

DOE's Sec. Perez Lauds ORSP Study

The ORSP arm for nation -building, the Committee on OR for Public Service, presented the results of its Luzon Grid Power Dispatch Optimization Study last February 24 and March 14 to the decision-makers of Department of Energy and National Power Corporation, respectively.

The objective of the model is to minimize energy generating costs subject to capacity and demand constraints. Methodology used was mixed integer programming and because hourly energy demand for one year was considered, the model had to be simplified to lessen the millions of variables in the original formulation. Software used was Xpress MP, generously loaned to the team by Bob Daniel of UK through Leo Villarosa, who distributes the software locally.

Results presented show that there is room for optimization in the dispatch of plants. Some of the dispatching rules of thumb can

greatly be improved with the use of an optimizing methodology that takes into account the long -term implications of set up costs, take -or-pay and other cost sharing arrangements with IPPs, capacity fees, energy fees, , water levels for hydroelectric plants, fixed and variable costs.

The results also show the cost of generating energy for the whole year of 2003 by plant, by type of energy source, and by type of plant ownership. It shows the optimal utilization of plants. Compared to the optimal plan were a plan based on the current rules of thumb used in dispatching as well as a plan that assumes no transmission constraints. Penalties of deviating from the optimal plan are shown.

The results are primarily for policy setting use. However, modules programmed for this project can form the core of a system usable in day-to-day dispatching.

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Quiz Caps Student Congress; Ateneo First Again

The annual Student Congress and Quiz Contest was held last March 15, 2003, at the UP Diliman NISMED (National Institute of Science and Mathematics Education) auditorium. Close to 300 students and 20 faculty participants from various schools attended the affair, which was ably organized by the UP Diliman student chapter.

The morning saw a stimulating set of speakers from both academe and practice. **Samuel Cruz**, Operations Research Manager at San Miguel Corporations, delivered a well -received talk on the many applications of operations research in the company.

Vic Reventar , President of SVI Billing Solutions and current ORSP President, discussed financial applications of OR in the banking, insurance, and investment arenas. Finally, **Marlene Gutierrez**, Assistant Professor in the OR/IE Department at UP Diliman, talked about various transportation after a hearty lunch. Competing teams came from Ateneo de Manila University (ADMU), De La Salle University (DLSU), Letran College, Mapua Institute of Technology, University of the Philippines - Diliman (UP Dil), University of the Philippines - Los Baños (UPLB), and University of Sto. Tomas. Judges were Emmanuel Macalalag of San Miguel Corporation, Dennis Cruz of

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Secretary Perez presents ORSP Corps (Elise del Rosario) with plaque of appreciation

DOE's Sec Perez...

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To be appropriate for daily use, user interfaces still need to be added. A simple forecasting tool that was made for this study has been turned over to the National Power Corporation Systems Operations group. Based on the 2000 to 2002 data, the tool outputs hourly demand (in megawatts) for the whole year for the Luzon System, given the annual peak demand input.

This study was requested by Secretary Vince Perez of the Department of Energy and Undersecretary Greg Domingo of the BOI, Department of Trade and Industry.

It was undertaken by ORSP Corps in its efforts to help government agencies benefit from the use of OR tools and techniques. The project team is composed of Elise del Rosario, JC Mercado, Mari Jo Ruiz, Geoff Chua and Alyson Yap of the Ateneo University and Benson Calacday, Joseph Hui and Lawrence Liao and Joel Bugay of the De La Salle University.

It was officially started in May 2002 and results officially transmitted in April, 2003. As in most OR studies, data gathering took up most of the study preparation time. The CPU intensive processing required the parallel computing facilities of Xpress MP implemented on two high-end Pentium class computers generously loaned by Intel Philippines.

Secretary Perez acknowledged the contribution of the ORSP Corps in helping shape policies for the energy sector in the Philippines. He presented Elise del Rosario with a plaque during her presentation last February 24 at the DOE office.

Student Congress...

