D. S. Brar, and N. Huang International Research Institute Los Baños, Laguna	Molecular Mapping of 11 Isozymes and 3 Cloned Alpha-Amylase Genes in Rice ( <i>O. sativa</i> L.)
		Ruth Elloran, R. Dalmacio, J. Flores, M. Lanuang, D. S. Brar & G. S. Khush International Rice Research Institute Los Baños, Laguna	Gene Transfer for Resistance to Brown Planthopper from <i>Oryza minuta</i> and Bacterial Blight from <i>O. brachyantha</i> into Rice ( <i>O. sativa</i> L.)
		Jessica P. Domingo, A. A. Barrion, R. Elloran, D. S. Brar, and G. S. Khush International Rice Research Institute Los Baños, Laguna	Overcoming Incompatibility in a Cross of <i>Oryza sativa</i> L. and <i>Porteresia coarctata</i> (Tateoka, Roxb.)
		Helen Grace S. Centeno, A. D. Balborez, N. G. Fabellar, T. Horie, and M. J. Kropff International Rice Research Institute Los Baños, Laguna	Rice Potential Production in the Philippines Using Crop Growth Model
		Imelda Rizalina S. Soriano, D. M. Matias, and J. C. Prot International Rice Research Institute Los Baños, Laguna	Control of <i>Hirschmanniella oryzae</i> Using <i>Sesbania rostrata</i> and its Residual Effects in a Continuous Rice Cropping
		Elizabeth A. Conocono, J. A. Egdane, and T. L. Setter International Rice Research Institute Los Baños, Laguna	Shoot Soluble Carbohydrate Content As a Measure of Daily C-Assimilation in Rice
		James A. Egdane, E. A. Conocono, and T. L. Setter International Rice Research Institute Los Baños, Laguna	New Plant Types for Irrigated Rice: Manipulating Panicle Height for Increased Light Interception
		Minoru Yamauchi and J. K. Biswas International Rice Research Institute Los Baños, Laguna	Process of Seedling Establishment as influenced by Organic Matter Application to Flooded Soil
		Daniel C. Oik, E. B. Belleza, and K. G. Cassman International Rice Research Institute Los Baños, Laguna	Chemical Characterization of Two Organic Matter Fractions in Irrigated Lowland Rice Soils
		Serafin T. Amarante, W. A. T. Herrera, C. Vejpas, D.P. Garrity, and L.J. Wade International Rice Research Institute Los Baños, Laguna	Relationship Between N, P, and K Uptake and Yield in Rainfed Lowland Rice
		Marianne I. Samson, C. A. Redulla, J. P. Descalzo, and K.G. Cassman International Rice Research Institute Los Baños, Laguna	Functional Equilibrium of the Rice Root System
		Jovita A. Marquez, T. P. Tuong, and M. C. S. Wopereis International Rice Research Institute Los Baños, Laguna	Components of Percolation Losses in Irrigated Puddled Rice Fields

Table 9 Cont.

POSTER SESSION	AUTHOR/S	TITLE OF PAPER
Agricultural Sciences (Cont.)	Maximina A. Lantican, R. M. Lampayan, and S. I. Bhuiyan International Rice Research Institute Los Baños, Laguna	Increasing Rainfed Farmers' Income Through An Appropriate Postharvest Technique
	Simeona V. Siar, J. R. Bongon, N. S. Bautista, J. M. Villareal, G. B. Magpantay, and T. L. Rosario University of the Philippines Los Baños College, Laguna	Cytogenetic Studies of Irradiated Bittergourd ( <i>Momordica charantia</i> L.) and the F BC and F <sub>1</sub> Progenies
	Violeta N. Villegas, F. B. Aurigue, and R. B. Pimentel Institute of Plant Breeding University of the Philippines Los Baños College Laguna	Preliminary Evaluation of a Promising Papaya ( <i>Carica papaya</i> L.) Hybrid
	Lilian F. Pateña, R. C. Sotto, R. A. Avenido, J. G. Dimaculangan, and R. C. Barba Institute of Plant Breeding University of the Philippines Los Baños College, Laguna	Lilak, A Banana ( <i>Musa</i> spp) Selection from Tissue Culture
	Lilian F. Pateña, M. E. Beltran-Miranda, and V. P. Chavez-Lapitan Institute of Plant Breeding University of the Philippines Los Baños College, Laguna	Growth of Tissue-Cultured Shallot ( <i>Allium cepa</i> Var Group <i>aggregatum</i> ) and Garlic ( <i>Allium sativum</i> L.) Under Greenhouse Condition
	Julita G. Dimaculangan, L. F. Pateña, R. A. Avenido, and R. C. Barba Institute of Plant Breeding University of the Philippines Los Baños College, Laguna	Cytological Investigation of Endosperm Explant and Long-Term Maintenance of Endosperm-Derived Calli of Calamansi ( <i>X Citrofortunella mitis</i> J. Ingram and H. Moore)
	Cynthia N. Paet, A. B. Zamora, and E. C. Altoveros Institute of Plant Breeding University of the Philippines Los Baños College, Laguna	Production of Seed Tubers of ASN 69.1 from Rooted Stem Cuttings, Microtubers, and from Their First Generation Tubers
	Cecilia B. Pascual, A. D. Raymundo, M. Hyakumachi, and M. L. Logroño Institute of Plant Breeding University of the Philippines Los Baños College, Laguna	Hispathological Events During <i>Rhizoctonia solani</i> infection in Resistant and Susceptible Corn Plants
	Lolita M. Dolores and C. Pissawan Institute of Plant Breeding University of the Philippines Los Baños College, Laguna	Detection of Leaf Curl Virus in Pepper by Using Non-Radioactive DNA Probe
	Desiree Menanio-Hautea, N. D. Young, L. Kumar, D.H. Kim, and R.A. Hautea Institute of Plant Breeding University of the Philippines Los Baños College, Laguna	Towards An Integrated Linkage Map of Mungbean ( <i>Vigna radiata</i> L. Wilczek): Progress and Prospects
	Amy Emiliana N. Bernardo and D. Menancio-Hautea Institute of Plant Breeding	Isozymes for Genetic Mapping in Mungbean: Optimization of Conditions For Gel Electrophoresis

## NAST 1994 Annual Report

Table 9 Cont.

POSTER	SESSION	AUTHOR/S	TITLE OF PAPER
Agricultural Sciences (Cont.)		University of the Philippines Los Baños College, Laguna	and Identification of Polymorphisms
		Roberta N. Garcia, A. M. de la Rosa, M. T. Mendoza, and D. Menancio-Hautea Institute of Plant Breeding University of the Philippines Los Baños College, Laguna	Kinetic Properties and Activity Levels of Ammonia and Carbon Assimilation Enzymes in Two <i>Vigna</i> Species
		Violeta N. Villegas, A. A. Alfonso, and T. H. Borromeo Institute of Plant Breeding University of the Philippines Los Baños College, Laguna	Cytology, Morphology, and Pollen Fertility of Interspecific Hybrids Between <i>Oryza sativa</i> and <i>O. officinalis</i>
		Violeta N. Villegas, M. T. B. Peralta, C. C. Bato and S. Obien Institute of Plant Breeding University of the Philippines Los Baños College, Laguna	Agronomic Evaluation of Doubled Haploids Derived from Rice Anther Culture
		Violeta N. Villegas and M.T.B. Peralta Institute of Plant Breeding University of the Philippines Los Baños College, Laguna	Anther Culturability of Some Philippine Traditional Rice Varieties
		Leodegario A. Ebron, R. Ikeda, T. Imbe, R. R. Yumol, N. S. Bautista and M. J. T. Yanoria International Rice Research Institute Los Baños, Laguna	Inheritance of Resistance to Rice Tungro Spherical Virus in Rice
		Ma. Leonora M. Yambao, Z. M. Flores, F. C. Sta. Cruz and H. Koganezawa International Rice Research Institute Los Baños, Laguna	Association of p12 Protein of Rice Tungro Bacilliform Virus to Virions
		Gilda J. Miranda and H. Koganezawa International Rice Research Institute Los Baños, Laguna	Direct Tissue Blotting For Detection of Rice Viruses
		Janet F. Barroga and T. W. Mew International Rice Research Institute Los Baños, Laguna	Red Stripe: A New Rice Disease in the Philippines
		Avelino D. Raymundo and B. J. Caillung, Jr. Plant Pathology Division University of the Philippines Los Baños College, Laguna	Concentrating Genes for Downy Mildew Resistance and Desirable Agronomic Traits in Corn
		Q. Dai, A. Q. Chavez, and S. Peng International Rice Research Institute Los Baños, Laguna	Preliminary Study of Abscisic Acid-Rice Plant Exposed to Elevated UVB Radiation
		V. P. Migo International Rice Research Institute Los Baños, Laguna	Decolorization of Alcohol Effluents by Chemical and Microbiological Methods
		Evelyn B. Gergon	Nitrogen Lessens Growth and Yield

