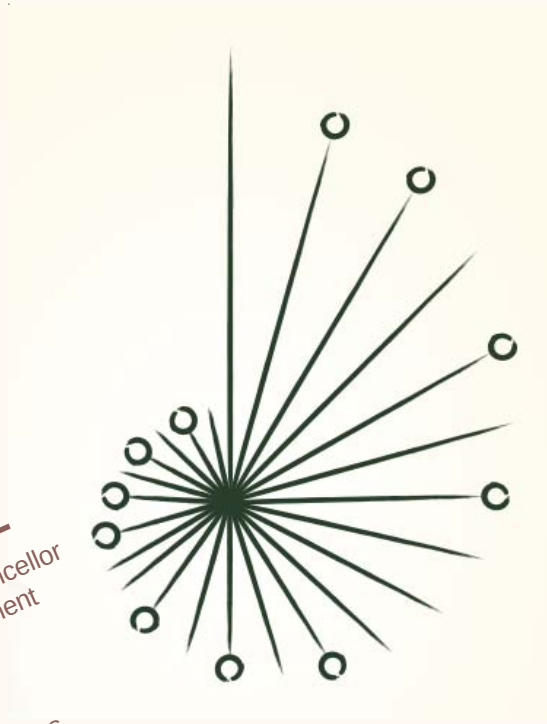


PALIWANAGAN SA UP DILIMAN

2012 Office of the Vice-Chancellor for Research and Development Colloquium

16 January 2012
National Institute of Physics
National Science Complex
UP Diliman

BOOK OF ABSTRACTS

About the Colloquium

Paliwanagan sa UP Diliman – OVCRD Colloquium 2012 aims to: 1) showcase OVCRD-funded research and development (R&D) projects, programs, and initiatives, 2) discuss available institutional support to UPD researchers and creative workers, 3) acquaint UPD constituents about research and creative work initiatives of their colleagues in other UPD units, and 4) highlight the complete R&D cycle from proposal writing through intellectual property (IP) creation and invention, to IP dissemination and utilization.

The event's theme, *Paliwanagan*, takes off from colloquium's literal meaning, i.e. a conversation or dialogue. *Paliwanagan sa UP Diliman*, therefore, is envisioned as a platform for dialogue among UP Diliman researchers and creative workers, a dialogue that is to be conducted in the spirit of *exchange and understanding*. As such, the Colloquium sessions have been designed as a venue for sharing research information, experiences and insights between the presenters and the attendees. A parallel event featuring OVCRD information booths, UP Diliman publications, and information about UPD's research partners provides a glimpse into the broader context of the R&D process, in terms of various forms of institutional support and other opportunities available to UPD researchers and creative workers. Through the sessions and the parallel event, the OVCRD hopes that the UP Diliman community will gain a better understanding of how R&D progresses in the campus, leading to a sharing of inputs on how a responsive, proactive and dynamic R&D program can be better achieved in UP Diliman, making the University a source of solutions for the problems besetting the country.

The Colloquium's goals are aptly captured in the event's logo. The spiral of the nautilus shell reminds of a vitality guided by the golden ratio or phi constant, which embodies the ideals of what is dynamic, organic, and harmonious. While slightly differing from the golden spiral, the nautilus shell has been symbolic of a growth that incorporates the past within the present. Rooted to learned lessons, each former spiral serves as basis for the formation of future spirals, reminding that future development is driven and guided by a central vision. Circular endpoints of some light rays in the logo correspond to already realized R&D. Rays without definite endpoints imply a promise of continuous support as intended by *Paliwanagan* and its organizer, the Office of the Vice-Chancellor for Research and Development. The UP maroon and green hues demonstrate how the University's mission always remains a foundation for *Paliwanagan* and all R&D initiatives in the campus.

Logo design by Aleth A. Gayosa

BOOK OF ABSTRACTS

Paliwanagan sa UP Diliman
OVCRD Colloquium 2012

16 January 2012
National Institute of Physics
National Science Complex
University of the Philippines Diliman

Congratulations to the UP Diliman Office of the Vice-Chancellor for Research and Development (OVCRD) for organizing the **"Paliwanagan sa UP Diliman".** This is indeed a great way to promote research and to celebrate the innovative spirit and dedication of our scholars.

The "Paliwanagan sa UP Diliman" proves that UP's considerable research capacity is inspired by the spirit of public service. The diversity of the researches on display proves that several disciplines and perspectives are at work to provide solutions to our country's problems. To be in touch with our people's needs and aspirations is a task of UP as the national university and it is always reassuring to know that our best minds are up to the challenge.

This spirit of public service is clearly evident in the grants that made these research initiatives possible. The OVCRD's Open Grants program enables our faculty, research, and professional staff to engage in multidisciplinary research which will lead to initiatives, policies and technologies that serve the Filipino people. On the other hand, the Source of Solutions Grants program views UP Diliman as a microcosm of Philippine society and the solutions generated from these projects will aid not only the University but the country as well.

May the presentations today inspire the next generation of scholars to engage in research projects that address the needs of our people. I hope that the significant findings today inspire our current crop of scholars to keep up the good work and continue to honor the university and the country.

Congratulations to all of you!

Mabuhay ang OVCRD ng UP Diliman! Mabuhay ang Unibersidad ng Pilipinas! Mabuhay tayong lahat!

ALFREDO E. PASCUAL
President
University of the Philippines

Congratulations to the participants of the 2012 OVCRD Colloquium, "Paliwanagan sa UP Diliman." The term "paliwanagan" combines ideas of exchange, explanation, and enlightenment, which are all the necessary components for a productive colloquium. Knowledge increases in value when imparted rather than hoarded; when knowledge is shared, its further development becomes a more distinct possibility, and its impact on society gains in traction. It is for these reasons that a colloquium is an indispensable part of knowledge production.

This occasion brings together University researchers from various fields in various stages of the research process. To those who have completed their projects, I commend your hard work and I look forward to learning about and from your findings. I am sure that the discoveries you made will enlighten us all and eventually assert their relevance outside the confines of the University. To those who are in the initial stages of research, I wish you luck and success. I am eager to witness the development of your research.

Once again, congratulations to the participants, and to the OVCRD for making this event possible.

CAESAR A. SALOMA, PhD
Chancellor
University of the Philippines Diliman

Welcome to "Paliwanagan sa UP Diliman"! As we representatives of the various Colleges and Units gather to discuss new knowledge and intellectual property - arguably the University's prime wealth - let us also scan the horizon and view the way ahead.

Research and creative work is one of the three engines that drive UP's first thrust, which is academic excellence. Meanwhile, administrative efficiency and financial sustainability are the energizers of operational excellence, our second thrust.

UP Diliman, for its part, aspires to channel academic excellence and operational excellence into the acceleration of the University as a source of solutions for the problems besetting the country.

Out there, there is great distance to cover.

The University researchers and administrators gathering together during "Paliwanagan" and our R&D partners are taking up the challenge of shedding light upon the way.

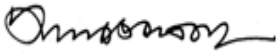
We sincerely hope that "Paliwanagan" will be a constantly useful vehicle where UP Diliman faculty, researchers and students will stay on board. For showing us the way, thanks and congratulations to the first set of stewards-presentors on 16 January 2012.

Prof. BENITO M. PACHECO, PhD
Vice-Chancellor for Research and Development
University of the Philippines Diliman

Congratulations to Chancellor Caesar A. Saloma and the Office of the Vice-Chancellor for Research and Development led by Vice-Chancellor Benito M. Pacheco for organizing this Colloquium and for launching the innovative Source of Solutions (SOS) Grants Program.

The Open Grants program was launched under then Chancellor Sergio S. Cao to foster collaborative interdisciplinary research that will produce evidence-based interventions and technology. We are confident that promising interventions and technologies will emerge from the SOS grantees.

We also encourage the UP Diliman community, along with our partners, to collaborate with these research groups and provide them invaluable feedback and support that will both broaden and deepen their impact.



Prof. LUIS G. SISON, PhD
Program Leader, Enterprise Center for Technopreneurship
Former Vice-Chancellor for Research and Development, UP Diliman

PROGRAM

8.00-8.30 AM Registration

8.30-8.35 AM National Anthem

Opening Remarks

Prof. Benito M. Pacheco, PhD
Vice-Chancellor for Research and Development, UP Diliman

8.35-8.55 AM Messages

Prof. Caesar A. Saloma, PhD
Chancellor, UP Diliman

Prof. Sergio S. Cao, PhD
President, Manila Tytana Colleges
Former Chancellor, UP Diliman

Prof. Luis G. Sison, PhD
Program Leader, Enterprise Center for Technopreneurship
Former Vice-Chancellor for Research and Development, UP Diliman

8.55-10.15 AM Open Grants: Presentation of Outcomes

Cultural Heritage Conservation - Affordable Solutions for a South East Asian Setting

Program Leader: Dr. Maricor N. Soriano, National Institute of Physics, College of Science

A Multidisciplinary Participatory Action Research (PAR) towards Enhancing Children's Health and Development in a Rural Community

Program Leader: Prof. Ranier V. Almazan, Department of Social Work, College of Social Work and Community Development

Understanding Philippine Foreign Policy through New Frames: The Complex Interplay of Ideals, Identity, Institutions and Interests

Program Leader: Dr. Aileen S.P. Baviera, Asian Center

OPEN FORUM

Moderator: Dr. Belen D. Calingacion, Department of Speech Communication and Theatre Arts, College of Arts and Letters

Development of Interdisiplinary Signal Processing (ISIP) Program: Filipino Vowels and Emotions (FIVE)

Program Leader: Dr. Rowena Cristina L. Guevara, Electrical and Electronics Engineering Institute, College of Engineering

10.15-10.30 AM Break

10.30-11.20 AM Open Grants: Presentation of Outcomes

Community Empowerment: An Interdisciplinary Research on Alternative Model towards Sustainable Tourism

Project Consultant: Prof. Emilio U. Ozaeta, College of Architecture

University-Industry Collaboration to Advance Growth, Competitiveness and Innovation in Pampanga Lantern Industry

Program Leader: Dr. Julieta C. Mallari, UP Diliman Extension Program in Pampanga/Olongapo

OPEN FORUM

Moderator: Dr. Florencia Charito I. Sebastian, UP Diliman Extension Program in Pampanga/Olongapo

11.20-11.35 AM UPD-CHED Zonal Research Center: Accomplishments

Presentation of Accomplishments of UPD-CHED Zonal Research Center

Dr. Joselito P. Duyanen, Director, UPD-CHED Zonal Research Center

11.35-11.45 AM Source of Solution Grants: The Launch

11.45 AM-12.35 PM Source of Solutions Grants: Presentation of Research Plans

A Study of the Prevailing Conditions and Services of *Carinderias* and Street Foods in UP Diliman Campus

Project Leader: Prof. Maria Corazon Elizabeth S. Asiddao, Department of Hotel, Restaurant and Institutiion Management, College of Home Economics

Preservation and Restoration of Philippine Art Music Manuscripts of UP College of Music

Program Leader: Dr. José S. Buenconsejo, College of Music

Project Leader: Prof. Johann Frederick A. Cabbab, School of Library and Information Studies

Establishing the 3D Campus GIS of UP Diliman (UPDGIS-3D)

Program Leader: Dr. Ariel C. Blanco, Department of Geodetic Engineering, College of Engineering

Rapid Condition Assessment of Major Buildings in the University of the Philippines Diliman and a Case Study for Seismic Retrofit Design of One of Its Buildings

Program Leader: Dr. Jaime Y. Hernandez, Jr., Institute of Civil Engineering, College of Engineering

OPEN FORUM

Moderator: Dr. Henry J. Ramos, OVCRD/National Institute of Physics, College of Science

12.35-1.30 PM Lunch Break

1.30-2.40 PM Source of Solutions Grants: Presentation of Research Plans

Glosaryo ng mga Konseptong Heograpikal sa Pilipinas - Phase I: Glosari ng mga Konseptong Heograpikal para sa Katatagan sa Kalamidad at Pangangalaga sa Kalikasan

Program Leader: Dr. Maria Luisa R. de Leon-Bolinao, Department of History, College of Social Sciences and Philosophy

The UP Diliman Handbook on Academic and Authorial Integrity

Project Leaders: Mr. Joel F. Ariate, Jr. & Mr. Miguel Paolo P. Reyes, Third World Studies Center, College of Social Sciences and Philosophy

Academic Success in the UP College of Education Graduate Programs Admission Practices, and Development of Parallel Admission Test

Project Leader: Dr. Norma G. Cajilig, Division of Educational Research and Evaluation, College of Education

Standardization of the UP College of Music Undergraduate Theory Entrance Test

Project Leader: Prof. Jocelyn Timbol-Guadalupe, Department of Music Education, College of Music

STFAP and Social Protection: Recommendations for Streamlining and Expansion

Project Leader: Dr. Aleli B. Bawagan, Department of Community Development, College of Social Work and Community Development

Process Documentation: Capturing and Documenting the Data Encoding and Forms Processing Routines of the Office of Admissions

Project Co-Leader: Prof. Ligaya Leah Lara-Figueroa, Department of Computer Science, College of Engineering

OPEN FORUM
Moderator: Prof. Maureen Anne L. Araneta, College of Architecture

2.40-3.30PM Source of Solutions Grants: Presentation of Research Plans

Proposed Schemes for Cost-Effective Utilization of Electricity of UP Diliman Buildings Project Leader: Prof. Maureen Anne L. Araneta, College of Architecture	Determination of Thermophysical Properties of Tap Water in University of the Philippines Diliman Program Leader: Dr. Menandro S. Berana, Department of Mechanical Engineering, College of Engineering	Solid and Hazardous Waste Management Plan of UPD Campus Program leader: Dr. Maria Antonia N. Tanchuling, Institute of Civil Engineering, College of Engineering
Noise Level Measurement Modelling in UP Diliman Campus Project Leader: Dr. Hilario Sean O. Palmiano, Institute of Civil Engineering, College of Engineering	OPEN FORUM Moderator: Dr. Lourdes M. Portus, Department of Communication Research, College of Mass Communication	

3.30-3.50 PM Break

3.50-4.50 PM Source of Solutions Grants: Presentation of Research Plans

Evaluation of the Re-Introduction of Traffic Signal Control at the Intersection of the University Avenue and Commonwealth Avenue Project Leader: Dr. Ricardo G. Sigua, Institute of Civil Engineering, College of Engineering	The Greening of the Philippines Starts @ UP: A Proposal for Environmental Management System (EMS) for the University of the Philippines System Program Leader: Dr. Romeo B. Santos, College of Architecture	Incentives vs. Disincentives for Going Green: Is UP Diliman Ready for Environment-Friendly Programs and Services? Program Leader: Dr. Elena E. Pernia, Department of Communication Research, College of Mass Communication
Public Transport Supply and Demand Study for UP Diliman Project Co-Leader: Dr. Ma. Sheilah G. Napalang, School of Urban and Regional Planning	Diliman as a Model for Philippine Urban Planning - Phase 1: Housing Program Leader: Dr. Laura T. David, Marine Science Institute, College of Science	OPEN FORUM Moderator: Dr. Maria Antonia N. Tanchuling, Institute of Civil Engineering, College of Engineering

4.50-5.00 PM Closing Remarks
Vice-Chancellor Benito M. Pacheco

UP Naming Mahal

LIST OF ABSTRACTS

OPEN GRANTS

The Open Grants program supports UP Diliman interdisciplinary, multi-disciplinary or cross-disciplinary researches or creative works of highest standards, which will lead to evidence-based interventions, breakthrough policies, notable creative works, and/or innovative technologies with excellent socio-economic potential.

Cultural Heritage Conservation - Affordable Solutions for a South East Asian Setting

Maricor N. Soriano *(Program Leader)*, Mark Caesar R. Talampas, Ana Maria Theresa P. Labrador, Victoria T. Herrera, Helena Yu-Rivera & Patrick D. Flores

In 2006 - 2010, three UP Diliman units implemented the project *Art beyond Appearances - Physics Looks into Paintings (ABA-PLP)*. These units are the College of Arts and Letters through the Jorge Vargas Museum, College of Science through the National Institute of Physics, and College of Engineering through the Electronics and Electrical Engineering Institute. The principal objective of the project is to create nondestructive, affordable tools for color measurement of oil paintings, 3D surface measurement of heritage objects, and museum microclimate monitoring.

