ORSP Newsletter

or/ms — 1990 INTERNATIONAL CONFERENCE — MANILA, PHILIPPINES

ORSP HOLDS 4TH GENERAL ASSEMBLY

Last March 24, 1990, ORSP held its 4th General Assembly Meeting at the Asian Institute of Management in Makati. During the assembly, the Society invited (Ret.) Brig. Gen. Antonio Lukban (Assistant Secretary of National Defense) to talk on the "Value of Operations Research In National Defense". In his discussion, he emphasized the important role of OR in strengthening the capability of our country's defense forces. He cited in particular, OR's contribution in enhancing the Air Force's capability to detect and disable an enemy aircraft

ATENEO FORMS FIRST METRO MANILA ORSP STUDENT CHAPTER

Ateneo de Manila University became the first collegiate school based in Metro Manila to form an ORSP Student Chapter, and only the second since this program was launched by the Society. The first ORSP Student Chapter was formed in Holy Angel University of Angeles, Pampanga in 1989. This was the result of the Society's renewed effort in encouraging membership from the academe in order to promote and support the education and training of potential OR/ MS practitioners.

The Ateneo ORSP Student Chapter was formed last June 30, 1990 with approximately 70 founding members. Recently, they elected their first set of officers, namely: Edwin Africa - President, Lawrence Go - External VP, Rafer James Arce- Internal VP, Rafael Yu - Treasurer.

DOTC UNDERSECRETARY LICHAUCO INDUCTS 1990 ORSP OFFICERS

The 1990 ORSP Officers with Undersecretary Lichauco.

The newly elected set of officers of the Operations Research Society of the Philippines was inducted to office last June 15, 1990 at the historic Kalayaan Hall of the Club Filipino. Department 'of Transportation and Communication (DOTC) Undersecretary and Acting NTC Commissioner Josefina T. Lichauco was the inducting officer and keynote speaker, standing in for Secretary Oscar M. Orbos, who was on a special assignment at that time.

In her speech, the Undersecretary discussed the various programs of the DOTC in upgrading the country's telecommunications facilities. She cited that it is in this area where OR practioners may be able to find good use of OR. She lauded ORSP and its

past officers for their accomplishments, and wished the incoming officers good luck in their term.

During the induction, Outgoing ORSP President Ms. Elise del Rosario of SMC presented the activities and programs accomplished during her term. These include the series of symposia and technical sessions on different OR applications; formation of the first ORSP Student Chapter at the Holy Angel University in Angeles; publication of ORSP newsletters and first Philippine Journal on Operations Research; and the conceptualization and start of preparation for the first International Conference on Operations Research and Management

ICORMS '90 UPDATE

Six months to go and 79 OR experts from Europe, America, and Asia have confirmed their participation in ICORMS! Of these 79, 10 are plenary speakers and 51 are paper presen-

tors. Topics to be discussed by these people range from theoretical to applications in government, service, manufacturing, among others.

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in the event of a hostile violation of the country's air space.

Actually, the society invited three (3) distinguished speakers including Gen. Lukban. The other two (2) were: Dr. Alejandrito Ferreria of the Asian Institute of Management and Dr. Nigel Gasper, the SAS General Manager for Asia. Dr. Alejandrito Ferreria was supposed to talk on the "LP Application on Government Land Allocation", but he was indisposed at that time. Instead, Dr. Purba Rao also of AIM took his place and did well in presenting several OR Applications in Marketing. Dr. Nigel Gasper had some problem with his vision, but nevertheless went on to discuss SAS software applications. He further promised a more thorough discussion and demonstration of the SAS OR software applications in future ORSP symposia.

After the discussions, the Society members elected a new board of directors. Elected to the board were: Felipe L. Fondevilla (PLDT), Lemuel M. Miravalles (AdMU Grad. Sch. of Bus.), Honesto G. Nuqui (UP), Raul P. Rodriguez (Colgate-Palmolive Phils. Inc.), Alda G. Punzalan (Holy Angel University), Leonida T. Africa (DLSU), Elise A. del Rosario (SMC) and Diosdado C. Engbino (Ateneo-DLSU Grad. Sch. of Bus.).

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Joann Josef - Sec. General, and Vanessa Espiritu - PRO. Their adviser is Prof. Mary Anne Vistro, who is herself an ORSP member. The officers will be inducted on September 12, 1990 at the Gonzaga Hall in Ateneo.

For this year, the AdMU Student Chapter has scheduled company tours and symposia. They are currently coordinating for traineeship and placement assistance for their junior and senior members. Other than this, they are in the process of building an OR library of softwares, manuals, articles, books, school listings and other reference materials.