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De La Salle University, and Rizaldy Capulong of the Social Security System. Richard Li anchored the contest as quizmaster. **ADMU** established an impressive early lead in the first round by scoring 150 points, while closest rival

UPLB scored 50 points. The second round saw **DLSU** shifting gears to raise its cumulative score to 150 points, finally placing second to ADMU's 200 points. The cliff-hanger between UPLB and UP Diliman for third place was finally resolved after a series of sudden-death questions, in favor of **UP Diliman**. Congratulations to the winners and organizers of the event!



(L-R): Student Congress Speakers Sam Cruz, Marlene Gutierrez and Vic Reventar; OR Quiz Champ ADMU with judges; DLSU runner up and UP third placers

ORSP Student Chapters Organize Themselves

By: Karl Songco

A few months have passed since the first ORSP -SC general meeting took place this school year at the Kostka Audio Visual Room in Ateneo de Manila University last May 31. At 10:00 am, the chilly room was slowly filled with unknown faces, meeting one another for the first time, and ready to start the year on a high note. Convening the meeting was University of the Philippines -Diliman's Arlene Buenviaje, a 5th year BS Industrial Engineering student and officer of IE Club. The event was attended by the ORSP representatives from each member school, namely, Ateneo de Manila University, De La Salle University, Colegio de San Juan de Letran-Calamba, Mapua Institute of Technology, UP Diliman, and University of Santo Tomas. Unfortunately, the group from University of the Philippines -Los Baños was not able to attend due to miscommunication. Nevertheless, the meeting proceeded with everyone feeling a little nervous on what would transpire in the next few hours.

Buenviaje started with an icebreaker to shatter the room's deafening silence. She asked everyone to get any length of tissue paper from the one roll handed out to the group. She then asked the participants who were seated side by side on a circle, to write any fact about themselves on each sheet. Those who got less than five sheets were indeed lucky! The group then discussed important matters regarding the structure of this year's ORSP Student Chapter. Each school, through random selection, was given a particular position for the whole organization. Each school was also asked to choose a month in which they would sponsor the general meeting. Projects were then planned for the year, particularly the ORSP Acquaintance Party and the OR Congress. After another group game, the meeting ended. Everyone bade each other goodbye, looking forward to the next general meeting in the province where buko pies, resorts, and the majestic Mt. Makiling are to be found.

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OR Seminar for Decision-Makers

An update of the seminar Enhancing Profitability through Operations Research was held at the Manila Peninsula Hotel on November 27. First offered in 2001, the course is designed as an introduction for decision makers who wish to apply operations research in their



Bryan Gobaco

Agnes Perez

companies. It presents an overview of OR methodologies and their applications in manufacturing, finance, and service industries.

This updated seminar introduces new applications and incorporates revisions gathered from feedback of the past offering.

Bryan Gobaco and Agnes Perez, (whose pictures appear above) joined the roster of past lecturers. At the workshop for the second time was Elise del Rosario who is the Vice President for the International Federation of Operational Research Societies (IFORS). She talked about Operations Research and its application areas, and how to go about setting-up an OR group within an organization. As a former Vice President for Operations Research at the San Miguel Corporation, she had a lot of insights to share on this topic.

Dennis Cruz next gave a soft introduction to Linear (LP) and Integer Programming (IP). He gave examples of the models and identified the characteristics of LP and IP models. Cruz is an Assistant Professor of Industrial Engineering at the De La Salle University -Manila.

Agnes Perez talked further about the LP and IP Applications specifically in Manufacturing and Logistics. A Senior OR Analyst at the San Miguel

Senior OR Analyst at the San Miguel Corporation, she was well -qualified to touch on examples of OR problems a company typically encounters in manufacturing operations.

Vic Reventar talked about Simulation and Optimization in Banking and Finance as well as the Theory and Applications of Decision Analysis. President of SVI Billing Solutions, Inc. and a part -time Faculty Member at the Ateneo de Manila University, he specializes in Information Technology and Operations Research. He is also a Financial and Investment Applications Specialist. He was therefore able to give a thorough presentation of the various implementation strategies for the topics assigned to him, apart from tackling their underlying concepts.