With focus on Amorsolo oil paintings, the first two tools were developed to study Amorsolo's brushstroke and choice of color as well as to digitally archive his work, preserving both spectral and texture information. The third tool was developed to provide a baseline study of microclimates of museums in South East Asia. At the time of the project's inception, no such baseline study existed.

The project resulted in the following outputs:

1. Development of a novel digital cleaning technique that makes use of neural networks and the digital color values of clean, hidden parts of a painting - This technique is able to reproduce an image of the painting as it would have been freshly painted. It is unique in that it can depict the dirt layer that was virtually removed by the digital cleaning process.
2. Development of a 3D surface imaging system that makes use of a point-and-shoot camera and an LCD projector – The technique was used primarily to capture Amorsolo's brushstrokes. This imaging system is now also being used for the 3D archiving of the Angono Petroglyphs, including recent vandalisms. The tool was also employed in creating 3D images of the Ticao Stone, a limestone slab found in Monreal Ticao, Masbate which has Baybayin scripts.
3. Development of MotesArt – This is a web-based, wireless microclimate monitoring system that can log and visualize in near real-time the temperature and relative humidity inside a museum gallery or a delivery van. A 40-sensor network was installed in the Vargas Museum main gallery to measure the effect of visitors on the museum microclimate. The resulting data were numerically modeled using neural networks.
4. A patent application for MotesArt
5. An exhibit from February to May 2009 at the main gallery of the Vargas Museum showcasing the abovementioned tools
6. The creation of the Conservation Research Laboratory at the basement of the Vargas Museum
7. Production and marketing of the microclimate monitoring system through GSMetrix Inc.
8. A workshop in 17-18 April 2009 for museum researchers in the use of the abovementioned tools
9. Since 2007, the graduation of two MS Physics students and 12 undergraduate students (7 from EEEI and 5 from NIP) whose theses were on the development of the abovementioned tools
10. Collaboration with the Advanced Imaging Laboratory, Kyoto University through Dr. Jay Arre O.Toque

Top row left: Fernando Amorsolo's "Malacanang by the River" 1948 oil on canvas. Top row right : The image of the painting after digital cleaning using Palomero and Soriano's technique (Palomero Soriano, Optics Express 2011). Bottom row: Rendered dirt layer removed using digital cleaning

List of Publications, IPs, and Enterprises

1. C. Palomero and M. Soriano, Digital cleaning and "dirt" layer visualization of an oil painting, Optics Express 19(21):21011-21017, 2011. (ISI Publication)
2. M. Soriano, C. Palomero, L. Cruz, C. M. K. Yambao, J. M. Dado and J. M. Salvador-Campaner, Color signatures in Amorsolo paintings, Proc. SPIE 7531, 75310M (2010). (Conference Proceedings)
3. I.M. Tolentino, R.S. Juson, B.U. Tan and M.R. Talampas, Design, development, and evaluation of a simple wireless sensor network for indoor microclimate monitoring, TENCON 2010 - 2010 IEEE Region 10 Conference, pp.2018-2023, Fukuoka, Japan, 21-24 Nov. (2010). (Conference Proceedings)
4. A.M.C. Lee, C.T. Angeles, M.C. R. Talampas, L.G. Sison and M.N. Soriano, MotesArt: Wireless sensor network for monitoring relative humidity and temperature in an art gallery , IEEE International Conference on Networking, Sensing and Control, 2008. ICNSC 2008. pp 1263-1268, Sanya, China April 6-8 (2008). (Conference Proceedings)

5. L. Cruz, J. Salvador, A. Paz, J. Dado and M. Soriano, Establishing deterrents to help reduce forgery practices and secure the authenticity of Philippine paintings, 15th Triennial Conference of the International Council of Museums-Committee for Conservation (ICOM-CC) New Delhi India September 22-26 (2008). (Conference Proceedings)
6. Patent pending, MotesArt XP: Wireless Sensor Network for Monitoring Temperature and Relative Humidity in Art Spaces

About the Researchers

Dr. Maricor N. Soriano is a Professor of Physics at the National Institute of Physics, UP Diliman. Her research activities are on color, video and image processing applied to marine conservation, heritage conservation, medical diagnostics, and biomechanics.

Engr. Marc Caesar R. Talampas is an Assistant Professor at the Electronics and Electrical Engineering Institute, UP Diliman. His research interests are on wireless sensor networks.

Dr. Ana Maria Theresa P. Labrador is currently Technical Advisor for Museum Development at the National Museum. Dr. Labrador was curator of Vargas Museum from 2001 to 2007.

Assistant Professor Victoria T. Herrera was curator of Vargas Museum from 2008 to 2009. She is a faculty member of the Department of Art Studies in UP Diliman.

Dr. Helen Yu-Rivera holds a PhD in Philippine Studies and is an Associate Professor of Art Studies at the University of the Philippines. She was curator of the UP Vargas Museum from 2007-2008 and Deputy Director for Marketing of the University of the Philippines Press from 2008-2011. She has published two books on editorial cartoons and several articles and essays on contemporary art in the Philippines.

Dr. Patrick D. Flores is a Professor of Art Studies at the Department of Art Studies at the University of the Philippines, which he chaired from 1997 to 2003, and Curator of the Vargas Museum in Manila. He is Adjunct Curator at the National Art Gallery, Singapore. Among his publications are *Painting History: Revisions in Philippine Colonial Art* (1999); *Remarkable Collection: Art, History, and the National Museum* (2006); and *Past Peripheral: Curation in Southeast Asia* (2008).

Understanding Philippine Foreign Policy through New Frames: The Complex Interplay of Ideals, Identity, Institutions and Interests

Aileen S.P. Baviera *(Program Leader)*, Rowena R. Pangilinan, Eduardo T. Gonzalez, Amado M. Mendoza, Jr., Edgardo E. Dagdag, Herman Joseph S. Kraft, Noel M. Morada, Carolyn I. Sobritchea, Eduardo S. Tadem & Teresa S. Encarnacion-Tadem, with Tina S. Clemente & Rolando G. Talampas

Originally envisioned primarily as a thematic assessment of Philippine foreign relations, this research focuses on key dimensions of how the Philippines relates with other countries and the international community. Participating scholars examine – from a multidisciplinary, multi-method, policy-oriented perspective – how the country has managed its foreign economic linkages, external security problems, regional relations with East and Southeast Asia, and protection of its overseas workers. It also explores the relevance of culture and institutional factors – including formal and informal rules and norms, and perceptions of identity and roles – in shaping foreign policy behavior. Moreover, the analyses look beyond the role of the state into civil society interactions that affect people-to-people relations.

The various projects of the research employed different methodologies, including document analysis, interviews, focus group discussions, analytic narratives, and case studies to reach key findings. By so doing, the study hopes to contribute to better understanding of Philippine foreign relations by providing basic documentation of facts and events as they occurred, offering explanations based on various theoretical lenses and using different analytical tools, and most importantly, extracting learnings and lessons for future policy.

The eight components of the study are described in the paragraphs that follow.

Philippine Foreign Relations: A Historical Review of Foreign Policy Objectives

Rowena R. Pangilinan

This essay traces the development of Philippine foreign relations by examining the country's foreign policy objectives since 1946. In addressing this question, several other points of inquiry emerge: How can one characterize Philippine foreign relations in the past six decades? Were the country's foreign policy objectives evolving in relation to the different milestones in Philippine history, particularly following 1946 (independence), 1972 (beginning of Martial Law), 1986 (post-EDSA Revolution), and 1991 (after the closure of US military bases)? In what ways have foreign policy objectives differed over the years and what account for these changes?

Data sources used for this essay include pronouncements of various Presidents, Foreign Affairs Secretaries, and other officials over the decades. These were complemented by interviews conducted during the first half of 2008 with

practitioners and stakeholders. Other references include writings of scholars of international relations, historians, and Filipino foreign policymakers. While the evolution of foreign policy objectives can be identified based on such sources, the assessment of whether such objectives or aims were realized would require a more systematic examination of events during the various periods under consideration; that lies beyond the scope of this paper.

In the early decades of post-war Philippines, relations with the United States defined its foreign relations. The “special” RP-US relations were carried out in the most comprehensive manner realizable, covering political, economic, cultural, and security aspects. Domestic realities at the time, specifically the emphasis on post-war rehabilitation and reconstruction, meant that United States would play a significant role, since it emerged as the most powerful country following the Second World War.

Still, most administrations recognized the importance of developing relations with neighbors that were just emerging from colonization, as well as with other countries where strategic interests could be pursued. Quirino thus kept an open mind about China, following Communist victory over the Nationalists. Marcos forged ties with PRC and Eastern European states in the light of the oil crisis, Communist insurgency, and the need for export markets.

The Garcia Presidency affected the country’s international trade through its “Filipino First” Policy, while the older Macapagal chose to lift exchange and import controls as the country moved towards free markets; neither succeeded in securing stable growth or equitable distribution of wealth. Marcos and Ramos came into office with clear visions of what the Philippine state should be, helping to define the directions of diplomacy. Marcos had his New Society, and tried to get significant aid and investments for this goal, while Ramos employed a comprehensive Economic Diplomacy agenda which was a significant component of his trade liberalization strategy. Corazon Aquino sought to help spread democratic ideals by forging relations with other democratic states.

Solidum, writing in 1982, argued that Philippine foreign policy was transforming in major ways as a result of altered perceptions of international developments, particularly those affecting Southeast Asia. She asserted that the conduct of Philippine foreign policy was changing from one that was US-centered to one that was largely affected by Asia, signifying a maturity of our Philippine foreign policy. But while relations with our neighbors have indeed significantly improved, experts interviewed for the study indicated that the country’s ears still appear well-positioned nearest to Washington.

Governance Structures and Philippine Foreign Policy Choices: An Institutional Perspective

Eduardo T. Gonzalez, with contributions from Tina S. Clemente

Foreign policy development in the Philippines fails in making a central and sovereign force that delivers social stability, and peace and security in the state. More often than not, openings for breakthroughs to change this situation are not reinforced and sustained. Such lapses are mediated through institutions, and understanding how the institutional environment shapes and influences the making and delivery of foreign policy is crucial.

This study outlines the recent institutional developments that shape Philippine foreign policy, which include the shift from North-South bipolarity to a multi-polar, issue-based bargaining stance, and the involvement of non-state players, third parties and the Islamic factor. The research follows two case narratives to understand the status of foreign policy governance structures and the Philippine policy choices. It uses the analytic narrative, which is a case study method that blends detailed contextual understanding of the situation with explicit, context-specific modeling, using historical accounts. Using this method, the study hopes to develop empirically verifiable conjectures regarding the system of rules, beliefs, norms, and their manifestations in organizations that together prompt regular patterns of behavior.

The two case narratives studied were the peace negotiations in Southern Philippines and the US War on Terror and Philippine security policy. The case narratives trace the sequences of actions, decisions and responses of individuals and groups that generate events and outcomes. They piece together the stories that account for the outcomes of interest: the creation of peace between government and insurgents, and the policy decision to combat terrorism. The case narratives attempt to shed light on the possible solutions to the difficulties of foreign policy-making.

This study specifically aims to discuss the relationship between institutional rules and foreign policy outcomes, to place Philippine foreign policy in a wider context of theoretical and empirical work using an institutional analytic-approach, and lastly, to indicate "second best" institutional changes that can be operated in the context of existing political equilibrium conditions in the Philippines.

The study poses the following conclusions: (1) The use of problem-solving informal institutions that substitute for the lapses of formal setups has induced efficiency gains; there could be efficiency losses when problem-creating informal institutions arise from formal setups. (2) Philippine foreign policy is more effective and efficient when left alone by dominant global players. (3) The efficacy of a third party as a deal neutralizer depends on its ability to stand firm on its commitments. (4) While agents seek to maximize their expected utility (to their principals/constituencies), their actions may not necessarily maximize total welfare. (5) It remains to be seen whether a novel formal-informal institutional interplay can set off the evolution of more effective external relations structures.

Assessing Philippine Economic Negotiations

Amado M. Mendoza, Jr., with contributions from Rolando G. Talampas

Economic diplomacy is a key instrument of any nation-state especially if its economy is relatively small in the global scale and in comparison to its foreign

economic partners; and if it is relatively permeable, that is, if a significant share of its gross domestic product (GDP) is accounted for by foreign trade and capital flows. A state's economic diplomacy will have to be primarily assessed through its ability to extract best value for the country's products, services, and other tradeables through negotiations, trade agreements and other diplomatic means.

Using several case studies, negotiation outcomes were studied by employing a framework that incorporates market conditions, domestic politics, and negotiators' beliefs and strategies, among others. The study was conducted using key informant interviews and analysis of relevant documentary sources.

The Bell Trade Act (with its Parity Agreement) with the US in the immediate post-war period was 'sweetened' by the $620 million Philippine Rehabilitation Act. In this sense, offensive value-claiming by the US (taking away value from the Philippines) was diluted by its mild value-integrating behavior. The Philippines had a very low resistance point vis-à-vis the Americans.

As for the RP-Japan Treaty of Amity, Commerce and Navigation, a vigorous debate on the merits of a treaty arose despite burgeoning economic ties between the two countries. Some negotiators argued that a treaty was not necessary since economic relations were thriving anyway. Others argued that Japan might source its raw materials elsewhere. A related agreement, the Peace Treaty with Japan, was more successful since it was pushed by the US. This treaty is an example of economic statecraft driven by security and other non-economic objectives.

In the negotiations of the Japan Philippine Economic Partnership Agreement, both parties claimed value in the trade and investment areas. However, Japan made further value-claims in other areas (national treatment and trade in toxic wastes), which became very contentious constitutional issues. What complicated the JPEPA process was the relatively large slack between negotiators and ratifiers since the negotiation was dominated by the executive. This meant that there was a greater chance of non-ratification.

The last case under consideration is the civil aviation conflict between the Philippines and Taiwan in 1999-2000. The policy context was President Ramos' policy of liberalizing domestic and international civil aviation and the institutional frameworks were bilateral air service agreements (with respect to passengers) and air transport agreements (cargo). The country, however, had to contend with a historical baggage: the Philippine Air Lines (PAL) was previously designated as national flag carrier. The civil aviation conflict happened when PAL was still government-owned. PAL accused Taiwanese carriers of poaching and the Philippine civil aviation authorities cancelled the RP-Taiwan air service agreement to teach the Taiwanese a lesson. Negative consequences included the pull-out of key Taiwanese investors (e.g. Acer), reduced Taiwanese tourist traffic, and higher airfares and circuitous routes for returning Taiwan-based Filipino workers. In the end, the Philippines' value-claiming backfired and the Philippine-Taiwan air service agreement was restored.

The cases analyzed point to the key lesson that domestic politics must be built into the negotiation plans. We need to ensure domestic support when making offensive claims. We must master the tension between secrecy during negotiations and transparency during ratification. We need to tighten the slack between negotiators and principals to enhance chances of ratification.

Enhancing Philippine National Security against External Security Threats

Edgardo E. Dagdag & Herman Joseph S. Kraft

The national security environment of the Philippines has experienced dramatic transformation since the end of World War II. This has led to changes in the country's security policies, triggering a review and redefinition of the country's foreign policy since the 1970s and towards the end of the Cold War. This study examines how the Philippines used its foreign relations to protect the country's national security against external threats.

Data for the study were generated from available documents, key informant interviews, and roundtable discussions. The research finds that there is a prevailing consensus that since the end of World War II, the more serious threats to the Philippines are internal, rather than external.

During the Cold War, the political elite adopted the US view that the principal external threat to the Philippines was communism, thus accounting for a very ideological anti-communist stance that was challenged by militant and nationalist groups, and that alienated the country from its communist/socialist and non-aligned East Asian neighbors. This began to change only after 1971 when China became a member of the UN and the UN Security Council, and more so after 1991 when the US cut off its defense assistance to the country following the refusal of the Philippine Senate to ratify the Philippines-US Treaty of Friendship, Cooperation and Security (TFCS).