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Plenary speakers include big names in OR like Prof. Thomas Saaty and Prof. Stanley Zionts for "Multi-Criteria Decision Making". Mr. Donald Creswell, an authority in decision analysis, Dr. Bruce Feiring on "Implementing OR Solutions in Manufacturing", and Prof. Guang-Hui Hsu on "Stochastic Optimization and its Applications". Plenary speakers also include Filipinos who have made names for themselves internationally.

They are: Dr. Mario Tabucanon, Chairman of the Industrial Engineering and Management Division of the Asian Institute of Technology, Prof. Crisostomo Garcia, Professor of Management Science of the Graduate School of Business at the University of Chicago, Dr. Celso Barrientos of the U. S. Department of Commerce, and Prof. Roberto Mariano, Professor of Economics and Statistics at the University of Pennsylvania.

The tentative schedule for the four-day conference is as follows:

TIME	TUESDAY DEC. 11	WEDNESDAY DEC. 12	THURSDAY DEC. 13	FRIDAY DEC. 14
9:00 A.M. 10:00 A.M.	Registration	Decision Analysis	MCDM: New Trends	OR in Finance
	Opening Ceremonies	BREAK	BREAK	BREAK
		Hybrid Management	AHP of MCDM	OR in Economic Analysis
11:00 A.M.	Video on OR Applications	Reserved for German Lecturer	ALI Method of MCDM	Reserved for IFORS Lecturer
12:00 NN	LUNCH BREAK	LUNCH BREAK	LUNCH BREAK	LUNCH BREAK
1:30 P.M.	DA Workshop	Technical Paper Presentations	MCDM Workshop	Reserved for PAASE Speakers
3:00 P.M.	BREAK	BREAK	BREAK	
3:30 P.M.	Productivity Management and OR	Technical Paper Presentations	Stochastic Optimization Lecture	FREE TIME
4:30 P.M.			Stochastic Optimization Workshop	
5:00 P.M. 7:00 P.M. 9:00 P.M.				ICORMS '90 Banquet and Closing Ceremonies

It is, therefore, all systems go for the 1990 International Conference on Operations Research/Management Science (ICORMS)! A first in the Philippines, ICORMS is slated on December 11-14, 1990 at the Philippine International Convention Center (PICC).

Preparations are well under way to ensure the success of the confer-

ence. A number of big corporations like San Miguel Corporation, Philippine Long Distance Telephone Company, and Philippine Air Lines have already extended their support to the Society in this undertaking. Other companies are being considered as possible sponsors. The Conference is also being sponsored by the De-

THE PRESIDENT SPEAKS . . .
Felipe L. Fondevilla

STAND-UP TO THE CHALLENGE!!!

As we induct our new set of officers, we set our sights forward and upward to the common cause that binds us together; the promulgation of the use and practice of OR in all sectors of the Philippine society in order to achieve a productive and quality life for everyone. With this, our organization, the Operations Research Society of the Philippines aims to promote the primary objective of OR, which is to solve real world problems through the advancement of the decision-making process. Within this framework, the top activity for the 1990 is the International Conference on Operations Research/Management Science (ICORMS) which is aptly centered on both techniques and applications.

Preparations for this international forum which our country will host on December 11-14, has started as early as last year and is already in high gear. This conference will give us a very rare opportunity and an outstanding privilege to interact with OR/MS experts and practitioners coming from different parts of the world as we all share new trends and practical techniques.

Parallel to our efforts for ICORMS is our determination to continue building our internal capability by the organization of more student chapters, the holding of the first Inter-Collegiate OR Quiz and the provision for research dissemination. ORSP envisions our student chapters to be the epitome of youth characterized by energetic, competent and broad-minded members whose shared enthusiasm will result in increased membership each academic year. The younger members of the organization help facilitate needed changes and develop new ideas which are vital in a dynamic career in OR. With the increased membership, another goal of the chapters is to schedule activities that would further encourage involvement in OR. With this, ORSP student chapters should work hard at keeping members by providing social and educational services.

The encouragement of special research studies and dissemination of results for information and usage by both the model-builders and the implementors, is a crucial task. This is the challenge of ORSP today, with us, the officers in the frontline. ORSP should help forge the collaboration and cooperation between the producer and consumer of OR, between the academe and the industry, between the private and the public sectors, and all other groups with opposing yet complementary goals. Relevance and responsiveness are key factors for OR/MS to contribute its value and merit to the national progress. Through ORSP we could stand-up to this challenge!

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Science (ICORMS), here in Manila. For her accomplishments, ORSP presented her an Achievement Award.