Table 9 Cont.

POSTER SESSION	AUTHOR/S	TITLE OF PAPER
Agricultural Sciences (Cont.)	International Rice Research Institute Los Baños, Laguna	Reductions in Rice Caused by <i>Meloidogyne graminicola</i>
	Julieta U. Sajise, E. C. Bugante, W. G. Padolina, and E. C. Marfori University of the Philippines Los Baños College, Laguna	Production of Vincristine-like Alkaloid in Callus Culture of <i>Catharanthus roseus</i> BCR -- 1
Health Sciences	Jose David F. Marin, Jr. E. A. Abendanio, R. L. Alejo- Ramirez, and S. R. Solceda Institute of Ophthalmology UP - PGH, Taft Avenue, Manila	Corneal Endothelial Cell Culture in Wound Healing, Growth, and Viability Studies Using Locally Available Chemicals
	Rita P. Laude, R. M. Dinulos, and R. N. Tandang Institute of Biological Sciences College of Arts and Sciences University of the Philippines Los Baños College, Laguna	Distribution of Certain Genes Among Filipinos in Laguna C. <i>Diabetes mellitus</i>
	Fabian M. Dayrit and L. T. Lagurin School of Arts and Sciences Department of Chemistry Ateneo de Manila University Loyola Heights, Quezon City	Phytochemical Studies on the Pharmacologically-Active Compounds of <i>Vitex negundo</i> L.

The recognition ceremony for the new NAST member, the 1994 Outstanding Young Scientists, the NAST - TWAS Science Prize awardee, Outstanding Published Paper awardees and the Outstanding Publication awardees capped the 16th ASM.

### 2.3 Bioprospecting

The draft Executive Order on "*Prescribing Guidelines and Establishing a Regulatory Framework for the Prospecting of Biological and Genetic Resources, Their By-Products and Derivatives, for Scientific and Commercial Purposes; and for Other Purposes*" was presented at and approved by the Science and Technology Coordinating Council on September 21, 1994.

Six department secretaries will sign the transmittal letter to Malacañang. They are the secretaries of concerned implementing agencies such as the Department of Science and Technology, the Department of Environment and Natural Resources, the Department of Education, Culture and Sports, and the Department of Finance.

The main features of the EO are:

- a. Policy of the State
- b. Consent of Indigenous Cultural and Local Communities
- c. When Research Agreement is Necessary
- d. Application for Academic Research Agreement and Commercial Agreement

- e. Minimum Terms of the Commercial Research Agreement and Academic Research Agreement
- f. Composition and Functions of the Inter-Agency Committee on Biological and Genetic Resources
- g. Powers and Functions of the Inter-Agency Committee
- h. Monitoring Implementation of the Research Agreement
- i. Appeals
- j. Sanctions and Penalties
- k. Existing Researches, Contracts, and Agreements
- l. Official Depository
- m. Funding
- n. Effectivity
- o. Implementing rules and regulations

## **2.4 Speakers Bureau**

Only Academician Melecio S. Magno served in the Speakers Bureau this year. He went to Tiaong, Quezon as a speaker in a science teachers' convocation re Earth Care.

Meantime, the Speakers Bureau listing is being updated and processed by the Secretariat.

## **2.5 Science Heritage Center**

NAST initiated steps to acquire a site for the Science Heritage Center which will also become the NAST building.

## **2.6 Advice**

Acad. Dayrit coursed through the Office of Secretary Ricardo T. Gloria advice on "How to start solving our science education lack". His suggestion is to use as an effective method of instruction the educational video cassettes projected to large groups of students.

The Academy reviewed and gave advice on:

- a. oil spill in Manila Bay
- b. formalin use on vegetables and fish
- c. GATT and AFTA
- d. locust infestation of lahar areas
- e. red tide
- f. cholera
- g. coconut industry

NAST and NRCP submitted a joint position paper on strategic industries.

**Table 10. MATRIX OF INTERNATIONAL AGREEMENTS / ACTIVITIES TO BE UNDERTAKEN IN 1995**

Title of Agreement	Agency	Objectives	Date of Implementation	Funding Requirement
1. Collaboration between NAST and the German Research Society (DFG)	DFG	1. Scientific contacts 2. Exchange visits and information	Continuing / as needed	P25,000.00 Average amount for transportation and per diem per person. The host agency pays for local accommodation and internal travel of scientists on 1-3-week visits. The funds are not only for Academicians but also for scientists who are not members of NAST but endorsed by it.
2. Agreement of Scientific Cooperation between NAST and the Chinese Academy of Sciences	Chinese Academy of Sciences	1. Exchange visits of post-doctoral scientists 2. Joint symposia/ conferences 3. Exchange of scientific information, books, seeds, seedlings 4. Encourage discussions, direct liaison, and scientific cooperation between universities and scientific institutions.	Continuing / as requested	Same as above, more or less
3. Arrangement on Collaboration between NAST and The Indian National Science Academy	Indian National Science Academy	1. Scientific contacts 2. Exchange visits 3. Joint projects as approved by both governments	Continuing / as requested	Same as above

Table 10 Cont.

Title of Agreement	Agency	Objectives	Date of Implementation	Funding Requirement
4. Arrangement on Collaboration between the Royal Society of London and NAST	Royal Society of London	1. Scientific contacts 2. Exchange visits 3. Attendance at meetings on mutual agreement 4. Joint projects	Continuing/as requested	Same as above
5. Federation of Asian Scientific Academies and Societies - Mutual Assistance (FASAS)	Member countries - Afghanistan, China, Bangladesh, India, Republic of Korea, Malaysia, Nepal, Pakistan, Sri Lanka Thailand	1. Scientific contacts and networking 2. Exchange visits of member countries scientists 3. Mutual assistance	Continuing/as requested	Same as above
6. Third World Academy of Sciences (TWAS)	Member countries - developing countries	1. Give recognition to scientists of developing countries 2. Facilitate contacts among scientists in third world countries and strengthen scientific work 3. To identify men of outstanding talent in developing countries	Continuing/as requested	Same as above
7. Third World Network	Members are India, Indonesia Malaysia, Bangladesh Jordan, China, Korea Nepal, Thailand	Recognition of scientific talents Mutual Assistance	Continuing/as requested	Same as above



*The Academicians at the start of the investiture ceremonies*



*(L-R) Acd. J. O. Juliano, Usec. A. C. Ancog, Sec. C. F. Habito, Acd. C. S. Dayrit, Acd. D. R. Ramirez, and Fr. B. F. Nebres during the opening ceremonies.*



*Mrs. Milagros Dayrit cuts the ribbon opening the poster session. (L-R) Acd. Dayrit, Mrs. M. Dayrit, Acd. C. Intengan, Acd. Santos-Ocampo, and Acd. Ramirez.*



*Guests and participants viewing posters.*

### 3. INTERNATIONAL LINKAGES

**3.1** The Academy continues its linkages with the Third World Academy of Sciences (TWAS), Federation of Asian Scientific Academies and Societies (FASAS), International Network of Scientific Organizations (INSO), Chinese Academy of Sciences (CAS), Indian National Science Academy (INSA), Deutsche Forschungsgemeinschaft (DFG), Royal Society of London (RSL), and the American Association for the Advancement of Science (AAAS).