As a state located in East Asia, the Philippines was also active in the formation of the Association of Southeast Asia (ASA), the Association of Southeast Asian Nations (ASEAN), and the ASEAN Regional Forum (ARF). There were, moreover, efforts to have close security relations with other countries, including China and the ASEAN member-countries. Overall, however, the security mindset of the Philippine political elite remained wedded to the belief that the best way to enhance the external security of the country is by having close defense relations with the United States. This was seen in the Congressional debates on the proposed Philippines-US TFCS, the Philippines-US Visiting Forces Agreement (VFA), the Philippines-US Mutual Logistic and Support Agreement (MLSA) and more recently, in the efforts of the incumbent Aquino Administration to secure firm security guarantees from the US should China continue its "bullying tactics" in the disputed South China Sea.

Until the Macapagal-Arroyo administration, key national security officials continued to espouse the traditional view of security, giving less attention to non-traditional

security issues (e.g. global warming, environmental degradation, drug trafficking, pandemic diseases, energy insecurity, maritime piracy, etc.) As the country will be confronted more by non-traditional security issues in the future, there is a need for the Philippines to develop the needed expertise to address such issues in the foreign service. There is also a need to review the hiring of retired AFP generals as diplomats.

In addition, the Philippines should exert all efforts to have a more balanced foreign policy and defense policy. Close defense relations with the US, while it has advantages, also enhances vulnerability and diminishes the country's capability to assert national sovereignty.

Good Neighbor Policy of a Weak Democratic State: Articulations, Initiatives, and Practice in Philippine Foreign Relations

Noel M. Morada

The study describes and examines the Philippines' good neighbor policy in the conduct of its foreign relations. Specifically, it identifies some foreign policy articulations, initiatives, and practices across a range of issues and concerns that may be linked to good neighbor principles. Data sources were formal statements by Philippine officials and pertinent documents, as well as media reportage on a number of relevant initiatives of the Philippines in its foreign relations.

The study basically argues that the Philippines' efforts to promote good neighbor policy across a number of issues in the region reflect its desire to project its image and role as a democratic state, albeit a weak one. As a democratic state, it has been consistent in its foreign policy articulations and initiatives that pertain to promoting democratic norms and values in ASEAN, but which are not necessarily shared by other ASEAN members. Even so, Filipino leaders since the ouster of Marcos in 1986 have been unwavering in promoting such democratic principles as exemplified in the country's position on Myanmar/Burma issue, the creation of a regional human rights body, and pushing for a convention on protection of migrant workers. Meanwhile, the weak military capability of the Philippine state has forced it to adopt a strategy of promoting good neighbor norms and principles by calling for a code of conduct among claimant states in the South China Sea partly aimed at constraining the behavior of a rising power like China.

Overall, the adoption of good neighbor principle as part of foreign policy involves the promotion of shared values, respect for common interests, and the importance of cooperation among states. For democratic states, in particular, good neighbor policy also aims to promote certain norms, such as rule of law, good governance, and the promotion and protection of human rights. It also underscores the importance of conflict prevention and peace building, creation of regional norms, as well as addressing the root causes of international terrorism.

A number of statements by Filipino government officials – such as those by the President and Foreign Affairs Secretary – have articulated good neighbor principles in Philippine foreign policy and relations. Primarily, these statements were made in the context of the Philippines being a member of ASEAN.

The study finds that, in general, the articulation and practice of good neighbor principles in Philippine foreign policy essentially reflect the legitimate interests of a democratic state that attempts to contribute to norm building in the region. However, given its internal weaknesses and limited capabilities, the Philippines would have to rely on the support of other democratic states in the region as it advocates democratic and people-centered principles in building an ASEAN Community and the larger East Asian Community.

The Human Rights-Based Approach to Safe and Decent Overseas Labor Migration: The Philippine Experience

Carolyn I. Sobritchea

Taken collectively, "human rights refer to the supreme, inherent and inalienable rights to life, dignity and development. It is the essence of these rights that makes (a person) human." Two major approaches guide the work of human rights activists. The first approach derives universal concepts from existing international standards ratified by various governments. The second one locates universalism within globally shared norms and values. Some proponents of cultural relativism, on the other hand, contend that human rights must seek cultural legitimacy. The challenge is to get countries to adhere to common standards of human conduct by drawing from their respective traditions and cultural practices.

The human rights-based approach to safe and decent overseas work has two dimensions: (a) the fulfillment of the State and everyone who forms part of the state machinery as duty bearers of all obligations mandated by global, regional and bilateral agreements, and (b) the responsibility of the citizens/individuals or rights holders to defend, exercise, and claim their human rights.

This paper describes and analyzes various policies and programs of government that respond to the needs and problems of Filipinos who work and live abroad. It examines their strengths and weaknesses compared with the international treaty commitments made by the Philippine government to protect the human rights of migrant workers. Among others, the Philippines has committed to pass enabling laws that will provide adequate human and material resources and services for the safety, security, and productive life of OFWs. This study shows that much progress has been made in passing local laws ensuring the provision of programs and services mandated by the international human rights covenants. Moreover, Manila has forged regional (i.e. through the ASEAN mechanisms) and bilateral agreements with many receiving countries to further enhance the safety and security of migrant workers. Despite these laudable achievements, there are serious gaps and weaknesses both in the areas of policy development and implementation of programs and services.

The following recommendations may help address these gaps and weaknesses:

a) Advocate for the extension of labor protection in the receiving country's laws for foreign workers, including provision of minimum wage, periods of daily and weekly rest, overtime pay, social security, workers' compensation, health care, and maternity leave.
b) Strengthen regulation and monitoring of employment agencies and recruitment fees, and impose significant penalties for violations.
c) Advocate for the right to freedom of association, the right to form a trade union, and to bargain collectively with employers and brokers.
d) Advocate/negotiate for the reform of the visa sponsorship system so that workers' visas are not tied to individual employers serving as immigration sponsor.
e) Strengthen the pre-departure orientation program (PDOS) to include extensive briefing on the laws and judicial practices of receiving countries, and the entitlements of migrant workers.
f) Strengthen the access of migrant workers to the criminal justice system, including legal assistance and confidential complaint mechanisms in the language spoken by migrant workers.
g) Expand victim services for survivors of abuse, such as shelters, hotlines, access to health care, counseling, and support to civil society and faith-based groups offering these services.

Democratizing International Relations and Bringing the People Back In: The Philippine Case

Eduardo C. Tadem & Teresa S. Encarnacion-Tadem

People-to-people relations is a view less studied in the discourse of international relations, a field which has been dominated by attention to the role of the state and state-to-state interactions. But there is significant number of international networks and cross-border ties that are initiated and maintained by non-state players, principally civil society organizations (CSOs), nongovernment organizations (NGOs), and social movements. The existence and vibrancy of these non-state players show that an alternative foreign policy that emanates and is nurtured from below is possible. Focusing on the Philippine experience, this paper looks at initiatives directed at democratizing international relations through people-to-people linkages.

This paper is framed by analytical concepts that revolve around the principles of people empowerment, popular participation and broadening democratization; decision-making and policy-formulation from below; accountability and transparency by state actors to their constituencies; civil society engagement with the state and the market; and popular mobilization as an antidote to possible state authoritarianism. It touches on three general aspects of people-to-people relations: political, economic, and socio-cultural. It examines these three general aspects through four major historical periods in the Philippines, i.e. pre-martial law period, martial law period, the transition from authoritarianism to a democracy, and the advent of neo-liberalism.

This paper found that during these four major historical periods in the Philippines, the state saw the emergence and strengthening of people-to-people relations. It shows that meaningful change, both at the national and international levels, is defined by people and not only by states.

Culture and Identity in Philippine Foreign Relations: Nation-State in Search of Sovereignty

Aileen S.P. Baviera

Culture – defined as a coherent system of beliefs, values, attitudes, norms, and skills that are widely shared and deeply held within a given society – has always been recognized as an important determinant of the behavior of individuals. Identity, which refers to images and perceptions of the self that then project into how one relates with others of a different group identity, becomes part of the culture of a group when it is strongly and collectively held.

In the study of foreign policy, culture and identity have figured in attempts to explain foreign policy behavior of a nation-state assumed to be a unitary actor. This study explores the extent to which culture and identity can be considered important in how Filipino decision-makers perceive the international environment, define foreign policy interests and objectives in relation to other countries, and try to manage specific foreign policy problems facing the country.

The study uses the concept of national role conception (NRC) to frame the possible effects of culture and identity on foreign policy behavior. NRCs are the shared views and understandings among the national political and administrative elite and the relevant foreign policy community (including decision-makers and their advisors, researchers, analysts and commentators) regarding the proper role and purpose of the nation-state in the international arena. By focusing on the actors and how they define interests and goals based on role expectations and role prescriptions, NRC becomes a useful analytical tool in explaining the linkage between the realms of domestic politics and foreign policy, as well as that between ideas and norms on the one hand, and material interests on the other.

One persistent theme in Philippine foreign relations through the decades has been its political leaders' need to validate the fact that the postcolonial Philippine state indeed enjoys full sovereignty and independence. The assertion and protection of sovereignty are seen as fundamental to one's nation-state identity. In seeking to better understand the role of identity in Philippine foreign policy behavior, this research examines two key aspects in contemporary Philippine foreign relations where the question of sovereignty takes center stage. These are the relations with the United States since the closure of the American military facilities in Clark and Subic in 1992, and the engagement with China over disputed territory in the South China Sea since 1995.

The empirics of the study are based on interpretevist analysis of statements, reports, commentaries, interviews, and actions by members of the foreign policy elite, or secondary sources referring to the same, with regard to critical episodes in Philippines-US relations and Philippines-China relations. The goal of this exploratory work is to describe and deepen understanding of the role of culture, rather than to explain, or predict, or establish casualities.

This final chapter of the project also provides some partial synthesis to the project by extending the query on the role of culture and identity to some of the issues and cases addressed in the other chapters.

About the Researchers

Dr. Aileen S.P. Baviera is a Professor and former Dean of the Asian Center, University of the Philippines. She holds a Master's degree in Asian Studies and a PhD in Political Science, with international relations as her specialization.

Ms. Rowena R. Pangilinan is currently Foreign Service Officer IV at the Department of Foreign Affairs. At the time of this writing, she was a lecturer in Chinese studies at the Asian Center, University of the Philippines. She obtained her Master in International Studies degree from the University of the Philippines, and Master of Arts in Contemporary China degree from Nanyang Technological University in Singapore.

Dr. Eduardo T. Gonzalez is a Professor at the Asian Center, UP. Before joining the university, he served as President of the Development Academy of the Philippines. He has a PhD in Public Policy from the University of Pennsylvania.

Dr. Amado M. Mendoza, Jr. teaches at the Political Science Department, College of Social Sciences and Philosophy. His research interests are in politics and political economy.

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Dr. Noel M. Morada is a former Professor of Political Science, Department of Political Science, University of the Philippines Diliman. Dr. Morada is currently Executive Director, Asia Pacific Centre for the Responsibility to Protect, School of Political Science and International Studies, The University of Queensland, St. Lucia, QLD, Brisbane, Australia.

Dr. Carolyn I. Sobritchea is Professor of Philippine Studies at the Asian Center, University of the Philippines. She was formerly Director of the Center for Women's Studies.

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Dr. Teresa S. Encarnacion-Tadem is a Professor at the Political Science Department, University of the Philippines Diliman.

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Development of Interdisciplinary Signal Processing (ISIP) Program: Filipino Vowels and Emotions (FIVE)

Rowena Cristina L. Guevara *(Program Leader)*, Ramon G. Acoymo, Belen D. Calingacion, Franz A. de Leon, Prospero C. Naval, Jr. & Galileo S. Zafra

The ISIP Program aims to develop source coding algorithms and apply research to the improvement of transmission, storage, and retrieval of multimedia signals through source coding. The Program involves the Sentro ng Wikang Filipino, Department of Speech Communication and Theatre Arts, Department of Computer Science, and the College of Music. The projects under the ISIP Program involved the development of standardization of Filipino spelling of loan words, Filipino speech recognition and synthesis, TV closed captioning, call center applications, vowel migration for sung Filipino texts applications, digital echo cancellation, joint source-channel coding for low bit-rate wideband speech, MPEG-1 Layer 3 Decoder, and Filipino sign language recognition.

About the Researchers

Dr. Rowena Cristina L. Guevara is a Professor at the Electrical and Electronics Engineering Institute of UP Diliman. She is also a faculty affiliate of the UP Digital Signal Processing Laboratory. Her research and publication are in the fields of speech and audio signal processing.

Dr. Ramon G. Acoymo is Professor of Voice at the UP Diliman College of Music. He holds Bachelor's degrees in Biology and Music, a Master's degree in Vocal Performance, and a Doctorate in the History and Philosophy of Education. He has been a performing tenor in recitals, concerts, musicals and operas for some 30 years since his debut at the Las Piñas International Bamboo Organ Festival in 1978.

Dr. Belen D. Calingacion is a Professor of Speech Communication and Performance Studies, and the Chairperson of the Department of Speech Communication and Theatre Arts, UP Diliman. Her research interest is exploring the use of performance for empowerment of marginalized children and youth as well as women and communities. She has been collaborating with the UPD

College of Engineering on research in emotion detection and the development of training program to improve the oral English ability of Filipinos.

Assistant Professor Franz A. de Leon is a faculty member of the UPD Electrical and Electronics Engineering Institute and a faculty affiliate of the UP Digital Signal Processing Laboratory. His research interests include signal processing for communications and audio.Dr. Prospero C. Naval, Jr. is an Associate Professor at the UPD Department of Computer Science and current Laboratory Head of the Computer Vision and Machine Intelligence Group. His research interests lie in the fields of intelligent systems and data mining.

Dr. Galileo S. Zafra is a Professor at the UPD Department of Filipino and Philippine Literature. He served as Director of the UP Center for Filipino Language. His fields of interest are Philippine literary history, oral literature, translation, and language planning.

A Multidisciplinary Participatory Action Research (PAR) towards Enhancing Children's Health and Development in a Rural Community

Rainier V. Almazan, Milagros P. Querubin & Yolanda G. Ealdama

The project is essentially a social research activity involving the use of Participatory Action Research (PAR). PAR is a qualitative research approach to data collection that is two-directional, both from the researcher to the subject and from the subject to the researcher. The process is commonly community-based, dynamic and change-oriented. PAR identifies and involves the people (usually the poor, vulnerable and marginalized), their organizations and other stakeholders affected by the focus of study, which could be an issue or a concern of the whole community. It also involves collectively analyzing the data about aspects of their lives and environment and using this information to identify and implement courses of action that would address their needs and problems.

The PAR was conducted in 12 barangays of San Juan, Batangas from June 2007 to December 2010 as a support to the Community-Based Health Program (CBHP) initiated by the UP Manila through its College of Medicine. The main thrust of the CBHP is to promote the practice of Integrated Management of Child Illnesses (IMCI) in San Juan municipality to address common child illnesses and malnutrition in the municipality. The IMCI strategy aims to improve 1) case management skills of barangay health workers 2) local health system operations and 3) family and community practices in child care. The PAR project itself has two objectives: 1) to establish baseline data regarding child care practices on the household level and also the perspective of children regarding health care; and 2) to contribute substantially to the social preparation of concerned community people such as the Barangay Health Workers (BHW) and the targeted mothers and caregivers for their organization and their eventual management of the CBHP by the end of five years.

The research project was carried out by the Department of Social Work (DSW) of the College of Social Work & Community Development (CSWCD) and by the UP College of Home Economics (CHE) in partnership with the UP College of Medicine (UPCM) and the rural LGU of San Juan, Batangas. It has three components which are actually three distinct but interrelated researches using PAR.

Component 1

The first component assessed the care seeking behavior of mothers and other caregivers vis-a-vis the management of children's health and to note the effect of poverty on their care-seeking behavior, especially during childhood illnesses. It determined the reasons for the preferred care-seeking behavior and caregivers' knowledge about common childhood illnesses.

Focus group discussions, participatory census, interviews and a community developed "poverty grading tool" were employed to explore the socio-economic status and care-seeking behaviors of household or family caregivers. The community researchers involved in this component were the barangay health workers (BHW). They were involved in designing and implementing the different methods mentioned above.