He also introduced System Dynamics to the participants.

Bryan Gobaco, an Instructor of Industrial Engineering at the De La Salle University gave a brief introduction of System Simulation and enumerated its applications in Manufacturing and Service Industries. He gave examples of problems that could be solved with the technique and showed how a Simulation software solves them.

The participants gave the seminar high marks, and more importantly, left the seminar eager to try their hand at the new insights, methodologies and software they took away with them.

Christmasing....

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After exchanging gifts and receiving cans of beer and queso de bola courtesy of the SMC OR Department, the group called it a night. As it has been the past few years, the ORSP Christmas Party was a fun gathering of friends. It was a proper farewell for the year that was and a hearty welcome for the year that lay ahead. All members are welcome. Try to make it this December!

From the President Vic Reventar

Recent history and current events continue to underscore the relevance of Operations



Research in the Philippine milieu. It seems that our nation lurches from one uncertainty to the next - from the Asian financial crisis, to an impeachment trial and subsequent change of government, and now to a global war on terrorism fought at home. All these have triggered a slowdown in business growth and investments, with very few companies opting to expand operations because downside risks outweigh potential rewards. In this environment where the operating mode is "survival and maintenance", Operations Research practice, with its focus on doing the best with scarce resources, should flourish. The harsh reality however, is that there are very few Philippine companies and government institutions that are exploiting the many tools available in the OR arsenal. The fundamental reason for this is lack of basic information about what these OR methods and tools are, how they can be used in a practical setting, and their potential for improving the bottom line.

Herein then is the supreme task presented to the ORSP: to disseminate information on OR "knowledge ware" and promote

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From the President...

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OR applications in the Philippine setting. The ORSP remains committed to furthering this endeavor through various means: series of seminars and symposiums, the annual OR Quiz and Paper Competition to stimulate our youth, participation in live projects in private industry and in government, the ORSP General Assembly through which captains of industry and government can share their experiences with the OR community.

We recognize also that faculty development is essential in this effort. Thus, ORSP is embarking on a faculty outreach project, to contribute to continuous improvement in OR teaching skills. Also in the pipeline is the IFORS Teachers' Workshop which the Philippines will be hosting in 2004.

With your participation, we are indeed looking forward to fruitful activities in the months to come.

Christmasing the ORSP Way

For ORSP, Christmas 2002 came early on December 11 at Elise del Rosario's residence at Acropolis. It was a night of great food, amusing intellectual games and exciting sports competitions. Most memorable was Agnes Perez's awesome display of brains as she won in the annual WORD GAMES and the host couple's athletic exhibition as they trashed all their guests in a quick game of hoops. Win or lose, everyone got a prize.

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OR FOR DEVELOPMENT PRIZE COMPETITION

The IFORS Prize for OR in Development, 2005

Call for Papers

Deadline for submissions, December 31, 2004

IFORS is pleased to continue the tradition of the IFORS Prize for OR in Development, to be awarded during the 2005 IFORS Triennial Conference to be held in Hawaii. A grand prize of US\$2,000.00 and a runner-up prize of US\$1,000.00 are offered. Entries are automatically considered as formal submissions for publication in the International Transactions in Operational Research, an IFORS publications.

The Prize Committee welcomes all entries meeting the following criteria:

- The paper describes a practical OR application in a developing country, conducted to assist a specific organization in its decision-making process, with original features in methodology or implementation.
- Principal authors and presenters are nationals of a developing countries. While recognising that "developing country" is fuzzy concept, the committee will consider the eligibility of an entry on the basis of the levels of economic, social and political development of the country, as well as the extent to which the practice of OR is embedded in its public and private sectors.
- If selected to be among the finalist, the entry should be presented by one of the principal authors during the 17th IFORS Triennial Conference in Honolulu, Hawaii on July 11 -15, 2005.
- The paper includes some description of the application's social context and its impact on the decision-making process or on the organization for which conducted. Where appropriate, the relevance of the country's state of development to the study is addressed. A stress on development issues will be an important factor in the judging. Papers of a purely technical nature, or those which have no relevance to the development context, will not be considered.
- Length of the paper does not exceed 25 pages (1 1/2 spacing). Papers exceeding this length will be rejected. Electronic submission of Microsoft Word files are acceptable provided that:
 - (i) font type is Times New Roman at font size 12, and
 - (ii) if requested, authors will be able to send a hard copy within one week of request.
- Papers which meet the preceding requirements will be evaluated for the Prize on the basis of problem definition, creativity and appropriateness of approach, MS/OR content, treatment of developmental issues, impact of the study, paper organization and structure and quality of written and (if selected as finalist) oral presentation.