For his part, Incoming President Mr. Felipe L. Fondevilla of PLDT presented the officers' program for the 1990-91 term which includes, a more sustained effort in the formation of ORSP Student Chapters in different Colleges and Universities; holding of the first ORSP Inter-Collegiate OR Quiz; holding of a series of symposia/technical sessions on various OR applications; publication of ORSP newsletters; members directory and the second issue of the Philippine Journal on Operations Research; and lastly, the holding of the ICORMS. Furthermore, he encouraged the general membership for active participation in the programs and activities of the Society. Inducted into office were:

Felipe L. Fondevilla
President
(PLDT)
Lemuel M. Miravalles
Vice-President
(AdMU Grad. Sch.)
Honesto G. Nuqui
Secretary
(UP)
Raul P. Rodriguez
Treasurer
(Colgate-Palmolive)
Alda G. Punzalan
Auditor
(HAU)
Leonida T. Africa
Board Member
(DLSU)
Elise del Rosario
Board Member
(SMC)
Diosdado C. Engbino
Board Member
(DLSU-AdMU Grad. Sch.)

The induction was attended by some one hundred ORSP members and guests. Notably present during the induction was the first ORSP president Dr. Bill Torres, who is now the Managing Director of the National Computer Center.

E.A. del Rosario Represents ORSP at IFORS Conference in Greece

Outgoing ORSP President, Elise del Rosario of San Miguel Corporation represented the Philippines and ORSP at the 12th International Federation of Operational Research Societies (IFORS) Triennial Conference on Operations Research held in Athens, Greece last June 25-29, 1990. Renowned for its culture, art and wisdom, Greece was an appropriate choice with the conference theme of "OR: Wisdom of the Problems of Today".

Together with several workshops, around 600 papers were scheduled in 18 parallel streams. Each day, all

partment of Foreign Affairs, Department of Science and Technology, SAS Institute Ltd. and the Philippine American Association of Scientists and Engineers.

Copies of the First Announcement and Call for Papers have been released early this year. Those of the Second Announcement are ready for distribution and will be released upon completion of the mailing list update.

The registration fee structure is U. S. $ 330 (P6,600) for foreigners. For Philippine-based professionals, special sectoral rates have been arranged; P4,000 for private sectors, P 2,500 for government, P2,000 for academe and P 450 for student participants.

The conference promises to be a successful venue to facilitate the transfer of technological know-how. It has the potential of promoting the Philippines as a fertile ground for applied science and research. With your help, we could show the world that yes, the Filipino can!

ORSP
1990-91 PROGRAM OF ACTIVITIES

1990

July - Sept	—	Formation of Student Chapters
August	—	1st Symposium - Professional
	—	Release of Newsletter Vol. 4 No. 1
November	—	Release of Newsletter Vol. 4 No. 2
	—	1st Inter-Collegiate OR Quiz
Dec 11 - 14	—	ICORMS '90
December	—	X'mas Party

1991

January	—	Release of Newsletter Vol. 4 No. 3
	—	1st OR Term Paper Writing Contest
February	—	2nd Symposium - Students
March	—	General Assembly
	—	Release of the 2nd issue of The Philippine Journal of Operations Research
	—	Release of the 1990-91 Directory

UPCOMING EVENTS

ORSP's Second Symposium for 1990

Come August 23, 1990, ORSP will be holding the second symposium/technical session for 1990 at the ELKS Club , 7th Floor of the Corinthian Plaza Bldg. along Paseo de Roxas in Makati. As part of the Society's continuing program of providing general meetings that are informative and educational for members, this symposium will be held with professionals as the primary target audience. For this symposium, the Programs Committee invited three (3) guest lecturers, two (2) of whom will talk on various OR applications in their companies, while the third will discuss the OR features of the software they are marketing.

Invited as guest lecturers are:
Prof. Leonida T. Africa
VP - Academic Affairs
De La Salle University
Mr. Lowell L. Lorenzo
Dept. Head - Special Projects
Philips Components (Manila)
Mr. Eric V. Bergara
Country Manager
SAS Institute Ltd.

1st ORSP Inter-Collegiate OR Quiz

In an effort to encourage further involvement in OR of the academe and studentry, and to establish and strengthen the vital link between the academic and business sectors; ORSP is holding sometime in November the 1st Inter-Collegiate OR Quiz. Although nothing yet is definite as to the venue and number of participating schools, four schools namely: Ateneo De Manila University, De La Salle University, Holy Angel University (Angeles) and Mapua Institute of Technology have signified their intention to join. According to the Student Affairs Committee, several more schools are expected to respond to the invitation and that preparations are already in high gear.