A total of 5,966 household caregivers participated in participatory census in 12 barangays.The care-seeking behavior of these caregivers relative to the management of children's health can be characterized as follows:

- *Poverty grading.* The community made their own poverty grading tool consisting of housing ownership and condition, food, clothing and sanitation, access to utilities, education and child labor, and household income. Based on this tool, a big majority of families (71%) in the 12 barangays belonged to the "middle class".

- *Ways to promote children's health.* More than 90% of caregivers (usually mothers) are aware of the benefits of breastfeeding, proper timing of weaning, appropriate food to give children, and full immunization for children.

- *Health practices.* Most mothers (81%) practice breastfeeding, and weaning is started when the infant is about 4-6 months old. There is ambivalence to the appropriateness of certain food items such as hotdog, instant noodles and chocolate, which are commonly given to their children. Many of the children 6 years old and above have not completed their vaccinations.

- *Ways of managing common illnesses.* A large majority of caregivers correctly identified symptoms of common child illnesses as well as home remedies for these illnesses. In events like this, about 4 out of 10 caregivers bring their child to the barangay health centers and a few (14%) bring them to the "hilot". The frequently cited reasons for approaching these health providers are, according to importance, "free service", "proximity" and "trust". It is interesting to note that a measly 0.1% said they will approach the barangay health worker.

Component 2

The second component explored the factors affecting the psycho-social care and feeding of infants and young children. Perceptions, beliefs and practices of family members and health providers related to infant and young feeding and provision of psychosocial care were examined. Barriers, motivators and enabling mechanisms encountered by families in following optimal infant and young child feeding practices were identified. Two qualitative research methods were used for this component, namely, in-depth individual interviews and focus group discussions (FGDs). The Barangay Nutrition Scholar (BNS) and Early Childhood Education Workers (ECCD) were primarily involved; they assisted in the development of the questionnaire for the in-depth interview, formulation the group discussion guides, and the actual conduct the in-depth interview and FGD sessions.

The study's preliminary findings include:

- *Comparison of the perceptions, beliefs and practices of families vis-a-vis the Global Strategy for Infant and Young Child Feeding (IYCF).* The global public health recommendations for optimal infant and young child feeding, which are exclusive breastfeeding from birth to 6 months of age and introduction of complementary foods at 6 months while continuing frequent, on-demand feeding until 2 years of age are not commonly practiced in the community. Most mothers reported that they gave their infants water or other fluids during the first 6 months of life, and some even provided prelacteal feeds. Early introduction of complementary foods at 3 or 4 months is practiced. Mothers stop breastfeeding even before the children reach one year.

- *Barriers to optimal infant and young child feeding.* Traditional practices, perceived milk insufficiency, economic considerations, and myths and fallacies are barriers to optimal infant and child feeding. Colostrum is considered unclean and must not be fed to the child. Provision of prelacteal feeds - usually a bitter concoction of ampalaya leaf extract with honey - is a customary practice. Mothers who think that they do not have enough milk use formula milk as substitute for breast milk. Participation in economic activities is another major reason. Some myths and fallacies include perceptions that breastfeeding is inappropriate during pregnancy and that prolonged breastfeeding will lead to weakness of the mother.

- *Motivators and enablers to optimal infant and young child feeding.* Factors that affect decision-making on the type of infant feeding choice include family-decision-making, economic, physiological, health, psychological and socio-cultural factors. The mother is the primary decision-maker in the choice for infant feeding, and the decision is based on perceived economic and health benefits of breastfeeding. The mother's breastmilk secretion before giving birth helps her in deciding whether to breastfeed or not. Social support is another enabler. Even if the mother is the main decision-maker, her decision is usually influenced by family members such as the husband, their mothers or mothers-in-law; health care providers such as BHWs, BNS, midwives, and *hilot* or traditional birth attendants; and some community members like elderly women.

Component 3

The third component examined how children define a "healthy life." It explored children's perceptions of the way their health concerns are being taken care of by their adult caregivers and how they were oriented on proper health care practices. It also determined children's caregiving behaviors. The study employed child - friendly data gathering tools such as drawing or painting, ranking, activities mapping, keeping diaries to track food intake and health practices, essay writing and focus group discussions.

Preliminary findings of the study include:

- *Children's perceptions on whether their health concerns are addressed by caregivers.* Children consider the whole family as caregivers of children, and they are generally satisfied about the way their caregivers are taking care of their health needs.

- *Children as caregivers.* Majority of the children are themselves caregivers and they consider this as normal part of their lives.

- *Proper nutrition.* Data from the children's daily food diary indicate that many of them were taking fish, tuyo, hotdogs, noodles and bread for breakfast. Only a few are drinking milk for breakfast since milk is considered a luxury. Although they generally recognized the importance of fruits and vegetables since they learned in school that these are important, these are not part of the regular meals of around half of the children.

- *Children's perceptions on health.* Results revealed that children's perceptions on health encompass the biological, social, psychological, mental, and environmental aspects.

- *Common illnesses.* The children's usual ailments are fever, cough, toothache, tonsillitis, stomach ache, and mumps.

- *Threats to health.* Threats to health, as perceived by the children, include 1) being left alone in one's house, 2) befriending a drug pusher or a drug dependent, and 3) playing with deadly weapons.

- *Children's psycho-social health and rights.* Modules to surface children's understanding of their human rights were incorporated during the second phase of the research. From these sessions it was found that physical discipline *(pagpalo)* is common practice among parents, but children do not generally consider "pagpalo" as abuse. They consider doing household chores as their responsibility. This module also uncovered instances of sexual abuses of children in the community.

- *A healthy community.* For the children a "healthy community" means a clean, serene place with many trees, clean rivers, and playgrounds; a place without conflict, smoking, drinking of alcoholic beverages, and gambling.

- Health issues in the community that children encounter. These include improper garbage disposal, widespread smoking, rampant drinking of alcoholic beverages, garbage in rivers, dynamite fishing, gambling especially near schools, improper disposal of pig sty, stealing, and quarreling among neighbors.

About the Researchers

Assistant Professor Rainier V. Almazan, a registered Social Worker, is a member of the faculty of the Department of Social Work, UPD College of Social Work and Community Development. He is the Program Manager and Project Leader for Component 1 of this research.

Dr. Milagros P. Querubin is an Associate Professor at the UPD College of Home Economics and is its immediate past Dean. She is a registered Nutritionist-Dietitian, and served as the Project Leader for Component 2 of this research.

Assistant Professor Yolanda G. Ealdama teaches at the Department of Social Work, UPD College of Social Work and Community Development. A registered Social Workers, she is the Project Leader for Component 3 of this research.

Community Empowerment: An Interdisciplinary Research on Alternative Model towards Sustainable Tourism

Ma. Corazon P. Rodriguez *(Program Leader)*, La Verne dela Peña, Rene Luis S. Mata, Shirley V. Guevarra, Mynette D. Aguilar & Antonio B. Lazaro, with Emilio U. Ozaeta & Gilda L. Uy

This project, otherwise called the Sariaya Project, has the pioneering objective of getting different disciplines together to collaborate and discover an alternative model of tourism that favors participation of community stakeholders. Since the 70s, the development of tourism has been skewed in favor of economic and business variables. The Sariaya Project was designed to uncover an interdisciplinary approach that will expand the discourse of tourism to include not only profitmaking but also the promotion of tourism as a tool for instilling a strong sense of community.

Sariaya was chosen as the project site because of the research work started by students of the University of the Philippines' (Diliman) College of Architecture several semesters before 2004, as well as the willingness of a non-government organization (Tuklas Sariaya) cooperate and provide support for the project. The project started in 2004 and involved faculty members coming from the following UPD colleges and units: College of Architecture, College of Music, College of Human Kinetics, College of Home Economics, and Asian Institute of Tourism. There were no road maps that were followed in conceptualizing and finalizing the research design as well as in data gathering and interpreting of data. While discussing the research design, representatives from the different disciplines did not impose on the research team "accepted research protocols" in their units. As more discussions were held, a consensus was arrived at around a proposal that will allow different disciplines to conduct culture studies using their own disciplinal lenses, with the hope that a serendipitous connection will be discovered that will be useful in empowering communities in the promotion of culture and tourism.

The project's conceptual framework problematized the definition of tourism as a mere business concern. It adopted the alternative definitions of tourism as "gathering, building, dwelling and learning"; tourism as a lived experience; and tourism as a social, economic and political phenomenon. All these allowed the study of Sariaya culture in terms of what were perceived as "value systems, world views, definitions of space, objects, relationships, solutions handed down from one generation to another and schemas." These definitions led to such themes as: "spirit of community, historizing the present, living the past, gender, status, power relations and religiosity of the Sariayahins." These themes were used to operationalize the definition of tourism as a lived experience, i.e, an experience that a visitor can see, taste, hear and experience. These themes also allowed students who participated in AIT"s Out-of- Classroom- Activity to see how the tourismic experience allows them to "gather" sensory perceptions, "building" images of the place being visited, 'dwell" and be part of the experience so that "learning" about the place is facilitated. A homestay program was also formally started to serve the lodging needs of tour participants.

About the Researchers

Prof. Ma. Corazon P. Rodriguez, DPA served as Dean of the UP Asian Institute of Tourism from 2004 to 2010. She finished her undergraduate course (AB Economics) at Maryknoll College (now Miriam College), her Master's degree in Business Administration at the UP College of Business Administration and her doctorate in Public Administration at the UP National College of Public Administration and Governance. Her discussions with stakeholders in the countryside while learning the ins and outs of community-based tourism led to many "meaningful encounters" that drove her to spend more time and effort in similar endeavors.

Dr. La Verne dela Peña is an Assistant Professor at the UPD College of Music and currently Chairperson of the College's Music Research Department. He obtained his PhD in Ethnomusicology from the University of Hawaii.

Assistant Professor Rene Luis S. Mata obtained a Bachelor of Science in Architecture degree at the University of the Philippines in Diliman and then finished his graduate studies at the University of Alcala-Henares in Madrid, Spain with the degree of Masters in Architectural Restoration and Rehabilitation of Patrimony. At present, he is the Head of the History, Theory and Criticism Studio Laboratory of the UP College of Architecture. His expertise includes heritage conservation, restoration, historic preservation, and history of architecture.

Associate Professor Shirley V. Guevarra is currently the Chairperson of the Department of Hotel, Restaurant and Institution Management of the UPD College of Home Economics.

Associate Professor Mynette D. Aguilar teaches Dance in Education at the UPD College of Human Kinetics.

Dr. Antonio B. Lazaro holds a PhD in Philippine Studies from the University of the Philippines. He obtained his MA Urban and Regional Planning and BS Tourism degrees from the same University.

Assistant Professor Emilio U. Ozaeta is currently the College Secretary of UPD College of Architecture. He finished both his undergraduate and graduate studies in the same college. His specialization includes architectural education, history, theory and criticism.

Prof. Gilda L. Uy served as Dean of the UPD College of Human Kinetics.

University-Industry Collaboration to Advance Growth, Competitiveness and Innovation in Pampanga Lantern Industry

Julieta C. Mallari *(Program Leader)*, Nenita M. Dayrit, Florencia Charito I. Sebastian & Virginia C. Yap

This project is an offshoot of the recently completed OVCRD-funded UP Pampanga research program titled "Advancing Growth, Competitiveness and Innovation: Pampanga Industry Studies from a Stakeholder Perspective." To realize the recommendations put forward in the studies (six signature industries of Pampanga), university-industry collaboration is established to allow direct interaction of academic knowledge and actual needs of the industries towards improving the latter's products, processes and services. UP Pampanga, through its faculty researchers, now adopts the "on the ground" position as it implements the second phase of the industry study, which consists of an action research directed initially at one of the industries, the lantern industry. The "on the ground" interventions are focused on five areas relevant to advancing the growth, innovation and competitiveness of the industry namely: 1) Technological Assistance, 2) Innovation Creation and Patent Acquisition, 3) Capital Infusion, 4) Local Government Linkage and 5) Inter-University Partnership. These project study areas are deemed responsive to the problems raised in the first phase of the lantern industry study; thus, corresponding activities are undertaken. The final phase of the intervention is the creation of the "UP Pampanga Industry Assistance Center" – intended, among others, to provide a mechanism to carry out "follow through" activities initially for the lantern industry and, later on, to extend expanded technical assistance to the other industries.

About the Researchers

Dr. Julieta C. Mallari has a PhD in Comparative Literature. She served as Director of the UP Diliman Extension Program in Pampanga (UPDEPP) for 10 years. She has written coffee table books, critical essays, and biographies. She is also a researcher, a translator, and a cultural worker in Pampanga.

Dr. Nenita M. Dayrit is currently the Deputy Director of the UP Diliman Extension Program in Pampanga/Olongapo. She is an Associate Professor teaching Natural Science courses. Previous to her stint at the UP, she was Chairman of the Department of Biological Sciences, Graduate School Secretary, and Associate Dean of the College of Arts and Sciences at the Angeles University.

Dr. Florencia Charito I. Sebastian is the current director of UP Diliman Extension Program in Pampanga/Olongapo. In her doctoral program in Philippine Studies, she looked into the economics of culture particularly material culture of individuals and groups. In the Open Grant Research, she used her twenty-year involvement in education and training in legislation to inform her recommendations for inter-university partnership towards the competitiveness and growth of the traditional industries of Pampanga.

Assistant Professor Virginia C. Yap holds a BBA-Economics degree from the Silliman University and MA Economics degree from the UP School of Economics. She is currently the Vice Chancellor for Administration of UPD. Prior to joining the University, she had varied work experiences in the private sector (e.g., Citibank as credit analyst; Silliman University as faculty member and Chair of Economics Department; and Holy Angel University as AVP for Academic Affairs and later as AVP for Research, Planning and Extension) and in the public sector (Department of Labor and Employment and Mt. Pinatubo Commission).

Accomplishments of the UP Diliman-CHED Zonal Research Center

Joselito P. Duyanen

The UPD-CHED Zonal Research Center (ZRC) was set up to provide capacity building activities in research to 44 universities in the National Capital Region. These activities were centered on two focal points: 1) through the implementation of Grants-in-Aid projects and 2) through the provision of trainings and seminars on the research process and institutional building.

The UPD-CHED ZRC's Program focused on innovating the project implementation in order to attain optimal research productivity per project. Through this, UPD-CHED ZRC introduced networking of universities, whereby a group of universities work together to develop proposals and implement each GIA project. Instead of them individually competing for project funds, they were encouraged to collaborate and share their strengths and resources to attain research productivity. This was eventually adopted by the CHED to govern the implementation of all Grants-in-Aid projects.

Besides networking, each GIA project implemented by the UPD-CHED ZRC was further innovated to provide hands-on training to non-project faculty members and graduate students in the conduct of the project without additional cost. For example, one GIA project undertaken by a network of six universities produced 30 trained budding researchers in actual research conduct and at least five publishable papers and five theses. The multiplier effect for each project in this framework is greatly enhanced in terms of training and research outputs. There were six major Grants-in-Aid projects administered by the UPD-CHED ZRC during the 3rd phase (2008-2011) using this framework—four ongoing and two finished, with five publishable articles and a book on OFW being drafted as outputs.

For the second ZRC focus, the non-project training and seminar series provided to the zonal universities include 1) the transformation of theses and dissertations into publishable articles for graduate advisers and students, 2) project terminal report transformation into publishable articles for faculty researchers, and 3) seminar-workshop series for institutional organization and development in research for administrators.

About the Researcher

Dr. Joselito P. Duyanen is a Professor of Geology at the National Institute of Geological Sciences, UPD College of Science. He is also the Director of the UPD-CHED Zonal Research Center.

SOURCE OF SOLUTIONS GRANTS

The Source of Solutions (SOS) Grants program provides funding to support commissioned research or creative work on results-oriented projects or programs, open innovation solutions, or front-end ideation to R&D addressing immediate challenges and pressing concerns of/in UP Diliman. It aims to promote the strategic value of UP Diliman as a microcosm of Philippine society and therefore a great source of solutions to many of our most difficult national problems (in education, risk and disaster management, land use, transportation, community safety, etc).

