

**RESEARCH @ De La Salle University
Annual Report for Academic Year
2011-2012**

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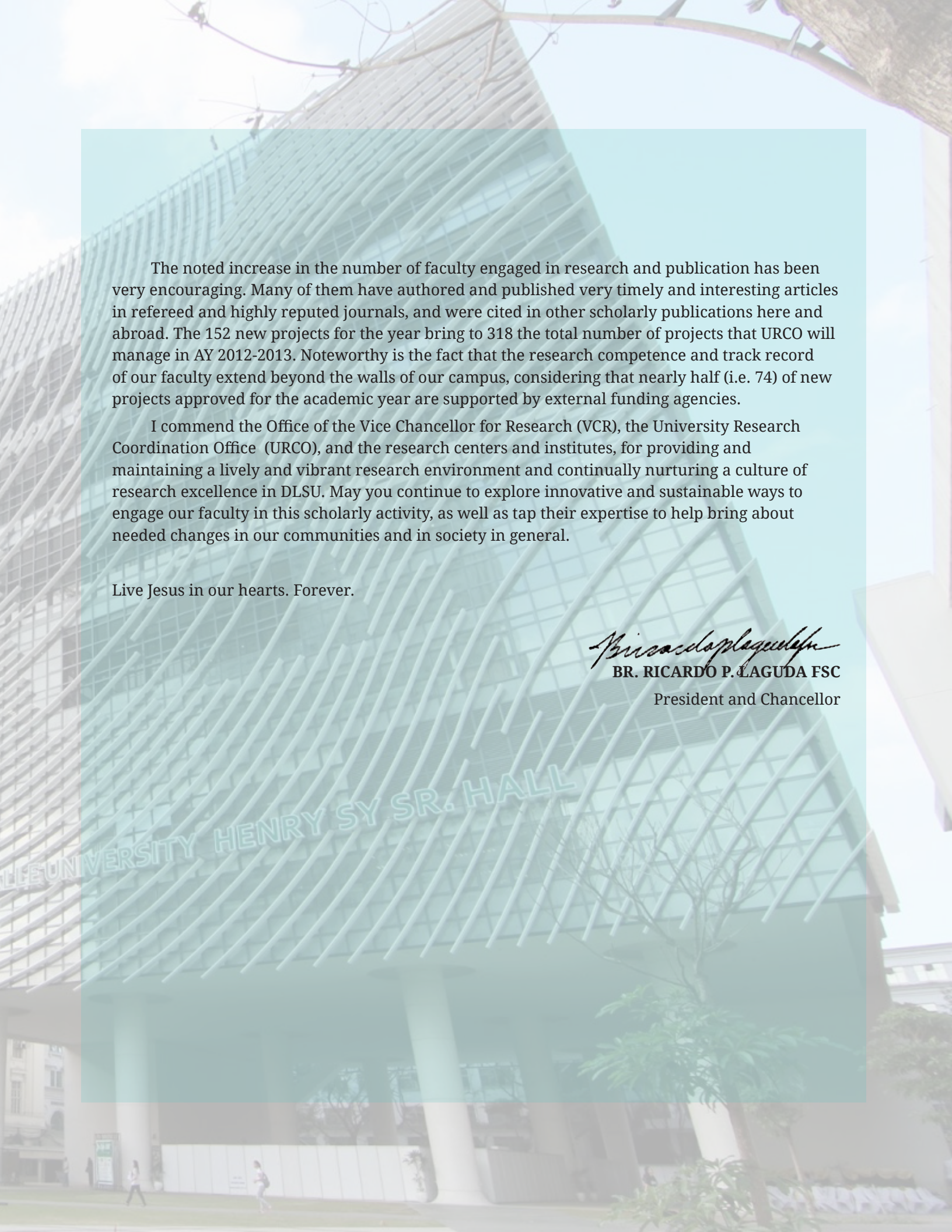
Message from the President and Chancellor

The generation and infusion of new knowledge, the validation of existing theories, the investigation of phenomena that affect the universe and life on our planet, and the continuing improvement of teaching techniques and enrichment of course content, among others, are the *raison d'être* of any higher education institution. Research, being co-equal with teaching and community engagement as a core function of higher education institutions, is highly encouraged in DLSU, not only to contribute toward effective teaching that shapes the minds of tomorrow's leaders, but more importantly also to advance the cause of social transformation, and achieve sustainable development that redounds to the benefit of future generations.

We began the academic year by identifying a set of research agenda to address some major issues that have defined our university. These issues have likewise pre-occupied our society in recent years.

Relative to this, the De La Salle Food Institute, a consortium between the Institut Polytechnique La Salle Beauvais and Lasallian institutions belonging to De La Salle Philippines was established for purposes of education, research, innovation and transfer of technology in different areas of study along the food supply chain.