**3.2** A German delegation visited the Philippines to strengthen the link with our country. It was headed by the Secretary-General of DFG, Mr. Burkhard Muller and his wife, Mrs. Doris Muller-Peters, Dr. Werner Gocht, Director of the Institute of International Cooperation, Technical University of Aachen, and Mr. Jost-Gert Glombitza,

*Members of the German delegation during their visit to Lahar-affected areas in Pampanga. (L-R) Sec. Gen. of DFG, Mr. B. Muller, Mr. J. G. Glombitza, Dr. W. Gocht, and Mrs. Muller-Peters.*



*DFG Sec.-Gen. Muller with Acd. Dayrit and Dr. Sonido during their meeting with the NRCP Officers.*

**TABLE 11. PLENARY SPEAKERS AT THE INTERNATIONAL CONFERENCE ON FOOD PRESERVATION AND SECURITY (ICFPS)**

<b>SPEAKER</b>	<b>ADDRESS</b>	<b>TITLE OF PAPER</b>
DR. AMIR MUHAMMED	President Pakistan Academy of Sciences Islamabad, Pakistan	Agricultural Development and Food Security
DR. GEORGE GIDDINGS	Joint Division FAO - IAEA Division of Nuclear Techniques in Food and Agriculture Vienna, Austria	Food Irradiation
DR. GREGORY GIBBONS	Project Adviser ASEAN - Australian Biotech Project Melbourne, Victoria 3004 Australia	Food Biotechnology

**TABLE 12. TECHNICAL SPEAKERS AT THE INTERNATIONAL CONFERENCE ON FOOD PRESERVATION AND SECURITY (ICFPS)**

<b>SPEAKER</b>	<b>ADDRESS</b>	<b>TITLE OF PAPER</b>
JAMES EMERSON	The Coca Cola Co. 1 Coca Cola Plaza, Atlanta, Georgia	Food Safety and Risk Assessment
REYNALDO C. MABESA	Director, Institute of Food Science College of Agriculture UP Los Baños, Laguna	Microbiological Control of Asiatoxigenic Fungi in Peanuts, Rice, and Corn
VIRGINIA L. BARRAQUIO	Dairy Training and Research Institute UP Los Baños, Laguna	Detection of Food Pathogens in Kesong Puli (fresh soft cheese) Pastillas de Leche from Los Baños and Bay, Laguna
TERESITA J. RAMIREZ	BIOTECH UP Los Baños, Laguna	Simultaneous Bioconversion of Car- bohydrates and Biodegradation of Cyanide in Cassava Meal to Increase Nutritive Value
JOSE P. PERALTA	Institute of Fish Processing UP Visayas, Mlag-ao, Iloilo	Natural Convection Drying of Fish Models
ROSITA P. EBRON	Sugar Regulatory Administration North Ave., Diliman, Quezon City	Production of Dietary Fibers from Bagasse
MORIIHIKO SAKAGUCHI	Department of Fisheries Kyoto University, Japan	Freshness Assessment of Fish Meat Using the Tarrymeter, Impedance Analyzer, and K Value
GERALD MOY	World Health Organization CH-1211 Geneva 27 Switzerland	Public Health Aspects of Food Irradiation
MANUEL M. GARCIA	Animal Diseases Research Institute Nepean, Ontario, Canada	Development of Rapid Detection Tests for Foodborne Pathogens in HACCP Programmes
AGNES TORRES	Merck, Inc. Makati, Metro Manila	Analytical Tools for the Evaluation of Food Composition and Toxicity
SAMUEL S. FRANCO	National Tobacco Administration Batac, Ilocos Norte	Passive Solar Energy System for Crop and Food Drying

Table 12 Cont.

<b>SPEAKER</b>	<b>ADDRESS</b>	<b>TITLE OF PAPER</b>
VIRGINIA TD. PAÇABA	Bureau of Plant Industry Department of Agriculture San Andres, Manila	Fruit and Vegetable Processing Technologies for Village-Type Processing Plants
LEMUEL M. DIAMANTE	Visayas State College of Agriculture (VISCA), Baybay, Leyte	Drying Characteristics of Coco- Crisps
LYDIA M. MARERO	Food and Nutrition Research Institute (FNRI) DOST, Bicutan, Taguig, M. M.	The Establishment of Communal Food Processing Centers in the Regions
ANTONIO L. ACEDO	Department of Horticulture Visayas State College of Agriculture (VISCA) Baybay, Leyte	Evaporative Cooling Storage of Tomato and Sweet Pepper Fruits Harvested at Different Stages of Ripeness
ROSEMARIE S. GUMERA	Sugar Regulatory Administration North Ave., Diliman, Quezon City	Processing of Sugarcane Fruit Juice Mix
ZENAIDA M. DE GUZMAN	Philippine Nuclear Research Institute (PNRI) Commonwealth Ave., Diliman, Q. C.	Gamma Irradiation of Selected Spices
MA. CONCEPCION LIZADA	Postharvest Horticulture Research and Training Institute (PHTRC) UP Los Baños College, Laguna	Prospects of Food Irradiation in the Handling of Horticultural Perishables: The Role of Postharvest Techno- logy in Reducing Losses in Horti- cultural Perishables
ALICIA O. LUSIRE	Food Technology Center National Food Authority FTI Complex, Taguig, Metro Manila	Food Irradiation in a Developing Country
SILVESTRE C. ANDALES	NAPHIRE, Dept. of Agriculture (DA) Elliptical Road, Quezon City	Food Handling, Storage, and Distribution
LOURDES S. RIVERA	Bureau of Animal Industry Dept. of Agriculture San Andres, Manila	Comparative Profitability of Two Methods of Cutting Carcasses of Cattle and Swine
PRIMA RAGUDO-FRANCO	Department of Biology Mariano Marcos State University (MMSU) Batac, Ilocos Norte	Luminous Bacterial Product: A Potential Alternative Food Dye and Preservative
JOSE P. PERALTA	Institute of Fish Processing UP Visayas, Miag-ao, Iloilo	Natural Convection Fish Dying
ADORACION A. CENIZA	Bureau of Animal Industry Dept. of Agriculture San Andres, Manila	Postharvest Handling and Packa- ging of the Three Varieties of of Annatto
AGNES G. COLLADO	Sugar Regulatory Administration North Ave., Dillman, Quezon City	Sugar Quality Specifications, Hand- ling, Storage, and Distribution
CHAY B. PHAM	BIOTECH UP Los Baños College, Laguna	Development of a New Process of Coconut Oil Extraction
LUTGARDA S. PALOMAR	Visayas State College of Agriculture (VISCA) Baybay, Leyte	Utilization of Fresh Cocomilk in the Development of Coco-S Candy

## NAST 1994 Annual Report

Table 12 Cont.