A Study of the Prevailing Conditions and Services of *Carinderias* and Street Foods in UP Diliman Campus

Ma. Corazon Elizabeth S. Asiddao *(Project Leader)* & Grace P. Perdigon

Street food has the social stigma of being dirty. It belongs to the underground economy but is a reliable source of income for the providers. It is also an inexpensive yet readily available source of food for the consuming public. Street food vendors offer traditional foods and are extensive users of domestic food supplies. In the same manner, most *carinderias* offer cheap meals to consumers, and serve as a good source of livelihood for their operators.

Within the framework of this study, street foods are defined as ready-to-eat foods and beverages prepared and sold by vendors especially in streets and other similar public places. Specifically, these include snacks and meals. *Carinderia* is a public eatery where traditional meals can be obtained at a cheap price.

The UP Diliman campus is a place where street foods and *carinderias* proliferate. However, sanitation of food and services in these eating places is not assured. The dearth of information on food safety, sanitation, and hygiene practices of providers such as *carinderias* and street food vendors in the campus necessitated this study. Previous research done in UP in 1999 (Azanza, P., Gatchalian C., and Ortega, M.) focused on the food safety knowledge and practices of street vendors. The present study seeks to update the 1999 study, as well as gather data on the prevailing conditions and services of these food providers. Results of this study would be useful for developing strategies that will protect not only UP consumers but the public as well from possible health hazards. Results of the study could likewise be used as inputs for identifying strategies that can help uplift the *carinderia* and street food businesses, thereby promoting their owners' livelihood and the nation's economy in the long term.

Specifically, this study will look into the food safety and sanitation practices, the sourcing of food and water supply, waste disposal procedure, and other related concerns for *carinderias* and street food vendors in UP Diliman. This study also aims to describe the attitude of the UP Administration towards *carinderias* and street food business concessions in the campus. Finally, the study will examine how street foods and *carinderias* promote health and wellness among UP constituents.

The research methodology will include the conduct of surveys, in-depth interviews, focus group discussions, and observations. A laboratory testing of selected *carinderia* and street foods will be carried out to determine food safety and sanitation levels.

About the Researchers

Prof. Ma. Corazon Elizabeth S. Asiddao belongs to the roster of faculty of the Department of Hotel, Restaurant and Institution Management, UPD College of Home Economics. With her 26 years of experience in food service management in a major Filipino food chain, she desires to contribute to the improvement of *carinderia* and street food operations in UP.

Dr. Grace P. Perdigon has undertaken local and foreign researches on street foods. Her vast experience includes serving as a research consultant in Malaysia for the UN-FAO, a project leader in street food research activities at UP Diliman and the International Labor Organization, Manila. She was recently featured as one of the resource persons in the first ever local series of National Geographic.

Preservation and Restoration of Philippine Art Music Manuscripts (dated 1920s to 1930s) of the UP Diliman College of Music

José S. Buenconsejo *(Program Leader)*, Johann Frederick A. Cabbab & Iyra S. Buenrostro

To reconstruct the history of Philippine music composition, an historical musicologist has to interpret its most important form of evidence: extant music source (manuscript and printed music). While discursive, non-musical sources such as newspaper accounts, dictionaries and grammars, colonial bureaucratic reports, and other historical narratives are generally useful for writing the history of Filipino composition, music sources themselves—because they are music notations and therefore by their very constitution are symbolic – demand a more complex semiotic and hermeneutic interpretation.

A host of social and material conditions (economic, political, technological, and music cultural literacy, each necessary but never sufficient in itself) ushered in the development of the practice of composition during the second half of 19th century in the Philippines. Unfortunately, for the first generation of Filipino composers, no printed music scores (e.g., Diego Perez's piano medley of 1860s or the popular *danza La Flor de Manila* [Sampaguita], which is attributed to Dolores Paterno [1870s]) have been located, except for the collection of Spanish-identified music for religious use by the Franciscan regulars (1870s). It was not until the 1890s to 1910s – the period of the second generation of Filipino composers – that local music printing of popular music blossomed. To this era belongs Julio Nakpil, a self-taught musician who came from a family of jewelers in Quiapo, Manila. He published many popular sheet music, some of which have been preserved in the Lucia Francisco's collection of the UP College of Music. Another famous composer of this period is Marcelo Adonay, who composed many ceremonial and functional religious art music for the churches. Elena Mirano recently did a study on Adonay's music scores.

The archive of Philippine music scores of the UP Diliman College of Music Library belongs to a different realm. It is an important repository of valuable music manuscripts (particularly composers' autographs) of the third generation of Filipino composers who came after Adonay. Most of them were students of the UP Conservatory of Music (founded 1916), which emerged as the most influential school of composition in the 20th century in the Philippines. The composers were, among many, Nicanor Abelardo, Francisco Santiago, Juan S. Hernandez, Antonio Molina, Antonino Buenaventura, Rodolfo Cornejo, and Francisco Buencamino, Sr. They had a prolific artistic output that paralleled the effervescent *belle epoch* of Manila's culture from 1920s to 1930s. These composers were what one would call now as "cosmopolitan nationalists," producing works that celebrated the richness of Philippine life and culture in their music, while remaining open – as the Filipino intellectuals did since the time of the *ilustrados* – to the discipline of Western music heritage, whose idioms, genres, and techniques they incorporated in their works. In the process, the composers fashioned and brought Philippine music to the level of cultivated art and postcolonial cultural hybridity. Today, their music scores form a vast tangible collection of music heritage, a national patrimony that is a valuable asset of UP Diliman.

For the Colloquium presentation, the proponents will discuss music manuscript restoration and preservation methods, taking as specific case Nicanor Abelardo's symphonic overture for orchestra, *Cinderella Overture* (1932). Written as one of the graduation pieces required for Abelardo's master's degree in composition at the Chicago Musical College, *Cinderella Overture* is one of the major works by Abelardo in its attempt to experiment with modern Euro-American art musical style.

About the Researchers

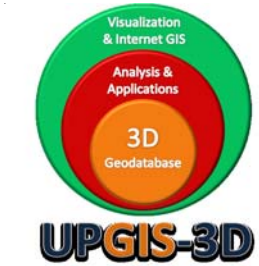
Dr. José S. Buenconsejo (BM UPhils 1988, MA UHawaii 1993, PhD UPenn 1999) has been a recipient of grants from the East-West Center, Asian Cultural Council, and Mellon Foundation (Dissertation Fellowship). He is the author of the book *Songs and Gifts at the Frontier: Person and Exchange in the Agusan Manobo Possession Ritual* (Routledge, 2002). He was a teaching fellow at the University of Pennsylvania (1995-1999) and an honorary professor at the University of Hong Kong (while on a postdoctoral fellowship, 2004-2007). An Associate Professor in Musicology at the College of Music of the University of the Philippines, he is currently the Dean of the said College.

Assistant Professor Johann Frederick A. Cabbab (BLS 1994*;* MLS 1999, specialization in Information Systems and Literature for Children and Young Adults) is a full-time faculty member and current Dean of the UP School of Library and Information Studies. He was managing editor, writer and graphic artist for several children and young adult publications prior to rejoining the academe in 2007. He is actively involved in records digitization programs, most recent of which are for the University.

Assistant Professor Iyra S. Buenrostro (BLIS 2005, *cl;* MLIS 2010, specialization in Archival Studies) is a full-time faculty member of the UP School of Library and Information Studies, where she teaches courses in Library and Information Science, Records Management and Archives Administration. Before joining the academe, she was an Assistant Metadata Specialist in a Manila-based outsourcing firm that delivers digital archives services to different companies in the Middle East. At present, she is always invited by different professional library associations, schools and universities, and private organizations to talk about basic records management, core functions of archiving and archival training and education in the Philippines.

Establishing the 3D Campus GIS of UP Diliman (UPDGIS-3D)

Ariel C. Blanco *(Program Leader)*, Rhodora M. Gonzalez, Wilfredo O. Rada, Czar Jakiri S. Sarmiento, Rosario O. Ang & Darrel Alvin N. Ong



Recent developments have underscored the need to establish a campus GIS to help address various issues and problems in the UP Diliman campus through improved data management and analysis (e.g., land use conflicts, informal settlements, infrastructure, and building management). It is high time that an updated base data layers for the campus is created and made available to various users so that analysis of problems with spatial dimension can be facilitated.

The UPDGIS-3D is a research program consisting of three projects representing different GIS components. Project 1 deals with the development of 3D geodatabases, which serve as the foundation and heart of GIS. Project 2 focuses on analysis and applications development. This may be considered as the brains of GIS. Project 3 is about communication and dissemination through 3D visualization and Internet GIS.

With the UPDGIS-3D, buildings and other structures will be represented by 3D geometries rather than simple 2D polygons, lines and points. A 3D geodatabase will be created to store data such as buildings, roads, facilities and utility lines. The geodatabase will have a multilevel structure. For example, a building will be represented as a volume; but on a higher level, it will be modelled as comprising of floors, corridors, rooms, and facilities. To enhance subsequent analysis, the topology will be built through the definition of topology or relationship rules between data layers. The 3D geodatabase may also be linked to the UPD

Computerized Registration System (CRS) database in order to keep track of the campus population clustering or profiling. To facilitate database updating and sharing of geographic data, standards and protocols will be formulated.

Analytical methodologies for various applications will be developed. These include land use analysis, disaster risk reduction and management (DRRM), facility allocation, building management, and security applications. The DRRM applications will include flood risk assessment and emergency response planning for earthquakes and floods. The latter covers identification of routes, convergence areas and evacuation areas. Security applications will take advantage of 3D functionalities to optimize deployment of security personnel and equipment. These will serve as demonstrations of the advantage of 3D GIS particularly in urbanized areas with tall structures. Other applications are: allocation of facilities and services (e.g., cafeteria, kiosks, ATMs, payphones) and rerouting of transport lines to improve service coverage considering the newly built buildings. These applications will utilize the CRS database for mapping the dynamic populations within buildings and incorporating the information for better analysis.

Visualization of the UP Diliman campus in 3D will feature varying levels of realism, with buildings and other structures modelled using Google SketchUp. The 3D visualization will be closely linked with the analysis and applications development, particularly land use analysis to visualize the future campus and evaluate visual impacts of structures. The UPD 3D GIS will be made available via the Internet to promote widespread use and sharing of data layers, both base and derivatives (i.e., those resulting from analyses). This will serve as the interface by which UP community and visitors alike can virtually explore the UP Diliman campus, and obtain and share information.

About the Researchers

Dr. Ariel C. Blanco holds the following degrees: BS Geodetic Engineering (UPD), M.App.Sc. GIS (University of Melbourne) and Dr. Engg Environmental Informatics (Tokyo Institute of Technology). He is handling graduate (Advanced GIS, Spatial Visualization) and undergraduate courses (GIS) offered by the Department of Geodetic Engineering (DGE) and heads the Environmental Applications of Geomatics Engineering (EnviSAGE) research laboratory with researches focusing on environmental conservation. Currently, he serves as the Chair of the Department, Director of the UP Training Center for Applied Geodesy and Photogrammetry (TCAGP).

Dr. Rhodora M. Gonzalez teaches GIS theory and applications and spatial database development for the Department of Geodetic Engineering's graduate courses. She served as Department Chair from 2004-2007, and is now serving as Associate Dean for Institutional Linkages. She obtained her BS Geodetic Engineering degree in 1980 at UP Diliman; did her MS in 1994 and PhD in 2000 on Geographic Information Systems Theory and Applications at the ITC-Wageningen University in The Netherlands.

Assistant Professor Wilfredo M. Rada has extensive experience as Division Chief and Consultant for land surveys. He teaches Satellite Geodesy, Cartography and GIS for the Department's undergraduate and graduate programs as well as for the Training Courses offered by the UP TCAGP. He has a Master's degree in Applied Mathematics (UPD, 1995) and a BS degree in Geodetic Engineering (UPD, 1987).

Assistant Professor Czar Jakiri S. Sarmiento has, for the past five years, been focusing his research efforts on Spaceborne Remote Sensing, Geoanalytics and Mobile Mapping Systems for DRM (Hydrological) Applications as part of UP-DGE's Geosimulation Research Group. He is a DOST-ERDT Program alumnus and teaches at the UP Diliman College of Engineering.

Ms. Rosario O. Ang holds an undergraduate degree in Geodetic Engineering and a Master's degree in Remote Sensing both from the University of the Philippines Diliman. Her research interests include 3D modeling using close range photogrammetry, remote sensing and GIS applications in atmospheric sciences (e.g. rainfall estimation and forecasting) and climate change studies, artificial neural networks and RS and GIS in renewable energy resource assessment. Currently, she is teaching BS GE and MS GmE courses in the UP Department of Geodetic Engineering.

Engr. Darrel Alvin N. Ong is a faculty member of the Geodetic Engineering Department teaching general surveying, cartography, and database structures and management. He was an ERDT scholar and obtained his MS Computer Science degree in the field of intelligent systems and natural language processing. His research interests are artificial intelligence in text processing, data mining, and GIS applications.

Rapid Condition Assessment of Major Buildings in the University of the Philippines Diliman and a Case Study for Seismic Retrofit Design of One of Its Buildings

Jaime Y. Hernandez, Jr. *(Program Leader)*, Nathaniel B. Diola, Mark Albert H. Zarco, Oscar Victor M. Antonio, Jr. & Fernando J. Germar

Many of the old buildings in the University of the Philippines Diliman campus were built in the late 1940s and did not benefit from safety recommendations provided in present structural engineering design codes. Some of these buildings may already have damage due to past earthquakes; an example is the Vinzons Hall, which was damaged in the 7 April 1970 Baler Earthquake. Others show structural distress due to different causes and/or hazards: Benton Hall was damaged due to improper use as storage facility for student records, UPIS and

Gusali II CHE experienced notable damage as a result of ground subsidence and movement, and Quezon Hall was damaged by several fires most notable of which was the 1984 fire causing heavy damage to the North wing. There are also relatively new buildings that have notable problems during construction, e.g. the CSWCD building.

In 2004, Japanese researchers, collaborating with scientists from PHIVOLCS, conducted the Metro Manila Earthquake Impact Reduction Study (MMEIRS). Their work included risk assessment due to scenario earthquakes caused by movement from different active faults in the country. Their findings indicated that 40% of residential buildings in Metro Manila will be damaged in the event of a magnitude 7.2 earthquake occurring in the West Valley Fault (formerly called the Marikina fault), translating to an estimated 34,000 deaths and 110,000 injured. At present, PHIVOLCS continues to warn the public in the Metro Manila area of the possible earthquake event occurring in the West Valley fault.

Movement of the West Valley fault will definitely test building structures at the University of the Philippines Diliman. It is therefore necessary that existing buildings on campus be assessed for structural integrity and if found lacking be recommended for repair, rehabilitation, and/or retrofit in preparation for the large magnitude seismic forces that will be generated by the movement of the fault. Therefore, the Rapid Condition Assessment Tool (RCAsT), capable of evaluating structural, geotechnical, and material conditions of a building, should be developed. RCAsT must account for local conditions and have the capability to identify buildings that should be prioritized for detailed investigation. Similarly, seismic retrofit schemes for existing buildings on campus should be developed, especially for buildings designed in the early to mid-nineteenth century which normally fail in a brittle catastrophic manner based on past experiences in earthquake-prone countries.

Different seismic retrofit methods have been developed and implemented for many buildings abroad. Retrofitting in the form of added stiffness, reduced mass, increased damping, increased ductility, and/or any combination of these approaches can be tailored fit for a particular building. Old reinforced concrete buildings fail in a brittle manner during a strong earthquake due to lack of reinforcement detailing that allow for ductile behavior. Considering that many of the major buildings (administrative and academic use, 3 stories and above) in the UP Diliman campus were constructed in the late 1940s and given the impending danger posed by the movement of the West Valley fault, condition assessment and detailed structural investigation that may lead to seismic retrofitting should be implemented without delay.

About the Researchers

Dr. Jaime Y. Hernandez, Jr. is the Structural Engineering Group Head of the Institute of Civil Engineering, University of the Philippines Diliman. He finished his Doctor of Philosophy in Civil Engineering from the University of Tokyo, Japan. His specialization and research interests include Structural Health Monitoring, Structural Risk Assessment, and Seismic Retrofit of Structures.