To provide more venues for our faculty to engage in high-impact research, the Challenge Grants and the Research Program Workshops were launched; capability-building and skills enhancement seminars and workshops were held; dissemination forums were organized, to which policy makers and other stakeholders were invited in an effort to ensure the usability of the research output of our faculty; and, with the integration of De La Salle University (DLSU) and De La Salle (DLS) Canlubang, the DLSU Science and Technology Complex (DLSU STC) was established to serve as a key resource for the development of science and technology in the country. Parameters for the professional conduct of research across academic units were likewise delineated in a document, "Code of Research Ethics and Guide to Responsible Conduct of Research."



The noted increase in the number of faculty engaged in research and publication has been very encouraging. Many of them have authored and published very timely and interesting articles in refereed and highly reputed journals, and were cited in other scholarly publications here and abroad. The 152 new projects for the year bring to 318 the total number of projects that URCO will manage in AY 2012-2013. Noteworthy is the fact that the research competence and track record of our faculty extend beyond the walls of our campus, considering that nearly half (i.e. 74) of new projects approved for the academic year are supported by external funding agencies.

I commend the Office of the Vice Chancellor for Research (VCR), the University Research Coordination Office (URCO), and the research centers and institutes, for providing and maintaining a lively and vibrant research environment and continually nurturing a culture of research excellence in DLSU. May you continue to explore innovative and sustainable ways to engage our faculty in this scholarly activity, as well as tap their expertise to help bring about needed changes in our communities and in society in general.

Live Jesus in our hearts. Forever.

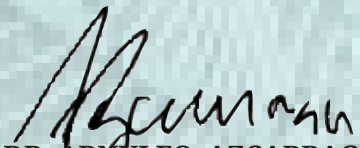

BR. RICARDO P. LAGUDA FSC
President and Chancellor

Message from the Vice Chancellor for Research

Academic year 2011-2012 is the year when the research agenda of the University was crafted. Five strategic research thrusts, which the University finds its research strength in, have been identified. Each is aligned with the University's commitment to lasting, positive, and inclusive growth in society. Each is multi-disciplinary; the push for multi- and interdisciplinary research has indeed begun in earnest, based on programs and decisions made a year earlier. Separate URCO funds have been earmarked for such types of research, and the Colleges have just started to avail of this new window of internally funded projects.

AY 2011-2012 is also the year when a new organizational structure for research was established, with the creation of the Office of the Vice Chancellor for Research (VCR). Previously under the Deans, all research centers and institutes have now been moved to the VCR, with fresh expectations for them to focus primarily on externally funded projects. Also part of the organizational re-structuring is the appointment of a Research and Advanced Studies Director (RASD) for each College. These directors each report to their respective Deans, but they also work closely with the VCR and the Center/Institute Directors to advance the research agenda of the University.

Over the last three decades, the University has evolved and matured as an institution of higher learning. There has been a steady growth in research output, and with a revitalized research agenda and efficient organizational structures, the years ahead will produce even much more.



DR. ARNULFO AZCARRAGA
Vice Chancellor for Research

INVOLVING URBAN COMMUNITIES IN DENGUE CONTROL – EXPERIENCES IN THE PHILIPPINES

Dr. Jesusa M. Marco, Ysadora F. Mendoza, Aldwin Declan C. Velazco



The Social Development Research Center (SDRC) is the research arm of the College of Liberal Arts. It seeks to fulfill the two-fold mission of serving as a hub in the Philippines and the Asia-Pacific region for research and advocacy; and of forming a bridge between the academic community and the society and community it serves. Its vision is for Filipinos and the people of Asia-Pacific to enjoy an improved way of life, and to live under decent conditions in an environment that accords them human dignity and respect. SDRC's programs and endeavors have resulted in policies and projects that address identified needs. The Center has helped put up schools, generate income, organize communities, and promote better service provisions in various aspects of health, governance, and social service. By encouraging the participation of beneficiaries through capacity-building and training, among others, SDRC has earned the trust of donor agencies and increased their faith in people's capabilities.

Involving Urban Communities in Dengue Control – Experiences in the Philippines is part of the SDRC's commitment to improve the quality and way of life of Filipinos by sharing the Department of Health's vision of a Dengue Risk-Free Philippines and by contributing to the success of the Department's National Dengue Prevention and Control Program (NDPCP). Among the Health Department's local and international partners toward the attainment of this vision is the World Health Organization (WHO), which funded the SDRC project through its Special Programme for Research and Training in Tropical Diseases (WHO/TDR).

To achieve its overall objectives, the project was divided into two phases. The first phase described the ecosystem, vector ecology, and socio-behavioral context of vector control programs and activities; analyzed the relative importance of eco-bio-social factors associated with different levels of vector density; and identified interventions appropriate to the ecosystem under study. The second phase determined the process, progress and outcome indicators of community-based ecosystem management strategies at the household, cluster, barangay, and city levels. Determination and evaluation of the differences in the processes of setting up the community-based strategies at the household and cluster levels were also undertaken during this phase.