Induction of 1990-91 ORSP HAU Student Chapter Officers

The first ORSP Student Chapter organized in Holy Angel University at Angeles City, will be inducting its 1990-91 officers on September 1, 1990 at the Holy Angel University Auditorium. A symposium/career talk will be held at the same day. Incidentally, the ORSP HAU Student Chapter was chosen as the "Most Outstanding School Organization in HAU" last year. Their adviser is Ms. Alda G. Punzalan, our ORSP Auditor.

ORSP INDUCTION HIGHLIGHTS

Undersecretary Lichauco addressing OR enthusiasts.

The Undersecretary receiving the plaque of appreciation from ORSP Pres. F. Fondevilla.

Outgoing Pres. E. del Rosario receiving her achievement award.

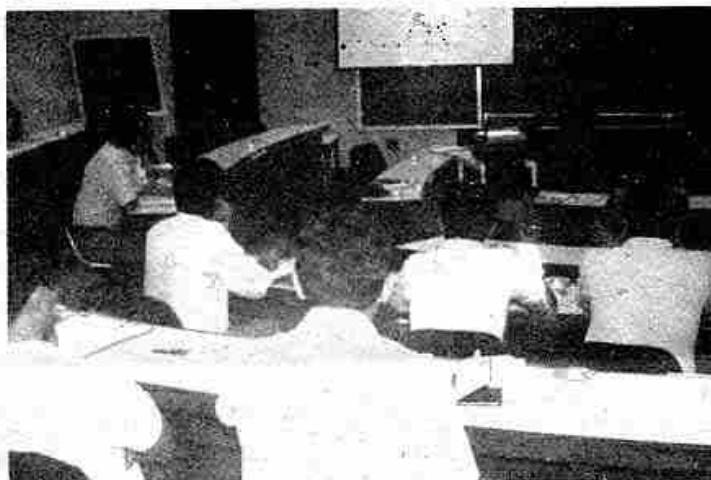First ORSP Pres. Bill Torres (2nd from left) also graced the induction ceremonies.

The 1990 ORSP Officers taking their Oath of Office.

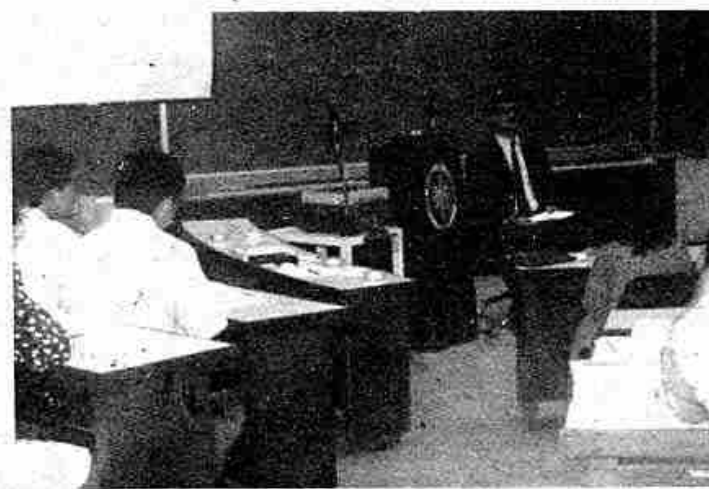PLDT busy bodies with Ms. Punzalan, ORSP Auditor.

4th GEN. ASSEMBLY HIGHLIGHTS

Outgoing Pres. E. del Rosario reports ORSP's accomplishments during her term.

(Ret.) Brig. Gen. Lukban delivering his lecture.

Dr. Purba Rao lecturing on "OR Applications in Marketing".

Dr. Nigel Gasper, SAS Manager for Asia presenting SAS OR software.

E.A. del Rosario

participants were brought together at the start for a plenary session. John Little (USA), Jonathan Rosenhead (UK), and Kostas Vaitsos (Greece) spoke on OR in industry, society and government, respectively.

Papers presented showed good examples of structuring and solving broad and complex problems. While some showed new and deeper insights into the theory and science of OR, most told or how they creatively solved problems encountered in their organization: companies, governments, hospitals, universities and other institutions.

Of the more than 700 participants, those from USA, UK, Canada and Japan comprised the biggest delegation. E.A. del Rosario was the lone Philippine and ORSP representative. During the general assembly meeting, she invited everyone to ICORMS and was met with a lot of inquiries about the Conference.

She was also interviewed for a feature in a Greek woman's magazine with three other IFORS delegates from Portugal, Australia and the U.S.A.