Dr. Nathaniel B. Diola is the Director of the Building Research Service (BRS) and the Construction Engineering and Management Group Head of the Institute of Civil Engineering, UPD. He finished his Doctor of Engineering in Civil Engineering from the Tokyo Institute of Technology, Japan. His specialization and research interests include Structural Materials Engineering and Testing, Non-destructive Testing, and Corrosion Engineering.

Dr. Mark Albert H. Zarco is the Geotechnical Engineering Group Head of the Institute of Civil Engineering, UPD. He finished his Doctor of Philosophy in Civil Engineering from the Virginia Polytechnic Institute and State University, USA. His specialization and research interests include Geotechnical Engineering, Computational Geomechanics, Geotechnical Aspects of Earthquake Engineering, and Landslide Hazard Assessment.

Dr. Oscar Victor M. Antonio, Jr. is a member of the Structural Engineering Group of the Institute of Civil Engineering, UPD. He finished his Doctor of Engineering in Civil Engineering from the Tokyo Institute of Technology, Japan. His specialization and research interests include Non-destructive Testing of Structures, Pile Testing, and Computational Modeling.

Dr. Fernando J. Germar is a member of the Structural Engineering Group of the Institute of Civil Engineering, UPD. He finished his Doctor of Philosophy in Civil Engineering from the University of the Philippines. His specialization and research interests include Earthquake Engineering, Vulnerability Assessment, and Construction Management.

Glosaryo ng mga Konseptong Heograpikal sa Pilipinas - Phase I: Glosari ng mga Konseptong Heograpikal para sa Katatagan sa Kalamidad at Pangangalaga sa Kalikasan

Dr. Maria Luisa R. de Leon-Bolinao *(Program Leader)*, Neil Martial R. Santillan & Vicente C. Villan

Ang proyektong glosari ay maglalaman ng mga terminolohiyang heograpikal na lilikumin sa mga pangunahing etnolinggwistikong pangkat ng Pilipinas. Kabilang sa mga layunin ang mga sumusunod: (1) makapaglathala ng isang sanggunian para sa mga konseptong heograpikal na nakapatungkol sa kalamidad at kalikasan; (2) mabigyan ng espasyo sa akademya ang mga katutubong kalinangan at kamalayang pangkapaligiran upang maging bahagi ng pambansang diskurso; (3) mapayaman ang wikang Filipino at makapagbuo ng mga teknikal na salita na mahalaga sa pagpapaunlad ng tradisyong pang-intelektwal na binuo at nakasalig sa wika ng mga Pilipino; (4) mapreserba ang mabilis na naglalahong mga ideya,

kaisipan, terminolohiya – mga konseptong heograpikal – na nanganganib na mawaglit bunsod nang mabilis na pagbabago ng buhay na nakasalig sa mundong cyber; at, (5) mabigyan ng espasyo para makita ang pananaw pangkapaligiran at pangkalamidad ng mga Pilipino sa kabuuan buhat sa mga salitang nalikom na naging behikulo ng kalinangang bayan sa agos ng panahon.

Nahahati sa dalawang larangan ang metodolohiyang gagamitin sa pananaliksik na gagawin: (1) isasakatuparan ng mga mananaliksik ang paggamit ng mga datos at impormasyon na makukuha mula sa mga silid-aklatan tulad ng gagawing pagsuyod sa mga nailathala nang mga diksyonaryo sa mga partikular na wika ng mga rehiyon, paghahango ng mga terminolohiya buhat sa mga etnograpikong mga pag-aaral ng mga grupong-etnolinggwistiko sa bansa, at paglikom ng mga foklorikong mga pag-aaral na naririyan na sa iba't ibang silid-aklatan ng Pilipinas; at (2) paggamit ng mga mananaliksik ng mga susing impormante na maalam sa wika, kalinangan, at tradisyon na kanilang kinabibilangang pangkat.

About the Researchers

Dr. Ma. Luisa R. de Leon-Bolinao is an Associate Professor at the History Department, UP Diliman. Dr. Bolinao is currently Chair of said Department, and has researched and written articles on environmental history including colonial forest policies, the red tide in the Manila Bay area, and the environmental policies of the post-war Philippine presidents.

Dr. Neil Martial R. Santillan is an Associate Professor at the History Department, UP Diliman. Dr. Santillan is currently Associate Dean for Administration, Student Concerns and External Affairs of the College of Social Sciences and Philosophy. His research interest includes urbanization and pre-colonial Philippines, and is one of two consultants in the television epicserye *Amaya*.

Dr. Vicente C. Villan is an Associate Professor at the History Department, UP Diliman. Dr. Villan is currently one of the Faculty Affiliates of the Tri-college Philippine Studies Program. His research interest includes Visayan history, local history, pre-colonial history and the Philippine Revolution. He is the other consultant in the television epicserye *Amaya.*

The UP Diliman Handbook on Academic and Authorial Integrity

Miguel Paolo P. Reyes *(Project Leader)* & Joel F. Ariate, Jr.

This project deals with violations of academic and authorial integrity standards, by which we mean plagiarism. The project looks into transgressions of perceived standards and commonly understood values for the proper attribution of ideas. Our research topic is not limited to piracy or infringement of copyright. Nor should the two be confused. There is no copyright infringement in reproducing a text with a lapsed copyright claim. But there is no doubt that there is plagiarism in passing off the same as one's own work. Thus, plagiarism is not reducible to copyright infringement. Nor should the issues in copyright infringement be expected to be fully attendant and material to plagiarism cases. There is only copyright infringement by operation of law and the existence of copyright regimes.

Plagiarism is established by invoking academic and ethical standards that are not fully codified into law but agreed upon or upheld as sacrosanct by academic institutions. Plagiarism, therefore, is not a purely legal concept but is rather an ambiguous one, fully shaded in various grays of ethical norms that are usually context-specific. With plagiarism considered as such, the proposed research would like to look at the acts and practices that were considered as plagiarism and how these acts have varied across time.

The objective of the research is to look at the institutional responses of the University of the Philippines (UP)-Diliman to plagiarism. The expected source of such records will be the cases brought before the Board of Regents (BOR) as recorded in the *UP Gazette* and records of other disciplinary and investigative bodies duly constituted by the University. The project will also study cases that were resolved within departments and colleges and have not reached the BOR. Key informants, including but not limited to people who were given verdict to plagiarism cases, will be interviewed.

The research will establish the extent, variety, and severity of the supposed acts of plagiarism and how UP Diliman's responses to plagiarism committed by faculty members and students have evolved over time: from imposition of non-legal, quasi-legal, to civil legal sanctions. Such data will then be read against existing legal, ethical, literary, and administrative discourses on plagiarism.

The end product of the research is a handbook on academic and authorial integrity. In essence, this is a history of a concept and a practice embedded in the institutional history of UP Diliman. This is a history of our dishonesty and disgrace, made not with shame in mind, but with a fierce intent to measure the strength of the university's resolve to honor and excellence.

About the Researchers

Mr. Miguel Paolo P. Reyes is University Research Associate at the Third World Studies Center, where he also serves as an associate editor of *Kasarinlan: Philippine Journal of Third World Studies.* He has a Bachelor's degree in comparative literature from the College of Arts and Letters, University of the Philippines-Diliman. Currently, he is pursuing a Juris Doctor degree at the UP College of Law.

Mr. Joel F. Ariate, Jr. is University Researcher at the Third World Studies Center. He is also the managing editor of the journal *Kasarinlan: Philippine Journal of Third World Studies.* He has written and done research on the history of the death penalty in the Philippines, state-civil society relations in the context of globalization, global civil society movement on debt relief in the Philippines, religious forces and bossism, and on memories of massacres and mass mobilizations. He studied History in UP Diliman.

Academic Success in the UP College of Education Graduate Programs, Admission Practices, and Development of Parallel Admission Test

Norma G. Cajilig *(Project Leader)*

The UP College of Education (UP CED) offers both master's and doctoral programs in 15 fields of specialization. Applicants to the graduate programs are required to take an admission test, which is either the Master's Admission Test in Education (MATE) or the Doctoral Admission Test in Education (DATE). During the first semester of AY 2011-12, the College had 1,314 graduate students, of whom 83% were enrolled in various master's degree programs and 17% in the doctoral programs. Through the years, graduation rate has been less than 10%.

This study aims to examine the selection practices observed in the UP CED graduate school as well as investigate what brings about academic success. Specifically, it seeks to answer the following questions:

- What factors are associated with academic success in the graduate program?
- To what extent does admission test score influence academic performance?
- What are the admission practices in the different academic areas of the graduate program?
- What aspects of admission policies may be standardized?
- Do the two versions of the admission test show evidence of reliability and validity?

It is also the objective of this study to improve the graduate admission test instrument by developing two equivalent versions to be used with both types of applicants. The low graduation rate makes i**t** imperative for the College to be able to identify the factors that predict academic success.

Presently, the scores in the admission test play an important role in the selection of students entering the graduate programs, particularly for the doctoral programs because there is a cut-off passing score that applicants have to meet. However, the various academic areas tend to give differing degrees of importance to test scores which, consequently, contributes to differences in the admission practices and policies. This lack of standard criteria may eventually incur the risk of sacrificing the quality of graduate education. It is, therefore, important that an investigation of the admission practices of the different academic areas be conducted to identify best practices and formulate, where possible, a common set of selection guidelines.

This study will use both quantitative and qualitative approaches to answering the research questions. The quantitative data will consist of the DATE and MATE scores as well as the GPAs of a sample of students who are still with the graduate program. The development of parallel admission tests shall employ item analysis to detect and remove poor items. Each subtest will be subjected to internal consistency as well as factor analyses to establish evidence of reliability and validity. The qualitative data will come from the results of document analysis, and interviews with students, graduates, and faculty members from both the UPCED and other UP academic units. The interviews will center on admission practices, difficulties in pursuing graduate studies, and indicators of academic success to be indicated by actual performance in the program, and the capability to graduate within seven years from the date of entry into the program.

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About the Researcher

Dr. Norma G. Cajilig obtained her MA in Education (Measurement and Evaluation) and her PhD in Research and Evaluation from the UP College of Education. At present she teaches educational research subjects in the same College. Before joining the College, she was connected with the UP National Institute for Science and Mathematics Education Development (NISMED).

Standardization of the UP College of Music Undergraduate Theory Entrance Test

Jocelyn Timbol-Guadalupe *(Project Leader)*

This study aims to find the construct and predictive validity as well as the reliability of the test components (music theory, critical listening, and sight-singing) of the Music Theory Undergraduate Entrance Test. Methodology will involve three stages: validation/reliability testing, revision, and pilot-testing.

During Stage One, construct validity will be done by cross-checking the test items with the table of specifications for Music Theory 10 and 11. Reliability testing will be done using item analysis employing data from previous test administrations. Using the data from the test administrations done last 2010 and 2011, the Music Entrance Test was found to have weak reliability. Less than half of the test items (44% for 2010 and 27% for 2011) met acceptable alpha reliability indexes. Moreover, some items had a negative correlation with MuT 10 and MuT 11 grades. Data for variance such as music aptitude, language, keyboard proficiency, and performing experience have yet to be gathered.

During Stage Two, the test items will be revised, using the results obtained in Stage One as guide. During Stage Three, a revised test will be pilot-tested among equivalent population. Upon completion, assessment of predictive validity will be done by correlating the entrance test results with the Music Theory 10, 11, 12 and 13 grades of accepted applicants. Sources of variance will be classified into student variance and subject variance. Student variance includes academic ability, music aptitude, years of performing experience, and keyboard/ instrumental experience aside from principal instrument. Subject variance includes schedule of music theory class and teacher variance.

Phase Two of the project, which will be conducted after the test has been standardized, involves the development of a Music Aptitude Test from the critical listening segment of the standardized Music Achievement Test. The applications of the standardized music achievement and music aptitude test with predictive validity can be extended to benchmarking the music achievement of students in special program for the arts (SPA) nationwide.

About the Researcher

Assistant Professor Jocelyn Timbol-Guadalupe is a faculty member of the UP College of Music's Department of Music Education. Aside from teaching, she performs regularly as harpsichordist of Musika Sophia, a music ensemble performing renaissance and baroque music, incidental music to puppetry as well as Philippine folk music performed on recorder, strings and continuo. Prior to joining UP, she taught music across levels in Ateneo Grade School, Manila Waldorf School, Poveda High School and University of Asia and the Pacific. Currently, she is involved in the preparation of a dictionary of Philippine musical terms and multi-sensorial music modules for basic education and also serves as the assistant secretary of the Committee on Music of the National Commission for Culture and the Arts.

STFAP and Social Protection: Recommendations for Streamlining and Expansion

Aleli B. Bawagan *(Project Leader)*, John Erwin S. Bañez & Catherine E. Adaro

As the country's National University, the University of the Philippines is expected to provide the best education to ALL deserving students. This expectation is articulated in RA 9500 (An Act to Strengthen the University of the Philippines as the National University). For instance, Section 8 reiterates the University's social responsibility. It states, "The national university is committed to serve the Filipino nation and humanity". Section 13 states that while UP carries out the obligation to pursue universal principles, it must relate its activities to the needs of the Filipino people and their aspirations for social progress and transformation. The Board is mandated to (among others) provide fellowships, scholarships and grants, including athletic grants and to award the same to faculty, staff and students having special evidence of merit, especially those who are poor and deserving individuals (Section 13 (i)).

GMA News TV reported the case of Cherry Holgado, who passed the UPCAT but had difficulty enrolling in UP due to the relatively high cost of education even with STFAP. The *Philippine Collegian* reported that 900 out of roughly 1750 freshmen are in brackets A and B, and that there has been a dramatic increase (3000%) in the number of students in Bracket A from 2010 to 2011.

The present study thus asks the questions: Is the STFAP an effective social protection program that enables UP to implement its mandate? Or is it, as some groups say, a mechanism to increase tuition fee and a bridge towards state abandonment of its responsibility to provide education for all? Is it easier for the rich to enrol in UP as compared to the poor?

This research aims to look at the STFAP as a social protection policy. Given that the cost of education (and all other things) is on the rise, UP's proper implementation of the STFAP can help ensure that the poor will still have a shot at the best education in the country and one of the best in the world. However, poor design and implementation of any development program could lead to leakage (when unintended beneficiaries get benefits) and undercoverage (when intended beneficiaries are left out). A more crucial consequence of these is justified discontent. Exploring the reasons for leakage and undercoverage of STFAP can lead to recommendations towards streamlining and expansion.

This research will implement the following methods: documents review (including review of software used in identifying student brackets); key informant interviews and, focus group discussions with students from six STFAP brackets from four academic clusters. Data will be collected in full partnership with the University Administration officials.

About the Researchers

Dr. Aleli B. Bawagan and Mr. John Erwin S. Bañez are faculty members of the Department of Community Development, UPD-CSWCD while Ms. Catharine E. Adaro is a University Extension Specialist II at REDO, CSWCD. They are members of the CSWCD Social Protection Cluster which looks into policies and programs that impact on the marginalized sectors of society. Among the recent activities that the Cluster has undertaken are roundtable discussions on the Conditional Cash Transfer (CCT) program of DSWD, and a discussion on GSIS benefits among UP faculty and staff.

Process Documentation: Capturing and Documenting the Data Encoding and Forms Processing Routines of the Office of Admissions

Gerald M. Franco *(Project Leader)* & Ligaya Leah Lara-Figueroa

In the constant race to produce the list of UPCAT qualifiers as early as possible, the Office of Admissions was one of the first administrative units in UP Diliman that used fast and expensive machinery – mainframe computers, high-speed printers, and optical scanners, to name a few. Given the recent advances in technology, most offices need modernization to enhance their operations. But before any change can be done, the current procedures should first be documented and analyzed.

This project will address the absence of an integrated, extensive, and documented task list and procedures for the Office of Admissions (OAdms). It will produce a documentation of current tasks and procedures of the Office, analyze these processes, and suggest improvements based on the current scenarios, future plans, and available technologies. Finally, it will check the feasibility of the proposed improvements, i.e. to determine whether the tasks can be accomplished faster and error-free with the aid of advanced technology. There has to be a discussion and consensus of the specific tasks performed by each staff and they have to be informed of current advances in technology.