SPEAKER	ADDRESS	TITLE OF PAPER
ANTHONY BLAKE	Firmenich (Zuellig) Buendia Ave. Ext. Makati, M. M.	Flavour Encapsulation in Carbohydrate Matrices
QUINTIN L. KINTANAR	Director, Bureau of Food and Drugs DOH, Muntinlupa, Alabang	Need for Safety and Quality in Food Security
RODOLFO F. FLORENTINO	Director, Food and Nutrition Research Institute (FNRI) DOST Cpd., Bicutan, Tagulug, M. M.	Nutrition Consideration in Food Security
LAURA J. PHAM	BIOTECH UP Los Baños College, Laguna	Production of Lactic Acid Bacteria for Food Inoculants & Preservation
LEE LAI SEE	Manager, Technical Marketing Service Eastman Chemical Ltd. Singapore	Food Grade Sucrose Acetate Isobutyrate Special Grade for Beverage Applications

Head, Asia Division of International Relations Department. They stayed here from February 26, 1994 to March 1, 1994.

**3.3** The International Conference on Food Preservation and Security (ICFPS) with the theme "Food Security through Food Preservation" was held on November 8-11, 1994 at EDSA Plaza Shangri-la Hotel, Mandaluyong, Metro Manila. The keynote speaker was Honorable Edgardo J. Angara, Senate President. Three plenary papers and thirty-four technical papers were presented.

The ICFPS was organized with the financial assistance of the following: TWAS, DOST, MERCK Inc., International Life Sciences Institute, Coca-Cola Export Corporation, Food Ingredients Specialties, Australian International Development Assistance Bureau, Jollibee Foods Corporation, and Union Ajinomoto

**3.4** The Academy co-sponsored with the Philippine Council for Health Research and Development the lecture of Dr. Clay Smith from the Duke University Medical Center, North Carolina. The lecture entitled Recent Aspects of Retroviral Vector-Mediated Gene Therapy was held on October 28, 1994.

**3.5** NAST continues the exchange of scientific materials with libraries here and abroad. NAST Specialist Library has a total of 300 exchange addresses, of which 50 are foreign. On the average, the library receives 100 publications every year.

**3.6** NAST participated in the 5th DOST Annual Technology Fair held on July 9-16, 1994 at the Philippine Trade and Training Center. NAST showcased the significant accomplishments of its members.



*(Inset) Guest Speaker, Senate President Edgardo J. Angara delivering his speech to the listening participants during the Opening Ceremonies of the International Conference on Food Preservation and Security.*



*Acc. Dayrit delivering his welcome address in the Opening Ceremonies of the Conference. Sitting (L-R) are the Prof. T. Acevedo, Sec. W. Padolina, Sen. E. Angara, and Dr. R. Mabesa.*

**4. ADMINISTRATIVE MATTERS**

**4.1 Officers**

The officers of the Academy are:  
Acad. Conrado S. Dayrit - President  
Acad. Dolores A. Ramirez - Vice President  
Acad. Jose O. Juliano - Secretary  
Acad. Filomena F. Campos - Member  
Acad. Jose Encarnacion - Member  
Acad. Alfredo V. Lagmay - Member  
Acad. Faustino T. Orillo - Member

**4.2 Secretariat**

Miss Luningnig E. Samarita - Executive Director

Administrative Services Division	Technical Services Division
Administrative Officer	Information Officer V
Miss Rosemarie S. Espino	Mr. Redocindo L. Santillan
Accountant III	Information Officer III
Vacant	Mrs. Rowena V. Briones
Cashier III	Information Officer II
Miss Chona C. Sollestre	Vacant
Utilityman	Stenographer
Mr. Eliseo Raganit	Miss Regina T. Gonzales
Casual: Mr. Roberto N. Medina	

**4.2 Seminars Attended:**

Mrs. Briones attended and participated in the (1) Benigno and Corazon Aquino Human Rights and People Empowerment Program (BCA HR - PEP) Leadership and Advocacy Course No. 94-03 on March 14, 1994 at the Commission on Human Rights Conference Room, Pasig, Metro Manila; (2) Information Management Using FileMaker Pro held on March 21-25, 1994 at I/ACT Greenhills; (3) Seminar-Workshop on Communication Project Evaluation conducted by the Institute of Development Communication on June 2-3, 1994 at DA-ATI National Training Center, UP Los Baños and (4) Seminar on Gender-Responsive Development Planning on December 5-7, 1994 at the DOST Executive Lounge.

Miss Espino participated in the JETSTREAM on May 30 to June 17, 1994 at the Civil Service Commission.

Miss Sollestre attended the Cash Management and Control Seminar on May 16-27, 1994 at the Commission on Audit Central Office.

**4.4 NAST Budget (CY 1994)**

**NATIONAL ACADEMY OF SCIENCE AND TECHNOLOGY  
BALANCE SHEET**

For the Year Ended December 31, 1994  
General Fund

**ASSETS**

**Current Assets**

Cash	1,780,628.57	
Inventories	10,095.33	
Total Current Assets		1,790,723.90

**Contingent Assets**

54,501.21

**Fixed Assets**

Building and Structures	1,430,583.50	
Furniture, Fixtures, Equipment, Work Animals, and Books	1,523,981.62	
Total Fixed Assets		2,954,565.12

**TOTAL ASSETS**

4,799,790.23

**LIABILITIES**

**Current Liabilities**

Payables	1,839,446.14	
Trust Liabilities	1,774,569.57	
Depository Liabilities	2,780.00	
Deferred Credits - Supplies and Materials Charged to Appropriations	10,095.33	

**TOTAL LIABILITIES**

3,626,891.04

**RESIDUAL EQUITY**

**Cumulative Results of Operations**

Per Statement of Operations	40,000.00	
National Clearing Account	(1,876,167.14)	
Total Cumulative Results of Operations		(1,836,167.14)

**Invested Capital**

2,954,565.12

**Contingent Capital**

54,501.21

**TOTAL RESIDUAL EQUITY**

1,172,899.19

**TOTAL LIABILITIES & RESIDUAL EQUITY**

4,799,790.23

## 4.5 Side Lights: Activities of Academicians

## 1994 ACCOMPLISHMENTS

ACADEMICIAN	RESEARCHES	PUBLISHED PAPERS/ BOOKS	SEMINARS/CONFERENCES ATTENDED	HONORS RECEIVED/ POSITIONS
ABARQUEZ, Ramon F., Jr.	<p>a). Digitals reduces MI and LHV among uncomplicated hypertensive industry based cohort in a long term complicated study.</p> <p>The San Miguel Corporation Experience.</p> <p>b). Medical Management on cumulative survival in an industry-based acute myocardial infarction cohort without thrombolytic agents.</p> <p>The San Miguel Corporation Experience.</p> <p>c). The role of Trimetazidine in the short term evolution of acute myocardial infarction. A double blind placebo controlled randomized study.</p> <p>d). Effect of El-Carnitine in the limitation of infarct size in one month post MI cases.</p>	<p>a). Digitalis reduces MI and LHV among uncomplicated hypertensive industry based cohort in a long term complicated study.</p> <p>The San Miguel Corporation Experience.</p> <p>b). Medical Management on cumulative survival in an industry-based acute myocardial infarction cohort without thrombolytic agents.</p> <p>The San Miguel Corporation Experience.</p> <p>c). The role of Trimetazidine in the short term evolution of acute myocardial infarction. A double blind placebo controlled randomized study.</p> <p>d). Effect of El-Carnitine in the limitation of infarct size in one month post MI cases.</p>	<p>a). Lecturer, PICOM CEBU Chapter, Cebu City. Topic: Hypertension. Jan 22, 1994</p> <p>b). Provider's Survey Report on Hypertension. Philippine Society of Hypertension. EDSA Shangri-La Hotel. March 6, 1994</p> <p>c). Speaker, Lucena Scientific Meeting - Quezon Medical Society. Topic: Atherosclerosis Multifactorial Events - Adalat Gitz Multi-Center Study - Lucena City Quezon. March 22, 1994</p> <p>d). Attended, Philippine Society of Invasive Cardiology - EDSA Plaza. March 18, 1994</p> <p>e). Speaker, VISMINS - SMC Meeting - Cebu City.</p> <p>f). Symposium on Stress, Coca Cola U. S. Company - Hyatt Regency Hotel. May 5, 1994</p> <p>g). Speaker, Reconciliation Forum. Topic: Hypertension. Mandarin Oriental, Metro Manila. 28-May-94</p> <p>h). Vision Mission Symposium - San Miguel Corporation. EDSA Plaza Hotel. August 15-17, 1994</p> <p>i). Roundtable Discussion of Completed Papers - Trimetazidine in Acute Myocardial Infarction - Le Servier Laboratory, Paris, France. September 9, 1994</p> <p>j). Attended the XII World Congress of Cardiology and XVI European Congress of Cardiology - Berlin, Germany. September 10-14, 1994</p> <p>k). Reactor, Philippine Lipid Society Workshop - Cebu City</p>	<p>a). Chair, Drug Treatment of Hypertension, April 29, 1994</p> <p>b). Chair, International Symposium on Vastarel, Bangkok, Thailand. June 27, 1994</p>