Reporting on her trip, she quips, "I had never been amidst so many OR practitioners, scientists and enthusiasts from all over the world! It was certainly a learning and sharing experience. If I may say so myself, I think I did a successful promotions job for ICORMS. Everyone in the IFORS community was amazed at how such a new and small organization like ours could manage an affair as big as this. Well, I think it's a challenge for all of us to make it one of the best ever held in the region".

OR IN PRACTICE

EVALUATION OF A SINGLE QUEUE - MULTIPLE SERVER SYSTEM FOR TEST-BOARD PERSONNEL: (PLDT CO.) A SIMULATION STUDY

BY: CRISPIN M. CAJUGUIRAN
MARCIALITO V. NUESTRO

BACKGROUND

The Makati General Office (MGO) Service Center Test and Dispatch Section handles the dispatching of installers and repairmen to their respective work assignments and the testing of telephone lines during installation and repair work.

Dispatching refers to the activity where a service center tester/dispatcher receives reports (through telephone calls from installers and repairmen) and records completed work assignments by installers and repairmen and then dictates their next work assignment. Testing refers to the activity where the tester/dispatcher tests, in coordination with the installer or repairman and the central office tester, the assigned or replacement telephone line for a new or existing telephone station. Testing and dispatching are done using terminals (positions) connected to the PDP-11 Mechanized Line Record/Line Condition Report System (MLR/LCR). This system is in turn connected to the Automatic Call Distributor (ACD), which queues all incoming calls to the MLR/LCR.

The MGO Service Center handles test and dispatch activities for the Intramuros, Malate and Makati central offices, which have the number of telephone lines, installers and repairmen and dialling access codes shown in Table 1.

At present, 4 positions are assigned to Malate, 5 to Intramuros and 9 to Makati. Test and dispatch activities start from 8 am and end at 5 pm. The study aims to determine whether adopting a single queue system for all 3 central offices would effect an over-all quicker response to calls made by installers and repairmen.

MODEL FORMULATION AND EXPERIMENTATION

Separate models were formulated for the existing multiple queue and the proposed, single queue systems. The models were based on data gathered, observations and interviews.

The significant model parameters identified were: Queue Discipline - multiple or single queue; Mean Arrival Rate of calls to the MLR/LCR from each central office at each hour; Number of Positions handling test/ dispatch calls from each central office at each hour; Probability Distributions for abandoned calls, conversation time and arrival rate.

Inasmuch as this study is particularly concerned with which queue discipline to be adopted, only the parameter queue discipline distinguishes the models from each other. SIMAN was used to model the system, and the SIMAN block diagram representing the proposed single queue system is shown in Figure 1.

Abandoned calls follow a binominal distribution, while conversation time follows a normal distribution. The arrival rate of calls from all central offices follow an exponential distribution.

RESULTS AND RECOMMENDATIONS

The criteria used in selecting the better alternative between the multiple queue and single queue systems were:

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1. Percent Utilization Rate (PUR). The SIMAN program reads the number of positions engaged (in test/dispatch activities) every 15 minutes. PUR is equal to the summation of these readings divided by 576; where 576 equals the number of positions (18) multiplied by the number of readings per hour (4) multiplied by 8 hours. PUR for the multiple queue system is 53.37%, and 53.53% for the single queue.

2. Average Queue Length (AQL). This pertains to the number of calls from installers and repairmen answered at any given time. Readings are taken at 15 minute intervals like the PUR. AQL values for multiple queue are 5.60 for Malate, 6.86 for Makati, and 2.46 for Intramuros. AQL values for the single queue system are 2.91 for Malate, 8.01 for Makati and 2.65 for Intramuros.

3. Time in System (TIS). This refers to the time that the installer/repairman spends at the system, starting from the time he hears a ringback tone up to the time that he hangs up. TIS values for the multiple queue system are 6.87 minutes for Malate, 5.66 for Makati and 5.58 for Intramuros. Single queue TIS values are 4.56 minutes for Malate, 6.73 for Makati and 5.28 for Intramuros.

The study recommends the retention of the multiple queue system and a slight modification of the Intramuros-Malate portion of the system to allow a spillover of calls from Malate to Intramuros. This means that calls of Malate installers and repairmen would be channeled to Intramuros trunks whenever overflow occurs. Primary considerations for the recommendation were the significant increases in AQL and TIS of Makati calls, as compared to the very slight improvement in PUR of Malate calls, which would happen if the single queue system would be implemented.

Table 1.

	Lines	I&R Personnel	Dial Code
Intramuros	25132	38	174
Malate	35457	41	175
Makati	69073	71	176

Figure 1