Resource persons and consultants from the UPD's OAdms, Department of Computer Science, and Office of the University Registrar will participate in this project. Activities related to business analysis and requirements analysis will be undertaken. These activities include the selection of process teams and leader, process analysis training, process analysis interview, process documentation, review cycle, and problem analysis. Outputs/results of these activities will be the foundation for the next step of creating a "requirements document" and evaluating appropriate mechanisms to streamline the processes of the OAdms in order to achieve faster turnaround time, increased monitoring of staff production, and smaller operating costs.

Another pressing problem that needs to be addressed, but is not part of this research, is the lack of an integrated electronic system that can serve the office internally (with each group) and externally (with other offices in the university) so as to make certain information readily accessible to the other staff members, the other offices in the university, the UPCAT applicants, and to the general public. With the recent proposal of the UP System to create a unified information system for the University, the OAdms must prepare and plan ahead so that its own system can integrate seamlessly with this new framework.

About the Researchers

Assistant Professor Gerald M. Franco is a faculty member of the UPD-CSSP's Philosophy Department and is the current Director of the Office of Admissions. He has served as the Assistant Director for Test Development for three years.

Assistant Professor Ligaya Leah Lara-Figueroa teaches in the Department of Computer Science, UPD College of Engineering. She was an IT Officer at the Office of Admissions for six years.

Proposed Schemes for Cost-Effective Utilization of Electricity of UP Diliman Buildings

Maureen Anne L. Araneta *(Project Leader)*, Mario T. Carreon & Amador D. Rozul

UP Diliman has a total of 109 Agreements for the Sale of Electric Energy with the Manila Electric Company (Meralco). In 2010, UP Diliman's total electric bill for these 109 accounts was PhP**175,084,385.00 pesos**. However, for the same year, 34 of the 109 accounts consumed electricity less than the Guaranteed Minimum Billing Demand (GMBD). On the other hand, the Top 20 UP Diliman Building Consumers account for 47.14% of the entire University electric bill.

Given these and other circumstances, this project has proposed the following schemes for the cost-effective utilization of electricity of UP Diliman buildings:

❒ Scheme A: Base GMBD on Actual Electric Demand

Five (5) alternative calculation bases for Guaranteed Minimum Billing Demand of UP Diliman Buldings are proposed:

- GMBDmax - GMBD is 70% of maximum actual demand
- GMBDave - GMBD is 70% of yearly average actual demand
- GMBDmin - GMBD is 70% of minimum actual demand
- GMBD40 - GMBD is 40KW (as written in EC guidelines)
- GMBD0 - no charge for demand

- ❒ Scheme B: Devolve Payment of Monthly Electric Bill to Individual Academic Units

  For a significantly higher rate of savings (based on the alternatives proposed in Scheme A), it is suggested that individual academic units undertake the payment of the monthly electric bill.

- ❒ Scheme C: Install Smart Meters at Top 20 Building Consumers for Real-Time Monitoring

  The Top 20 UP Diliman Building Consumers intensively use building equipment, particularly air-conditioning units. Since the electric bill is reckoned on a monthly basis, it is uncertain whether intensive use is a daily occurrence or a short series of high peaks over the course of a month. Real-time monitoring, through the use of smart meters, is therefore advised.

- ❒ Scheme D: Schedule Use of Equipment per Building

  A scheduling system for the use of a building's equipment with the highest electric demand is proposed.

- ❒ Scheme E: Monitor Unmetered Meralco Streetlights On-Campus

  To maximize the fixed rate paid for the unmetered streetlights on-campus, regular monitoring and prompt reporting to Meralco is suggested.

- ❒ Scheme F: Create the UP Diliman Utilities Management Team

  A more proactive team, geared towards finding and recommending ways for cost-effective utilization of utilities on-campus, is proposed.

The research team is currently assisting the University Administration in coordinating with Meralco in the implementation of Scheme A. The applications of Schemes B through D are on-going on a case-to-case basis. The research team is facilitating the coordination between Meralco and the Campus Maintenance Office with regard to Scheme E. In the realization of Scheme F, a member of the research team, by appointment of the Chancellor, is serving as Team Leader of the Utilities Management Team.

About the Researchers

Assistant Professor Maureen Anne L. Araneta is a faculty member of the UP College of Architecture. Presently, she also serves as a Program Development Associate of the Office of the Chancellor. She is a licensed architect.

Assistant Professor Mario T. Carreon is affiliated with the Department of Computer Science of the UP College of Engineering. In light of the OVCRD SOS Grant, he was appointed as Team Leader of the Utilities Management Team of the Office of the Vice Chancellor for Administration.

Engr. Amador D. Rozul has been with the Office of the Campus Architect since 2000. He serves as resource person for the UP Diliman Bids and Awards Committee and as a technical consultant for various UP Diliman academic units.

Determination of Thermophysical Properties of Tap Water in University of the Philippines Diliman

Menandro S. Berana *(Project Leader)*

Ice, with its high latent heat of fusion, abundant supply and cheap raw material cost, has a big potential for storing coldness for various cooling applications especially in air-conditioning, thermal storage and refrigeration. However, dissolved impurities and biological entities tend to alter its fundamental properties (i.e. thermal conductivity, specific heat, and latent heat of fusion). These impurities also result in differences in the properties of tap water and pure water.

The study aims to review the procedure in computing the thermophysical properties of water and apply it to tap water in University of the Philippines – Diliman, which is supplied by Manila Water Company, Inc. The correlations obtained will be recommended for use in the design of cooling systems, especially thermal energy storage systems. The study also aims to probe into the issues of why there is limited technical literature on tap water in a locality.

Specifically, this study aims to answer the following questions:

- ❒ Is using thermophysical correlations for distilled water acceptable for tap water?
- ❒ What is the advantage of using correlations and data of tap water over distilled water?
- ❒ Can design of thermal systems which will be installed in a specific locality give more realistic values if correlations for tap water are used?

There are five key procedures in this study. The following thermophysical properties will be determined in each procedure: a) freezing temperature of tap water, b) specific heat of tap water, c) specific heat and latent heat of fusion of tap-water ice, d) thermal conductivity of tap water, and e) thermal conductivity of tap-water ice.

The methodology will be based on heat transfer equations involving non-mixing setup of distilled and tap water to calculate the freezing temperature, specific heat, latent heat of fusion, and thermal conductivity of tap water and its ice. Distilled water will be used as the heating or cooling medium since it has known thermophysical correlations. At least 10 repetitions will be conducted per experiment with temperature monitoring every 15 seconds from start to finish.

The project has three parts, as follows:

Part 1: Purchasing of materials and components, fabrication of calorimeter, and performance of experiments to determine the freezing temperature, specific heat and thermal conductivity of tap water.

Part 2: Fabrication of mini ice builder and performance of experiments to determine specific heat, latent heat of fusion, and thermal conductivity of tap-water ice.

Part 3: Analyses of data and output of the research including final data and correlation of thermophysical properties of local tap water and tap-water ice will be presented.

With correct correlations for tap water, thermal systems can be designed such that they can optimally operate at the least electricity cost. One of such systems is thermal energy storage for cooling or air conditioning. In a broader sense, if the system is widely used in a locality for air-conditioning systems and refrigerated spaces, significant cost reduction in electricity could be attained. This system could be installed and benefits could be realized in UP Diliman.

About the Researcher

Dr. Menandro S. Berana conducted researches on two-phase flow of CO2, as applied to compressor-driven ejector refrigeration systems, for his masteral and doctoral researches in Japan. After his doctorate studies, he extended his researches on compressor-driven systems, focusing on applications of the ejector to heat-driven refrigeration system and power generation. Dr. Berana is the laboratory head of the Emerson HVACR Laboratory of the UPD Mechanical Engineering Department and serves as a consultant on design, computational analysis, laboratory analysis and building of thermal systems.

Solid and Hazardous Waste Management Plan of UPD Campus

Maria Antonia N. Tanchuling *(Program Leader)*, Augustus C. Resurreccion & Mark Daniel G. de Luna

The UP Diliman campus generates various wastes ranging from domestic, office, laboratory, electronic and health care waste. Within its premises lives a large population comprised of families and residents of dormitories. The University hosts numerous laboratories which generate wastes that are considered hazardous and necessitate special storage, collection and transport systems, totally separate from domestic and office wastes. Likewise, offices produce electronic wastes – such as computers, toners and ink cartridges – that contain toxic materials, rendering them as special wastes not to be disposed with the ordinary wastes. The UP Health Service produces health care wastes which are classified under another special waste category that requires a separate management strategy.

Aside from the collection of the domestic wastes (which in itself needs improvement), there is no system in place for the proper management of electronic wastes. These are being managed individually by units. Laboratory wastes are also likewise managed on the level of units, and there are volumes of laboratory wastes which are right now being stored in the laboratories. Most laboratories commission a private laboratory to treat their wastes for them. Health care waste management in the Infirmary is also an issue that needs to be addressed.

This research program has three main objectives, mainly: a) To characterize the wastes being generated in the campus terms of their composition and volume; b) To define a solid and hazardous waste management system for the campus which includes among others: collection (including routing and schedules), proper design of storage bins, transfer stations, materials recovery facility, collection and storage of electronic wastes, and treatment of laboratory wastes; and c) To define the necessary hard and soft infrastructure to be able to implement the solid waste management system.

To be able to the meet the said objectives, several strategies will be employed. Surveys will be conducted to collect information from waste generators. Focus group discussions as well as interviews of all stakeholders such as building administrators, janitors, waste pickers will also be undertaken to collect information and receive feedback on suggested recommendations. Sampling and characterization of wastes will also be done to obtain primary data on the campus's waste generation rates and composition. These are the necessary data to be able to define an appropriate solid waste management plan. Review of disposal options will be also be done, whether it is applicable and feasible for the campus to have its own disposal facility for all types of wastes.

The major outputs expected from this research consist of the following:

1. Data on volume generated, composition and current practices of storage and disposal;
2. Solid waste management plan including storage, collection and transport, disposal and waste diversion or minimization strategies;
3. Design for the necessary infrastructure such as MRF, transfer station; and
4. Institutional mechanism to implement the solid waste management plan in terms of definition of responsible parties, policies and guidelines for the implementation of the plan.

Being the premier university of the country, UP should be a model in showcasing a proper solid and hazardous waste system. Having such a system in place ensures that our impact on the environment as far as wastes are concerned is minimized.

About the Researchers

Dr. Maria Antonia N. Tanchuling is an Associate Professor at the UPD Institute of Civil Engineering, and the current coordinator of the Environmental Engineering Graduate Program of the College of Engineering. She obtained her PhD in Civil Engineering from the Tokyo Institute of Technology in 2005, MS in Environmental Engineering from UP in 1998, and BS Civil Engineering from UPD in 1988. Her research interests include water and sanitation, solid waste management, and monitoring environmental impacts of landfills and dumpsites.

Dr. Augustus C. Resurreccion is an Associate Professor at the UPD Institute of Civil Engineering. He is a member of the Soil-It-Is Project, an international collaboration of researchers from the United States, Denmark, Japan, and the Philippines studying soil functionality and vadose zone processes. He obtained his PhD in Environmental and Biological Sciences from Saitama University, Japan and his research interests include environmental soil physics, geoenvironmental engineering, and monitoring environmental impacts of landfills and dumpsites.

Dr. Mark Daniel G. de Luna is an Associate Professor at the UPD Department of Chemical Engineering. He is the National Technical Advisor of the Philippines' Project Team for the Global Healthcare Waste Project.

Noise Level Measurement and Modelling in UP Diliman Campus

Hilario Sean O. Palmiano *(Program Leader)*, Aileen U. Mappala & Sheila Flor D. Javier

Noise is defined as unwanted sound. It is annoys people, interferes with conversation, disturbs sleep, causes stress, and threatens public health. People exposed to high levels of noise for a long time period may suffer from temporary, even permanent, deafness.

This research will focus on noise generated by vehicular traffic and its impact on the UPD campus environment. The campus is both an academic and residential community and should be free from noise pollution. There have been recent observations of offensive noise coming from vehicular traffic that ply campus roads. Vehicle types contributing to this noise pollution include tricycles, heavy vehicles, jeepneys, and even private cars.

Noise standards, or allowable sound levels, are set according to land use and time period. Philippine noise standard requires that sound levels in school campuses do not exceed 50 dB (decibels) and 40 dB during daytime and night time, respectively. Earlier studies showed that tailpipe noise from tricycles measures about 80 dB. Currently, there has been no extensive measurement of noise levels in the campus to know whether or not noise standard regulation is violated.

This research aims to (1) establish and map baseline noise levels around the campus, (2) get the perception of individuals on noise levels in the campus, (3) calibrate a simple model to estimate noise level generated by vehicular traffic around the campus, and (4) recommend some measures or guidelines to address noise level concerns.

The study entails field measurement of sound levels, and calibration of simple mathematical model to estimate noise levels around the campus given the number and type of vehicles, distance from the road centreline, and other parameters. Observed and estimated noise levels could be presented in the form of a noise contour map for the campus. Providing campus planners with this information could facilitate recommendation of measures or guidelines to address noise impact.

Sound levels will be measured using noise level meters at selected sites around the campus such as college buildings, residential community, dormitory, and shopping center. Sound readings will be taken by placing the instruments at the edge of the road carriageway and at measured points away from the roadside. Since vehicle type, vehicle volume, and speed are primary factors that affect noise level, classified volume count and spot speed survey will be conducted simultaneously with noise measurements. Data will be used to calibrate a linear model to interpolate noise levels at other areas and to plot a noise contour map.

A perception survey on noise impact from vehicles will be part of the study. This will indicate if the UPD constituents feel that noise level is tolerable or has negatively affected them, such as when classroom instruction and learning is disrupted, or students and residents are disturbed in dormitories and homes.

This study hopes to address several OVCRD-identified problem areas namely vehicular noise, land use, and general improvements to the environment and wellness of the UP community.

About the Researchers

Dr. Hilario Sean O. Palmiano is an Assistant Professor of the Institute of Civil Engineering, and a Research and Extension Fellow of the National Center for Transportation Studies. He is a specialist on Transportation Planning and Engineering and his professional experience includes project management and conduct of traffic impact analysis. His other research interests include traffic engineering and management, traffic simulation, and road safety.

Ms. Aileen U. Mappala is a University Extension Specialist of the National Center for Transportation Studies and the Head of the Center's Traffic Engineering and Management Laboratory. She has extensive professional experience in transportation surveys, traffic impact analysis, training/workshop planning and implementation, and traffic engineering and management. She has presented and co-authored papers on noise impact of tricycles, and estimation and GIS mapping of traffic-induced noise.

Ms. Sheila Flor D. Javier, a University Extension Specialist, is the Training Coordinator of the National Center for Transportation Studies and a member of the Center's Transportation and Environment Laboratory. Her research and extension experience is focused on environmentally sustainable transportation, transportation surveys, traffic impact analysis, and non-motorized transportation. . She has presented and co-authored papers on noise impact of tricycles, and estimation and GIS mapping of traffic-induced noise.

Evaluation of the Re-Introduction of Traffic Signal Control at the Intersection of the University Avenue and Commonwealth Avenue

Ricardo G. Sigua *(Project Leader)*, Karl B.N. Vergel & Jose Regin F. Regidor

The "Big Rotunda" scheme, also known as the U-Turn scheme, was implemented by the Metro Manila Development Authority (MMDA) in 2003 to relieve the worsening traffic congestion by increasing travel speed along major roads in Metro Manila. In 2003, several signalized intersections were closed – including the intersection of Commonwealth Avenue and University Avenue – and approximately 48 slots for U-turn have been constructed by the MMDA in Quezon Avenue, EDSA (C-4), Commonwealth Avenue, Marcos Highway and Sen. Gil Puyat Avenue.

Although there have been improvements in speed and capacity, the U-turn scheme has had negative effects on road safety - as some people have anticipated and a number of studies have confirmed - because of the increase in number of traffic conflicts. Over eight years of implementation of the scheme, motorists have been conditioned to disregard traffic signals. As such, they tend not to stop at the intersection and immediately turn right and weave or change lanes abruptly to the U-turn slot. Motorists have also become more aggressive since high-speed vehicles passing through the major road often prevent them from making the U-turn maneuver.