ACADEMICIAN	RESEARCHES	PUBLISHED PAPERS/ BOOKS	SEMINARS/CONFERENCES ATTENDED	HONORS RECEIVED/ POSITIONS
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ABARQUEZ, Ramon F., Jr.  
(continuation)

18-Nov.-94  
 l). Speaker, 2nd Annual Meeting of the Philippine Society of Critical Care, MEDICINE, PSSCCM EDSA Shangri-La Hotel. Topic: Ischemic Burden and Oxygen Radicals. November 29, 1994  
 m). Speaker, Davao Medical Society. Topic: Dysregulation in Hypertension. Insular Hotel, Davao City  
 n). Judge, International Media Residence Research Forum, UP-PGH, December 9, 1994  
 o). Speaker, Roundtable Discussion, Bacolod Chapter, Philippine College of Physician, inc 5th Report, El Fisher Hotel, Bacolod City, December 10, 1994  
 p). Speaker, Roundtable Discussion, Negros Occidental Medical Society, JNC 5th Report, Hotel El Orienta, Dumaguete City, 11-Dec-94  
 a). Speaker, Roundtable Discussion, JNC 5th Report, Negros Oriental Medical Society, San Carlos City, December 11, 1994

CAMPOS, Filomena F

a). Asia Pacific Network for Global Change Research (APN) January 20-21, 1994, Tokyo  
 b). Southeast Asian Regional Committee for Global Change (SARCS) Executive Committee Meeting, January 27-31, 1994, Brunei  
 c). International Geosphere-Biosphere Programme (IGBP) National Committees

a). Chair, Southeast Asian Regional Committee for Global Change/Systems for Analysis, Research and Training (SARCS/START)  
 b). Chair, National Committee for IGBP

ACADEMICIAN	RESEARCHES	PUBLISHED PAPERS/ BOOKS	SEMINARS/CONFERENCES ATTENDED	HONORS RECEIVED/ POSITIONS
CAMPOS, Filomena F. (continuation)			<p>Meeting, March 18-20, 1994, Bonn, Germany</p> <p>d). Speaker, BIOTA. April 7-8, 1994, Central Mindanao Univ. Musuan, Bukidnon</p> <p>e). WOTRO Planning Meeting, May 9-11, 1994, Jakarta</p> <p>f). Global Change and Terrestrial Ecosystem (GCTE) Planning Workshop, May 23-27, 1994, Woodshole Massachusetts</p> <p>g). Southeast Asian Regional Committee for Global Change (SARCS) Executive Committee Meeting, August 10-12, 1994, Singapore</p> <p>h). BIODIVERSITY Planning Meeting, September 5-9, 1994, Paris</p> <p>i). Asia Pacific Network (APN) Group I Workshop, October 17-19, 1994, Jakarta</p> <p>j). UIGBP (Philippines) 1st Consultative Meeting and Planning Workshop, October 6-7, 1994, La Trinidad, Benguet</p> <p>k). Third World Organization for Women in Science (Pre-Conference for Beijing Forum on Women), October 22-26, 1994, New York</p>	
CANTORIA, Magdalena C.		<p>Selected Topics in Pharmacognosy. National Academy of Science and Technology, Bicutan, Taguig, Metro Manila, xxi + 484 pp., 1994</p>	<p>a). Lecture Series on Plant Medicines - The Biological Testing of Plant Materials, USI Graduate School Audio-Visual Room, 21 to 29 March 1994</p> <p>b). NAST Representative, ASEAN Workshop on Intellectual Property Rights, Manila Pavillon Hotel, Manila, October 20-21, 1994</p> <p>c). Lecture, Search for Drugs in the Tropical Rainforests, Conference Hall, University of</p>	<p>a). Professor Emeritus of Pharmacy, College of Pharmacy, University of the Philippines, Manila</p> <p>b). Elected Member, Board of Directors, 1994 - 95, Philippine Association for Laboratory Animal Science, May 27, 1994</p> <p>c). Elected Chair, Biological Sciences Division, NAST, 1993-96</p> <p>d). Elected Chair, Division of</p>

ACADEMICIAN	RESEARCHES	PUBLISHED PAPERS/ BOOKS	SEMINARS/CONFERENCES ATTENDED	HONORS RECEIVED/ POSITIONS
CANTORIA, Magdalena C. (continuation)			<p>Santo Tomas, Manila, February 4, 1994</p> <p>d). NRCP-SCOPE Symposium on Environmental Problems: Impacts and Solutions of Lahar in Central Luzon and Management of Industrial Waters, UP Diliman, Quezon City, March 3, 1994</p> <p>e). 61st Annual Meeting of the NRCP on the Theme "Save the Earth: Environmental Regeneration" Bicutan, Taguig, Metro Manila, March 12, 1994</p> <p>f). Symposium, "Towards NIC: Issues and Problems in Government, Education, and International Relations and Policies", Phil. Normal University, Taft Avenue, Manila, April 28, 1994</p> <p>g). 6th Annual Scientific Convention and General Assembly of the Philippine Association for Laboratory Animal Science, on the theme "Quality Laboratory Animals for Quality Research", RITM, Alabang, May 27, 1994</p> <p>h). Lecturer, "Physiology of Medicinal Plants", and Resource Person, NRCP Regional Outreach Program on Establishing NRCP Presence in Region IV, Aborlan, Palawan, May 6, 1994</p> <p>i). Lecturer, "The Preparation of Simple Household Remedies from Local Medicinal Plants", and Resource Person, NRCP Training Workshop on Medicinal Plants and Agroforestry, Mayon, Lamut, Ifugao, May 17-19, 1994</p>	<p>Pharmaceutical Sciences, NRCP, 1994-95, March 12, 1994</p> <p>e). Elected Member, Board of Trustees, and Corporate Secretary, NRCP Research Foundation, Inc. 29 April 1994</p> <p>f). Appointed Asst. Corporate Secretary, NRCP, for 1994-95, by Dr. Danilo M. Yanga, President, 25 Mar-94</p> <p>g). Appointed Member, NRCP Personnel Committee, Publications Committee, and Committee on Policy Advice, by Dr. Danilo M. Yanga, 22 April 1994</p>