All Contestants may send by e-mail or by post, a copy (two copies, if post) of their paper along with their names, affiliations, nationality, full address, e-mail address, telephone and fax numbers to:

Prof. Paul Fatti

Chair: IFORS-2005 OR for Development Prize

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Important dates:

- Last day for submission of entries : December 31, 2004
- Acknowledgement of receipt : January 31, 2004
- Notification of finalist : March 31, 2005
- Presentation : July 11, 2005

Del Rosario Attends Istanbul EURO/INFORMS Meet

ORSP Corps Chair Elise del Rosario attended the 2003 EURO - INFORMS meeting in Istanbul, Turkey from July 6 to 10 in her capacity as Vice President of the IFORS (International Federation of Operational Research Societies). EURO is the Association of European Operational Research Societies within IFORS while INFORMS is the national society of the USA. Hosted by the Turkish Operational Research Society and the Bogazici University, the Conference attracted some 1800 participants and more than 1500 invited and contributed papers. These were distributed over some 90 streams.



Del Rosario flanked by past IFORS President Peter Bell of Canada, Andres Weintraub, of Chile and incoming IFORS President Thomas Magnanti, Dean of Engineering, MIT, USA, as they take time out from the Conference to join the Dinner

Because for the past decade Operations Research has found application in many new areas such as Financial Engineering, Reverse Logistic, Telecommunications, Health Care, and many others, the conference theme of "New Opportunities for Operations Research" was chosen. Through the 1500 papers presented in parallel sessions, 4 plenary, 9 semi-plenary, 28 tutorial sessions, and the industry panel, the conference showed how OR is tackling theoretical and practical challenges to break new ground in managing increasing complexity, dynamic behavior and uncertainty.

Some of the clusters in the conference included airline applications, analytic hierarchy process, AI, ES and neural networks, bioinformatics, capacity planning, cross -entropy, cutting and packing, data envelopment analysis, data mining and data base modeling, e - commerce, entrepreneurship, environmental

management, large -scale optimization, metaheuristics, reverse logistics/remanufacturing, stochastic models, warehouse design, planning and control. Worth mentioning are two semi-plenary sessions on "Half a Century of Combinatorial Optimization" by Jan Lenstra, and OR Education: Spreadsheets as a Powerful Platform for OR/MS Education.

A lot of the topics presented touched, if not focused, on the use metaheuristics which include tabu search, genetic algorithms and simulated annealing. The popularity of these topics showed that classical methods often encounter great difficulty in solving increasingly complex problems brought about by the computer age and technology. OR spreadsheet modeling was also one of the popular topics.

In one of the administrative committee meetings, the Asia -Pacific Operational Research Societies group within IFORS (APORS) asked for commitment on the part of the ORSP to sponsor the 2006 APORS conference. APORS 2006 will be hosted by the Operations Research Society of India (ORSI) in New Delhi this coming December.

Note: To those who wish to be involved in the preparation for APORS 2006 in Manila, please contact the ORSP office. For more information on the Istanbul Conference, please visit www.istanbul2003.org.

ORSP Student... *Continued from page 2*

Four weeks later, on the 28th of June, the second general meeting was held at Letran in Calamba, Laguna. Details of the upcoming acquaintance party were vigorously discussed, with everyone contributing excitedly to the discussion. Duties were evenly distributed among the member schools, which included the food, program, presentations, games, registration, decoration, and others. As suggestions were raised every minute, roars of laughter and giggles punctuated the lively discussions. Before the meeting ended, the group discussed a topic of concern regarding a proposal of accepting another I.E. organization into the society. This was turned down in accordance with constitutional provisions. In the end, after feasting on a couple of Dunkin Donut™ boxes, the meeting was adjourned.