In light of the possibility that the public may have been conditioned to accept the U-turn scheme as the solution to traffic congestion, not realizing that the scheme is one of the indirect causes of road crashes, there is a need to evaluate the impacts of the re-introduction of traffic signals at the intersection of Commonwealth Avenue and University Avenue without seriously affecting traffic flow and to some extent, air quality and energy demand through fuel consumption. This is the focus of the present study. Its specific objectives are to: 1) design appropriate traffic signal timing and phasing of the intersection; 2) recommend geometric improvement of the intersection and the vicinity; 3) evaluate the safety of the intersection under the present traffic scheme; 4) estimate the fuel consumption of vehicles under the present traffic scheme; and, 5) assess the baseline air quality of the intersection area.

About the Researchers

Dr. Ricardo G. Sigua is a Professor at the Institute of Civil Engineering of the College of Engineering and the Head of the Road Safety Research Laboratory of the National Center for Transportation Studies of UP Diliman.

Dr. Karl B. N. Vergel is an Associate Professor at the Institute of Civil Engineering of the College of Engineering and Head of the Transportation & Environment Group of the National Center for Transportation Studies of UP Diliman.

Dr. Jose Regin F. Regidor is a Professor at the UP Diliman Institute of Civil Engineering and currently the Head of its Transportation Engineering Group. He is also Director of National Center for Transportation Studies of UP Diliman.

The Greening of the Philippines Starts @ UP: A Proposal for Environmental Management System (EMS) in the University of the Philippines System

Romeo B. Santos (Project Leader)

Universities are normally looked up to for leadership in research that can provide cutting-edge solutions to problems affecting the society. Being a national university, it behooves upon the University of the Philippines (UP; the University) to take the lead in this field. In the first place, as a living model of the Philippine society and an institution that mirrors the country in many ways, the University shares significant stake in the problems affecting the environment. The threats to the environment are as real for UP as they are in the context of the whole Philippines. However, it appears that, just like the country in general, UP's initiatives in addressing these problems are fragmented and far dispersed to enable effective implementation. A comprehensive, wide-ranging policy and a framework for environmental protection, with detailed mechanics for execution, are absent.

The University needs a sound Environment Management System (EMS) so that it could demonstrate that it is taking the issue of the environment seriously and show that it is a true leader in working for the country's development in this field (The UP Forum, July 2008). In response to this need, this research program will involve putting in place the basis for the formulation, institutionalization, and operationalization of an EMS that will serve as a roadmap for environmental management in the whole UP Sytem.

The proposed UP System EMS is a Framework to deal with the challenge of protecting the environment and contributing to solutions. It will serve as a roadmap for development in the area of environmental protection that UP can use to illustrate how a scientific way of doing things can help. This can be a model for a comprehensive national environmental protection and development of the whole Philippines, which the country does not have at the moment.

By applying both quantitative and qualitative research perspectives and using an array of mixed-methodologies for getting data, the study will organize the body of knowledge essential for a comprehensive environmental policy that the UP System can adopt. Consequently, this policy will be the basis of the EMS that will be designed and tailored to the University's specific contexts. The EMS will tie in the many aspects of environmental management, such as, climate change, disaster risk reduction, waste management, and energy conservation.

The EMS shall include not just the procedures but also a built-in mechanism for monitoring and evaluation (M&E), which will help identify the standards, set targets, measure performance, and ensure system sustainability. Further, the program will also feature a parallel development of an information management system (IMS) that will complement the roadmap. This IMS will serve as the data base that will sustain the M&E. The M&E will be a management tool to guide the program managers in the implementation of the system.

For easier administration and implementation, the study program is divided into three phases:

PHASE I (Research Proper): *Getting the Evidence towards a UP System EMS*

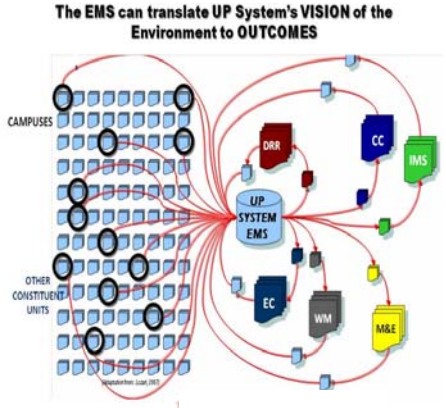
Phase I will constitute the bulk of the research program and will focus on getting the 'evidence' and organizing the body of knowledge. It will include the research components that will establish the basis for the formulation of the environmental policy and design of a [paradigm] knowledge model, which will lead to the construction of the initial sketch of the EMS in Phase II.

PHASE II (Policy Draft and Initial 'Sketch' of the EMS Roadmap): *From Knowledge to Policy, from Visions to Outcomes - through the EMS*

The expected outputs from Phase II are *(a)* the policy draft, *(b)* the knowledge model or paradigm that will illustrate the knowledge basis of the system and *(c)* the initial 'sketch' of the EMS, which is a skeletal representation of the system and its mechanics. It will be the prototype for the development of the higher level, implementable EMS in Phase III.

PHASE III (EMS Development, Capacity Building, System Runs, and Implementation): *Powering up the UP System EMS*

Phase III will include the main design of the system, and consists of the detailed implementable framework that ties in the various facets of environmental management: Waste Management, Disaster Risk Reduction, Energy Conservation, Monitoring and



'Most innovations are failures, but the ultimate failure is failure to innovate' - Anonymous

Evaluation, and Information Management System. It will include support facilities such as implementation guidelines, needs assessment and training modules for capacity building in various UP System sectors, training plans and schedules, pre- and post- training evaluation provisions, templates, and models and tools.

About the Researcher

Dr. Romeo B. Santos has a PhD in Architectural Engineering with specialization in Project Management & Economics. He is Founder and Executive Director of the WorkLand M&E Institute, Inc., a non-profit think-tank that builds research and results-based monitoring and evaluation (RB M&E) capacity in many government agencies, private sectors, and NGOs. He practices cross-disciplinary research in diverse fields: socio-urban development, building production and technology, development evaluation, organizational development and capacity building, climate change and sustainable environment, and policy planning and formulation.

Incentives vs. Disincentives for Going Green: Is UP Diliman Ready for Environment-Friendly Programs and Services?

Elena E. Pernia *(Program Leader)*, Jose R. Lacson, Jr., Lourdes M. Portus & Randy Jay C. Solis

Go green as slogan, advocacy, and intention is everywhere. In the UP Diliman campus, there are vestiges of going green, e.g., waste segregation, car-less oval, project padyak or bike for the environment, tree planting. However, are these greening efforts and the environmental advocacy within the University merely lip service? Beyond the words and the plan, what and where is the green action? One concerned UP alumnus goes straight to the point by questioning whether "E-Jeepneys, go-green campaigns, the works (as part of the) environmental movement in UP Diliman (are) concretely effective — or merely environmental PR?" (see A Contemporary History of Greenwashing in UP Diliman, http://kathangkatotohanan.wordpress.com/ 2011/02/06/a-contemporary-history-of-greenwashing-in-up-diliman/)

This proposal focuses on assessing UP Diliman's environmental commitment as particularized in the readiness of UPD to adopt alternative approaches to become a plastic-free, smoke-free campus. If the rationale for adopting environment-friendly practices is widely accepted, why has the green rhetoric hardly moved into action? Are the costs (or disincentives) too high for – or are the incentives simply unknown, unexplored, or misunderstood by – the UP administration, students, faculty, barangay UP Campus residents, UP commercial and health service sectors? The research will provide data about motivations (incentives) and barriers (disincentives) for developing strategies and messages to encourage environmental policies and programs, and environmental behavioral changes within UP.

The study covers the environmental programs, commitment and practices (waste generation and disposal) of the academic and residential communities of UP Diliman, and the Health Service as a special area of concern. Hence, there will be three projects (viz., Academic community, Residential community, and UP Health Service) under the umbrella of an over-all program (i.e., UP Diliman). Using a combination of quantitative (survey) and qualitative (key informant interviews and focus group discussions) methods, the objectives are:

1. To assess environmental commitment:
   - Existence of policies and programs/activities that facilitate or impede adoption of environment-friendly programs and services,
   - Availability of resources for adoption of energy-efficient and environment-friendly programs and services,
   - Use of strategies for generating resources to enable adoption of environment-friendly programs and services.

2. To appraise environmental competence and clout:
   - Awareness and knowledge of environmental concerns and need for energy efficiency
   - Predisposition and confidence to adopt/practice desirable environmental behaviors
   - Environmental practices and behaviors
   - Implementation of environment-friendly programs.

3. To gauge resistance to environmental policies, programs, and actions (e.g., reasons for objection, alternatives considered and implemented, etc.).

Each project will have the same objectives and research methods, resulting in a general report for UP Diliman's environmental commitment and practices, separate reports for the academic and residential communities, and the Health Service.

About the Researchers

Dr. Elena E. Pernia has over 20 years of experience in communication/media education, research, planning and evaluation. Her highly distinguished academic career focuses on building the capacity of students, local governments, health professionals, and civil society organizations to design, implement, and evaluate their own communication programs. An evaluation specialist and leading trainer in strategic communication and leadership, she handles undergraduate and graduate courses in communication/media theory and research, design and

methods, quantitative and qualitative analysis, communication project planning and development.

Prof. Jose R. Lacson, Jr. is a PhD Communication graduate of the UP-CMC and presently the Chair of the Graduate Studies Department of same college. Prof. Lacson's expertise is in crisis/risk communication, health communication, communication campaigns and the conduct of communication and media studies. His consultancies involve research, planning, training and monitoring/evaluation of projects and programs for the United Nations system of agencies, government, corporate entities, NGOs and academic institutions.

Dr. Lourdes M. Portus is an Associate Professor and Chair of The Communication Research Department of the College of Mass Communication, University of the Philippines Diliman. She was College Secretary for five years in the same College. She has written books and articles in refereed journals and has presented academic papers in Malaysia, Mexico, Thailand, China, Netherlands, Korea, Vietnam, India and United States.

Assistant Professor Randy Jay C. Solis teaches at the Department of Communication Research of the College of Mass Communication, University of the Philippines Diliman. He is also an associate researcher at the Institute of Philippine Culture, School of Social Sciences at the Ateneo de Manila University. His more recent research and extension works include communication theory, health communication, behavior change communication, participatory communication, disaster impact monitoring, children's rights and evaluation of social protection programs.

Public Transport Supply and Demand Study for UP Diliman

Cresencio M. Montalbo *(Project Leader)*, Maria Sheilah G. Napalang & Jose Regin F. Regidor

Planning a public transport system for an area is planning not for vehicles or technology but for people. A public transport system ideally should have the following attributes – speed, reliability, comfort, and image. These are features that a public transport system's customers, or its passengers, usually look for.

Before a system can be planned to possess these attributes, the basic inputs to planning a public transport system in an area have to be determined. These include the existing passenger demand for which transport services will be planned and designed, and the existing supply of the current public transport system. Primary and secondary data are needed to establish current and projected demand and supply of public transport which will be used in the planning of the system and its component parts.

- Public transport volume count – The aim of this survey is to capture total volume over time of public transport vehicles to be used for expansion of the boarding and alighting survey data.
- Terminal/Stop Interview Survey – This survey aims to determine ultimate origins and destinations of passengers through interviews.
- Stated Preference Interview Survey – This survey aims to determine potential public transport passengers from current car (and other modes) users who may shift to public transport given a certain set of system attributes.
- Focus Group Discussion – The objective of this survey is to grasp the values and motivations of current users and non-users (but potential users) of public transport.

Secondary data on transport and traffic, and particularly on public transportation demand and supply for UP Diliman, are available from various sources. These include the 2006 UP Diliman Transport & Traffic Management Plan, which needs validation in consideration of changes that have since taken place. Other sources of secondary data are the OVCCA and the NCTS, for on-going studies concerning the campus model traffic safety zone.

The study will determine the demand for public transportation in UP Diliman and will validate the sufficiency of the supply that is currently represented by jeepneys providing service along several routes. The outcomes of the study will indicate the adequacy of jeepneys and the options for public transport that the University can consider to address the requirements of the community and other stakeholders. Further, the methodology for this study may be replicated for application elsewhere where there is a need for the determination of transport demand in order to address questions regarding adequacy of public transport services.

About the Researchers

Dr. Cresencio M. Montalbo, Jr. holds MS and PhD degrees in Urban & Regional Planning from the University of Tsukuba in Japan. He is a civil engineer and an alumnus of the UP College of Engineering. He is currently Associate Professor at the UP School of Urban & Regional Planning (SURP) and a Research and Extension Fellow at the UP National Center for Transportation Studies (NCTS).

Dr. Maria Sheilah G. Napalang obtained her MS in Civil Engineering degree from Virginia State University in the United States and her Dr. Eng. from the Tokyo Institute of Technology in Japan. She is a civil engineer and environmental planner and an alumna of Xavier University in Cagayan de Oro. She is currently Assistant Professor at the UP School of Urban & Regional Planning (SURP) and a Research and Extension Fellow at the UP National Center for Transportation Studies (NCTS).

Dr. Jose Regin F. Regidor holds BS and MS degrees in Civil Engineering from UP Diliman and a Dr. Eng. from the Yokohama National University in Japan. He is currently Professor at the UPD Institute of Civil Engineering and Director of the UP National Center for Transportation Studies.

Diliman as Model for Philippine Urban Planning - Phase 1: Housing

Laura T. David *(Program Leader)*, Maria Antonia N. Tanchuling, Maria Faith Y. Varona & Arlene Christy D. Lusterio

As a campus, Diliman was initially set up to follow the model of providing housing for its faculty, staff and students. In the first three decades of its existence, the housing facilities consisted of remnant structures from pre-WWII (Areas 11, 14, 17, 1, 2, 3, 5, and AGRD); dorms specifically built for students; and sites earmarked for staff housing, the Puroks (Purok Aguinaldo, Dagohoy, Ricarte and Palaris; Village A, B & C).

In Area 11 and the Puroks, staff members were allowed to build their own one-storey housing units. It was only in the late-70's and 80's when additional housing units were added to accommodate the transfer of residents from the Areas that were being developed for campus administrative and academic buildings, and from the demand of increasing faculty and staff population. In the meantime, through the decades, informal settlements have been increasing within and along the perimeter of the campus (at the Areas, Puroks and at Daang Tubo, Sitio Libis, Barangay Botocan, Sitio Lambak, and Sitio Kabute). Some of the informal settlers are actually UP staff members or other essential personnel (e.g. janitors, security guards, IKOT drivers).

The problem of the current campus housing is two-fold. On one hand, there is high unmet housing demand from faculty and staff and on the other, there is increasing number of informal settlers within the campus. This study aims to quantify the housing situation in UP Diliman and propose viable alternative options. It is envisioned that not only will the results be invaluable for campus planning but data synthesis and subsequent analysis can also demonstrate how the housing situation in Urban Manila, Cebu, Davao, and Puerto Princesa should be handled.

About the Researchers

Dr. Laura T. David is a Professor at the UP Marine Science Institute. Remote sensing and spatial databases are part of the tools she regularly uses for her research. Her interest in Urban Housing stems from her involvement as President of the Board of TAO Pilipinas, Inc. - a non-profit women-led technical organization that focuses on informal settlers. Her family has also been a resident of UP Diliman since the late 1940's.

Dr. Maria Antonia N. Tanchuling obtained her PhD in Civil Engineering (Geo-Environmental Engineering) from the Tokyo Institute of Technology and her MS Environmental Engineering and BS Civil Engineering degree from UP Diliman. Her research interests include geo-environmental engineering and solid waste management.

Arch. Maria Faith Y. Varona got both her BS Architecture and post-graduate Diploma in Urban and Regional Planning degrees from the University of the Philippines Diliman. She finished her MA in Urban Management and Development-Housing Specialization (graduate with Distinction) in Lund University, Sweden. A licensed architect and environmental planner, she teaches planning and urban design in the UPD College of Architecture.

Arch. Arlene Christy D. Lusterio obtained her BS Architecture degree from the University of the Philippines and her Master of Architecture degree from the Catholic University of Leuven, Belgium. She is the Executive Director of TAO-Pilipinas, an NGO that assists poor communities in the planning, development, and management of their settlements.

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