ACADEMICIAN	RESEARCHES	PUBLISHED PAPERS/ BOOKS	SEMINARS/CONFERENCES ATTENDED	HONORS RECEIVED/ POSITIONS
CASTILLO, Leopoldo S.			<p>a). Philippine Carabao Center Consultative Workshop on Water Buffalo to draw the National Carabao R &amp; D Program. UPLB, Laguna, April 20, 1994</p> <p>b). 16th Annual Scientific Meeting of NAST on the theme: "Visions for Philippines 2000". PICC, July 13-14, 1994</p> <p>c). NRCP Symposium on "Research in Support of STAND Philippines 2000, July 18, 1994, UPLB College of Forestry Auditorium</p> <p>d). NAST co-sponsored by the PAWB the "National Consultative Workshop on Regulatory Framework for Research, Collection, and Utilization of Biological and Genetic Resources", Marine Science Institute, UP Diliman, Quezon City, August 26, 1994</p> <p>e). The 2nd Consultative Workshop on Regulatory Framework for Research, Collection and Utilization of Biological and Genetic Resources, STTC Audio-visual Room, UP diliman, Quezon City, September 20, 1994</p> <p>f). Symposium in honor of Dr. Gelia T. Castillo sponsored by the Philippine Institute for Development Studies and the International Development Research Center Testimonial given by Pres. E. Q. Javier on behalf of the University of the Philippines, PSSC, September 27-28, 1994</p> <p>g). Seminar on "Recent Aspects of Retriviral Vector-Mediated Gene Therapy" by</p>	

ACADEMICIAN	RESEARCHES	PUBLISHED PAPERS/ BOOKS	SEMINARS/CONFERENCES ATTENDED	HONORS RECEIVED/ POSITIONS
CASTILLO, Leopoldo S. ( <i>continuation</i> )			<p>Dr. Clay Smith, Sponsored by NAST and the Phil. Council for Health Research and Development, DOST Exec. Lounge, October 28, 1994</p> <p>h). Guest Speaker and also inducted the Officers of the Phil. Society of Animal Nutritionist during its 7th Annual Convention with the theme: "The Animal Nutritionists: Working Towards a Productive and Health Nation", Hotel Nikko Manila Garden, Makati, November 21, 1994</p>	
GUERRERO III, Rafael D.	<p>a). Effects of different stocking densities of the African night crawler, <i>Eudrilus euginae</i>, on the production of vermicompost and earthworm biomass</p> <p>b). Use of the natural male hormone, 11<math>\beta</math>-hydroxy-androstenedione, for sex reversal of Nile tilapia (<i>Oreochromis niloticus</i>)</p>	<p>a). Guerrero, R.D. III, 1994, Tilapia farming in the Philippines - a success story. APAAR! Publication: 1994/2. Asia-Pacific Association of Agricultural Research Institutions FAO Regional Office for Asia and the Pacific, Bangkok, Thailand 15 pp.</p> <p>b). Guerrero, R.D. III and L. A. Guerrero. 1994. Technologies for Commercial production of sex-reversed tilapia in Asia, pp. 618-627, in: S. A. Al-Thobaiti et al. (eds.) Proceeding of the First International Symposium on aquaculture Technology and Investment Opportunities, Ministry of Agriculture and Water, Saudi Arabia. 627 pp.</p>	<p>a). Presented paper, "An assessment of the impact of introduced silurids on Philippine aquaculture" international Workshop on the Biology and Aquaculture of Siluriformes, Montpellier, France, May 24-27, 1994</p> <p>b). Presented paper, "Evaluation of homemade feeds used for commercial tilapia production in the Philippines". The 7th Biennial International Conference of the International Institute of Fisheries Economics and Trade, Taipei, Taiwan, July 18-21, 1994</p> <p>c). Presented paper on "An assessment of the monitoring and warning systems for red tide in the Philippines and policy implications". Conference on ASEAN Criteria and Monitoring: Advances in Marine Environmental Management and Human Health Protection, Singapore, October 24-28, 1994</p> <p>d). Presented paper, "Tech-</p>	<p>a). Presidential LINGKOD BAYAN Award, Civil Service Commission 23-Sep-94</p>

ACADEMICIAN	RESEARCHES	PUBLISHED PAPERS/ BOOKS	SEMINARS/CONFERENCES ATTENDED	HONORS RECEIVED/ POSITIONS
GUERRERO III, Rafael D. <i>(continuation)</i>			nology transfer strategies for tilapia farming in the Philippines" AADCP-ASEAN Workshop on Technology Transfer for Aquaculture, Puerto Azul, Cavite, November 14-18, 1994 e). Presented paper, "Impacts of tilapia introductions on the endemic fishes of some Philippine lakes and reservoirs". International Workshop on Lacustrine Fish Communities in Southeast Asia and Africa, Wageningen, The Netherlands, December 5-9, 1994	
ORILLO, Faustino T.				<ul style="list-style-type: none"> <li>a). Professor Emeritus of Plant Pathology, College of Agriculture UPLB, Laguna</li> <li>b). Member, NAST Executive Council and Chair, Agricultural Sciences Division</li> <li>c). Member, Board of Trustees, NAST Foundation, Inc.</li> <li>d). Member-at-Large, Governing Board, NRCP</li> <li>e). Member, Special Technical Committee on Agricultural Sciences, Scientific Career Council, Scientific Career System, DOST</li> <li>f). Member, National Committee on Biosafety of the Philippines, DOST</li> <li>g). Ex-Officio Member, Board of Directors, UPLB College of Agriculture Alumni Association</li> <li>h). Member, Board of Directors, Asian Development and Management (Philippines), Inc. (A consulting firm)</li> </ul>

ACADEMICIAN	RESEARCHES	PUBLISHED PAPERS/ BOOKS	SEMINARS/CONFERENCES ATTENDED	HONORS RECEIVED/ POSITIONS
ORILLO, Faustino T. <i>(continuation)</i>				i). Recipient, Luminary Award in Science and Technology; given by the Upsilon Sigma Phi Alumni Association, Inc. February 26, 1994
TOPACIO, Teodulo M., Jr.			<p>a). The institutionalization of the Philippine Animal Health Center. Read on December 16, 1994 during the 7th Anniversary of the Center.</p> <p>b). The Philippine Animal Health Center: Towards the Goal of Achieving International Recognition. Read December 29, 1994 during the turnover ceremonies of the Center.</p> <p>c). The Federation of Asian Veterinary Association (FAVA): Brief historical beginning, progress and performance. To be published as "FAVA Profile" in the Proceedings of the World Veterinary Congress held September 3-9, 1995, Yokohama, Japan</p> <p>d). The Philippine National Veterinary Drug Formulary. 1st Ed., Vol. I. Prepared by the Subcommittee on Veterinary Drugs, National Drug Committee, DOH.</p> <p>e). The Generics Law: Impact on Veterinary Practice. Published in the Veterinary Drug Quarterly, 1994</p>	a). Chair, Subcommittee on Veterinary Drugs, National Drug Committee, DOH
VERGARA, Benito S.				a). Member, Second Padi Technical Review Committee, October 9-15, 1994, Malaysian Agricultural Research and Development Institute, Kuala Lumpur, Malaysia