By the time this article goes to print, the acquaintance party on July 19 at ADMU would have been over. As a preparations are being undertaken to ensure that everything will run smoothly, the event will surely have been a success. Everyone is hopeful that this event will provide the spark to inflame unity among the ORSP Student Chapter member schools.

Certainly, the new school year for the student chapter has started well. Watch out for our events, culminating in OR Congress - this year will definitely be great!

OR/MS Today Features International Applications

Copies of the April 2003 Special International Issue of OR/MS Today are available at the ORSP office for Php 250.00 per copy for members, Php 350.00 for non-members. The following description of the issue was written by its editor; Peter Horner:

This issue gives readers a taste of the wide world of OR wherever it happens to be practiced or preached. IFORS past president Andres Weintraub and OR/MS Editor Peter Horner coordinated to bring to the reader "snapshots" of OR based on the responses of an international cast of professors and practitioners. The world of OR tour begins in Singapore, where, according to contributor John Jarvis, logistics isn't always logical. Jarvis, a professor at Georgia Tech and a former president of the Operations Research of America, has a unique vantage point as the director of The Logistics Institute -Asia Pacific.

Next, Martin L. Puterman and company outline a truly international problem we've all been concerned about since 9/11 - airport security - and how the screening process can be improved. The Vancouver International Airport serves as a valuable case study.

From Vancouver, we jet halfway around the world to South Africa, but not for cricket. Instead, Theodor J. Stewart gives us a peek at how a decision analysis process helps clarify the often politically and environmentally murky problem of water resource planning.

Our trip continues in New Zealand where a trio of researchers led by Andy Philpott developed a cutting-edge optical fibre network that connected with client and customer alike.

Operations Research Society of the Philippines

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Search for the X ELAVIO Summer Institute IFORS Fellow

IFORS is pleased to announce its sponsorship of a participant from a developing country to join the Summer School organized under the auspices of the Latin American Association of Operations Research Societies Summer School for Young Scholars (ELAVIO). The ELAVIO Summer Institute will be held in Montevideo, URUGUAY from February 23 -27, 2004. Sponsored by **ALIO** (Latin American Association of Operations Research Societies) and **IFORS** (International Federation of Operations Research Societies), the School is organized by the Operations Research Department of the University of the Republic of Uruguay (UDELAR), with the cooperation of researchers from other Departments of UDELAR and as well as other Latin-American Universities.

The School will include mini -courses and tutorials, discussion panels, and conferences on advanced topics of research interest. The students will have the opportunity of presenting their work. The main areas to be covered are Combinatorial Optimization, Metaheuristics, Graphs, Linear, Non -Linear, and Stochastic Programming. It aims to encourage the establishment of a network of promising young researchers under the guidance of distinguished operations researchers. The 50 to 70 participants of the school will be expected to present their work. Apart from the exchange of ideas, a varied social program awaits the participants.

IFORS will cover participant's airfare from his/her country while ELAVIO will provide the living expenses during the School.

If you:

- Have done work in the field of Combinatorial Optimization, Metaheuristics, Graphs, Linear, Non-Linear, and Stochastic Programming;
- Are 25- 35 years old
- Come from a developing country
- Can present your unpublished work and answer questions in English
- Are highly recommended by your adviser in your area of work
- Can comply with the requirement to report on the outcome of the activity and how it has helped you in your work,

APPLY NOW!

Submit your curriculum vitae and a two -page abstract of the work you intend to present, together with a recommendation by your adviser on or before November 30, 2003 to:

Elise del Rosario

Developing Countries Committee Chairperson
Vice President, IFORS
e.delrosario@jgdelrosario.com
Telefax No. (632) 634 49 96 or (632) 637 00 36

Submissions through e -mail are acceptable. The selected applicant will be notified on December 12, 2003 at the latest.