ACADEMICIAN	RESEARCHES	PUBLISHED PAPERS/ BOOKS	SEMINARS/CONFERENCES ATTENDED	HONORS RECEIVED/ POSITIONS
KINTANAR, Quintin L.	a). Monitoring Prices and Availability of Essential Drugs b). Estimating Drug Consumption and Requirement at DOH Health Centers c). Drug Evaluation and Information Exchange: Perspective for technical cooperation among developing countries d). Impact Assessment of National Drug Policy Programs		a). CODEX Committee on Food Additives Meeting wherein Philippine Carrageenan from Seaweed was discussed at The Hague, Netherlands on March 4-12, 1994. b). WHO - Essential Drug Action Program Seminar - Workshop on eight-country international research project on impact Assessment of National Drug Policies using common indicators and political mapping technique, at Geneva, Switzerland on Oct. 4-10, 1994. c). Meeting of the ASEAN Technical Working Group on Pharmaceuticals at Kuala Lumpur, Malaysia on Dec. 11-14, 1994. d). WHO Bi-Regional TCDC Meeting on Essential Drugs.	a). Consultant and Adviser to: National Consumer Affairs Council National Price Coordinating Council Fertilizer and Pesticide Authority Board National Committee on BIO-SAFETY of the Philippines WHO Expert Advisory Committee on National Drug Policy and Management FAO / IAEA / WHO / ASEAN Expert Committee on Food Irradiation
OLIVEROS-BELARDO, Luz	a). Research on the leaf volatile oil of <i>Nothopanax fruticosum</i> (L.) Miq. was completed. Corresponding manuscript was accepted for publication in the <i>Philippine Journal of Science</i> for the 1995 issue.			
CASTILLO, Gelia T.		a). G. T. Castillo, Interactive interdependence: A new paradigm for development research cooperation, in Development Related Research Collaboration: A Second Look at the Role of the Netherlands. C. Schweigman and I. A. van der Werf, eds., Royal Tropical Inst, Amsterdam, 1994, pp. 124-134. b). G. T. Castillo, A World Coming Together: Global Is-	a). Presented a paper entitled "A World Coming Together: Global Issues Writ Small", during the Conference on Social Security and Poverty as Global Issues on March 4-5, 1994 at the Netherlands. b). Annual Meeting of the Scientific and Technical Advisory Committee (STAC), Tropical Disease Research Program, WHO in Geneva, March 7-11, 1994.	a). Part-time Consultant, Office of the Director General, International Rice Research Institute from June 1994 to February 1995. b). Senior Research Adviser, (UPWARD) program of the International Potato Center and the Dutch Government. c). Honorary Doctor of Science Degree (Honoris Causa) from Ateneo de Manila University.



ACADEMICIAN	RESEARCHES	PUBLISHED PAPERS/ BOOKS	SEMINARS/CONFERENCES ATTENDED	HONORS RECEIVED/ POSITIONS
MENDOZA, Evelyn Mae T.	<p>a). Determination and Characterization of Resistance Factors in Mungbean (<i>Vigna radiata</i>) and rice bean (<i>Vigna umbellata</i>) Against Bruchid; Project Leader.</p> <p>b). Lignification and Stem-Strength in <i>Oryza sativa</i>; Project Leader.</p> <p>c). Biochemical and Molecular Mechanisms of Tomato (<i>Lycopersicon esculentum</i>) Resistance Against Bacterial Wilt caused by <i>Pseudomonas solanacearum</i>; Project Leader.</p> <p>d). <i>Bacillus thuringiensis</i> Endotoxin Gene Transfer to Corn, Pechay, and Chinese Cabbage; Project Leader</p> <p>e). Enhancement of Crop Salt; Project Leader</p>	<p>a). Mendoza, EMT, AC Laureana, FM Rodriguez, JL Samonte, LB Mabesa, and I Uritani. 1992. Polyphenols in cooking banana - Changes during ripening and cooking and relation to astringency. <i>Philipp J. Crop Sci.</i> 17: In press.</p> <p>b). Samonte JL, EMT Mendoza, and DA Ramirez. 1993. Physicochemical changes in the endosperm and haustorium of germinating coconut, <i>Phil Agric.</i> 76:435-442.</p> <p>c). Mendoza EMT, 1994. Biochemical basis for the abnormal endosperm phenotype of the makapuno mutant coconut. <i>Bull. Rs. Inst. Food Sci. Kyoto University</i>; In press.</p> <p>d). Laurena AC, MJR Revilla, and EMT Mendoza. 1994. Polyphenols, phytate, cyanogenic glycosides, and trypsin inhibitor activity of several Philippine indigenous food legumes. <i>J. Food Composition and Analysis</i>. 7: In press.</p> <p>e). Mendoza EMT, T. Osawa, T. Nakayama, AC Laurena, and S. Kawakishi. 1994. Search for new natural antioxidants in selected tropical plant food materials. In: <i>Postharvest Biochemistry of Plant Food Materials in the Tropics</i> (I Uritani, VV Garcia, and EMT Mendoza, eds.) Japan Scientific Soc. Press Tokyo pp. 177-191.</p> <p>f). Nakayama T., T. Osawa, EMT Mendoza, AC Laurena, and S. Kawakishi. 1994. Comparative study of antioxidative assays of plant materials. In: <i>Postharvest Biochemistry of Plant Food Materials in the</i></p>	<p>a). Visiting Professor, Kyoto University, Research Institute for Food Science, Oct. 1993 to April 1994</p> <p>b). 1994 Achievement Award in Chemical Research, Philippine Federation of Chemistry Societies</p>	

ACADEMICIAN	RESEARCHES	PUBLISHED PAPERS/ BOOKS	SEMINARS/CONFERENCES ATTENDED	HONORS RECEIVED/ POSITIONS
MENDOZA, Evelyn Mae T. (continuation)		<p>Tropics (I Uritani, VV Garcia, and EMT Mendoza, eds.) Japan Scientific Soc. Press, Tokyo, pp. 25-33.</p> <p>h). Matsuda T., H. Kato, S Takeuchi, R Nakamura, FM Rodriguez, and EMT Mendoza, 1994. Isolation and properties of concanavalin-A-like lectin in sword bean (<i>Canavalia gladiata</i>). In: Postharvest Biochemistry of Plant Food Materials in the Tropics (I Uritani, VV Garcia, and EMT Mendoza, eds.) Japan Scientific Soc Press, Tokyo, pp. 17-24</p> <p>i). Matsuda T., MaR Almario, EMT Mendoza, VV Garcia, and R Nakamura, 1994. Major Proteins in seeds of several tropical legumes in: Postharvest Biochemistry of Plant Food Materials in the Tropics (I Uritani, VV Garcia, and EMT Mendoza, eds.) Japan Soc. Press, Tokyo, 9: 25-33.</p> <p>j). Mendoza, EMT, and FM Rodriguez, 1994. Biochemical analysis of sweetpotato varieties. In Sweetpotato Variety Evaluation. Vol. 1, Training Manual. (ET Rasco Jr., and VaR Amante, eds) SAPPRAID.</p>		

**ADVICE RE OILS SPILLS**

**Situation analysis.** Most oil spills are human induced due to accidents or negligence. There have been other oil spills besides those reported in the paper. The government has mechanisms in place, such as the Coast Guard for surveillance and DENR for inspecting power plants. There is also the International Law of the Sea which should be followed.

**Recommendations:**

1. Enforce existing regulatory measures is necessary, not institute more measures.
2. Increase penalty for disobedience of the laws
3. Enforce provision that all vessels must be seaworthy and should follow the law of the sea and Coast Guard Regulations
4. Study the impact of oil spills on the ecosystem and ways to deal with it.

**ADVICE RE FORMALIN USE ON VEGETABLES AND FISH**

**Situation analysis.** Acc. Kintanar, Undersecretary of the DOH and Administrator of the Bureau of Food and Drugs presented the following:

1. In most countries including the Philippines, formalin is a prohibited food additive at any level, hence its use is illegal.
2. Dipping vegetables in formalin to keep their freshness appears to be practiced in some places. Hence the doubtful wholesomeness of vegetables sold in Manila markets led to a slump in the sale of vegetables.
3. The investigation by the DOH Field Epidemiology Training Unit of the Bukidnon "poisoning" of 300 students, could not confirm that formalin (although present in the food and vegetables (implicated) was the cause of the poisoning. In fact the signs and symptoms and incubation period were those of acute food poisoning from microorganisms e.g. *Salmonella*, *Shigella*, *Clostridium perfringens*, *Bacillus cereus* or pathogenic *E. coli*.
4. Formaldehyde (formalin) is naturally present in many foods and vegetables at low levels of 3.3 mg/kg (ppm) in spinach to 60 mg/kg (ppm) in pears. Levels as high as 200 mg per day in the diet of man for 13 weeks can be tolerated without any signs of toxicity. This is equivalent to eating 1 kg of vegetables laced with 200 ppm formalin daily for three months.

**Recommendations.**

1. While formaldehyde is a prohibited food additive at any level and its use on vegetables, fish, or any other food product is illegal, there is no danger and no cause for alarm. The vegetables sold in markets are not poisonous.
2. The public is still advised to clean and wash their vegetables and cook them thoroughly.
3. There is need for more research on postharvest technologies to maintain the freshness and extend the shelf life of vegetables and other perishable agricultural products.

**ADVICE RE RED TIDE**

**Situation analysis.** The National Red Tide R & D Program was packaged by the DOST through PCAMRD.

Red tide is a worldwide problem and is seasonal. There are beneficial organisms in the sea which can contribute to its control. Pollution of the sea by organic wastes tends to worsen the red tide infection.

**Recommendations.**

1. Recommend continued support for the National Red Tide R & D Program.
2. Develop rapid and efficient methods for recognition of red tide infection.
3. Conduct a massive and updated information campaign to allay the fears of the public.
4. Teach fishermen in affected areas alternative sources of income during the red tide season.
5. Recommend strengthening programs concerning the cleaning of water systems and maintenance of the ecosystem.

**ADVICE RE CHOLERA**

**Situation analysis.** The cholera vibrio exists in aquatic environments. The organism is dormant in its aquatic reservoir during the greater part of the year. During the rainy months of June to September, outbreaks of cholera occur. Aside from this major seasonal occurrence, DOH has also documented some cases at other times of the year with some clustering during January and February.

DOH epidemic investigations have provided some evidence for both water and food transmission of cholera. Water-borne cholera has been traced to contaminated shallow wells as well as to the use of contaminated water hoses. Under poor sanitary conditions, flooding of contaminated

communal water sources occurs during the rainy season. Transmission has been traced to street food vendors, flies, and other insects.

The former policy of DOH not to report cholera was lifted only in 1992, thus adequate comparison of this year's cholera data with that of previous years is not valid.

The President has issued an Executive Order enjoining all local government officials to enforce the Sanitation Code. A Water Summit has been called for this December.

### Recommendations.

1. Use the prevention and control approaches advised by DOH such as: (a) improvement of disposal of human feces, (b) construction of potable communal water supplies, and (c) implementation of the program on the control of diarrheal diseases.
2. Promote effective methods of disinfection of drinking water at the household level. There should be efficient containers to keep drinking water safe in houses.
3. Regulate more strictly the sale of street foods.

### ADVICE RE COCONUT INDUSTRY

**Situation analysis.** There are numerous problems affecting the coconut industry. They include: (1) insufficient planting materials for the replanting program, (2) massive cutting of coconut trees, (3) slow adoption of new technologies by coconut farmers resulting in low productivity of coconut farms, and (4) dependence on the export market and on limited number of products due to inadequate development of higher value products; and (5) the vicious propaganda about coconut oil being dangerous to health.

**First issue.** Coconut plantations in the country having mostly senescent and low-yielding trees have to be replanted with high-yielding cultivars or hybrids. UPLB has already identified the following to be recommended for planting or replanting materials: PCA 15-1, PCA 15-2, PCA 15-3, and selected local talls - "Baybay", "San Ramos", "Tagnanan", "Laguna", etc. The production of these selections is better than or comparable with the imported MAWA.

**Second issue.** Senescent trees or those about 60 years old and beyond should be cut since nut production generally decline at this stage of coconut.

**Third issue.** The rapid technological changes in urban and industrial sectors and the slow changes in the coconut farming sector isolate the "coconut people" from the mainstream of technological change and generally from the equitable share of the fruits of progress brought about by advances in science and technology.

**Fourth issue.** The export market depends on the limited coconut product lines (coconut oil and copra meal) demanded by the importing countries. Coconut has many potential products for the food, pharmaceutical, cosmetic, and other industries. The technologies for these are already developed and only need commercialization.

**Recommendations.** Create an interim body headed by DA Undersecretary, and including representatives of the Bureau of Plant Industry, the Sugar Regulatory Agency, provincial and municipal agricultural offices, and state colleges and universities and tasked to suppress locusts in Central Luzon within a 60-day period. Formulate a master plan to deal with the explosive pest species populations which threaten to break out. Coordinate with NAMRIA to provide assistance in identification of locust breeding grounds, location, and flight path of locust swarms from the air. Continuous research on development of locust control techniques.

### **ADVICE RE GATT AND AFTA**

**Situation analysis.** AFTA calls for zero tariff rates among ASEAN countries by the year 2000. At present there is relatively very little intra-ASEAN trade. There is no immediate need for a decision right now so discussion on AFTA can be deferred.

GATT will be replaced by the World Trade organization in January 1995. The decision problem for the Philippines calls for a yes or no to the whole package that resulted from the Uruguay Round of GATT. The U.S., European Union, Japan, and expectedly many developing countries will go for ratification. If the Philippines does not ratify before the end of 1994, any trade with countries that ratify will probably be displaced in favor of other countries that ratify. Ratification on our part will make our producers more efficient and our consumers will have a wider choice. Although some producers, especially in the agricultural sector, might be affected adversely by ratification, overall employment in the agricultural sector is expected to increase as a result of increased exports.

Adversely - affected workers could therefore move to the expanding parts of the agricultural sector. As a "safety net", measures could be undertaken to facilitate such a move. The question of which industries will have a competitive advantage is something which the private sector will work out for themselves.

Improved efficiency of production and quality of goods must be attended to as never before. Coconut oil production must perhaps now shift away from copra to the superior wet method. Similar type strategies must be worked out for sugar, corn, and other agricultural products to lower production cost and improve quality.

**Recommendation:** Ratify both treaties.

**JOINT NAST-NRCP POSITION PAPER  
ON STRATEGIC INDUSTRIES**

The problem that was identified was that although there is plenty of research output / knowledge / information already available there are no takers from Industry. Why is this so? How can Industry be induced to utilize these findings?

Should we:

1. Directly identify the consumers of technologies and urge them to use these technologies/products?

DOST is already doing this with little success.

2. Push the entrepreneurs to convert the information into businesses by giving (a) incentives and (b) venture capital?

DOST is also trying this but has not enough budget to start a business venture.

Of the 15 leading edges, the following were identified as primary targets:

1. Coconut: particularly oil, for development into industrial chemicals and high-value products.

increase harvest of coconut by replanting using high-yielding coconut varieties and fertilizers

2. Sugar: develop by-products, e.g. organic acids
3. Pharmaceuticals: herbal medicines

**RECOMMENDATIONS**

1. Decrease production cost of sugar and coconut oil. Coconut oil processing should shift to the wet method and slow down the copra method
2. Propose to DOST an Integrated Coconut Processing Regional Center (proposal / o Dr. Ibarra E. Cruz)
3. Propose an increase in the DOST Budget to enable DOST to develop processes into actual products available for commercialization in the same way that PCHRD was able to sell the herbal pilot plants and products to a private concern.