Recognizing the critical role of local communities as well as of the various sectors of the community in the dengue prevention and control efforts, the project team selected Muntinlupa City, which is one of 14 cities comprising the National Capital Region (NCR). Among the reasons why Muntinlupa was chosen is that it passed a dengue control and prevention ordinance (Ordinance #07-139) that mandates the creation of a city dengue task force (CDTF), and the formulation of guidelines for a dengue control program

in response to the increasing number of dengue cases in the city. The ordinance also encourages the barangays comprising the city to create their own barangay dengue task force (BDTF) after the re-composition of the CDTF.

For purposes of this project, the barangays that were selected to participate in the study were Barangays Putatan and Cupang. Barangay Putatan occupies a portion of the land near fishing grounds and is the most densely populated (15,867.21 people/square meter), generating 335.16 cu.m. per day of solid waste; while Barangay Cupang is the third most densely populated (11,759.59/square meter), generating 181.18 cu.m. of solid waste per day.

Three gated private subdivisions, namely, San Jose Village, Mutual Homes, and Intercity and Manggahan Compound (a densely populated community) were purposively selected to represent the diverse characteristics of the city. Mutual Homes and Manggahan are part of Barangay Putatan, while Intercity is part of Barangay Cupang, and San Jose Village is part of Barangay Alabang.

This study used a selective, inter-sectoral approach to dengue vector control aimed at epidemiologically important key containers identified by pupa surveys and applied during critical periods of dengue transmission. It focused on the process of setting up and implementing dengue control strategies in heterogeneous urban communities, in order to reduce dengue vector breeding sites. It sought to learn from the experiences during implementation, to modify the strategies, if necessary, and to work toward filling any gaps. The team documented and analyzed the implementation process, specifically looking into the dynamics of introducing community-dependent strategies aimed at important key containers. It assumed that the implementation of these measures—including

larva/pupa inspection, use of customized lids, proper solid waste disposal, and information dissemination using video (DVD)—would not place an additional burden on the households involved.

The project team endeavored to capture information as it developed and shared it with stakeholders, to enable them to make informed decisions and keep the strategies moving forward. The study of the process included documented reviews, field notes, and minutes of meetings and proceedings of workshops participated in by the study team and stakeholders. Using these methods, the project team collected community responses to the interventions. As planned, the team looked at the process of setting up strategies at the city level, which indirectly affected vector pupa density; and at the household level, where strategies directly affected the household's knowledge of and attitudes towards dengue, the vector carrying it, and prevention and practices on water storage, container and waste management, and disease prevention.

One of the key areas that the project team looked into is city utility services. It was noted that garbage is collected from each household by a private concessionaire hired by the city government. Garbage is collected once a week in San Jose and Intercity Homes, but more frequently in Mutual Homes. Residents of Manggahan dump their garbage in a designated area where it is collected by dump trucks on an irregular schedule within the week.

During the three-year period 2006-2009, water supply and services to most homes in the City were irregular and inadequate such that storing water in containers was a common practice of the residents. In the gated communities, water is mostly sourced from a well through the use of a motorized pump. But for most of the residents of Manggahan, water is either drawn from a well or delivered

and stored. Stored water is consumed for washing, cleaning the house, and toilet use. The common types of containers used for storing water include overhead tanks, drums, pails, basins, and jars, and almost all of these types of containers are emptied at least once a week. The availability of well water and the lack of people who stay at home regularly are the reasons water containers lay empty for more than a week.

Orientation of Community Officials and Stakeholders

A series of meetings and planning workshops was held with city officials, health officials, health center staff, barangay officials and officers of homeowners' associations of Mutual Homes, San Jose Village and Intercity to discuss the results of the 2007 and 2008 entomological and household surveys. The meetings were held from May to June 2009. During these meetings the proposed dengue control intervention—from the city mayor to city health officers to health center physicians, sanitary inspectors (SIs), barangay officials, BHWs and homeowners' association presidents—was also introduced.





Creation of the Barangay Dengue Task Force. Barangay officials, health center physicians, SIs, BHWs and homeowners' association presidents were invited to attend the training for trainers (TOT)-cum-planning workshops. The participants were organized to form the BDTFs, with their respective barangay captains serving as chairpersons. The BDTFs were informed of the trend of dengue cases in Muntinlupa City and were presented with proposed dengue control strategies. Participants—particularly the SIs and BHWs—were trained on how to teach households to inspect and manage potential breeding sites of mosquitoes. The barangay officials and health center physicians meanwhile led in the planning workshop on how to integrate proposed strategies into the existing health/dengue program.

Implementation of Dengue Control Strategies and Results

Household water container management – inspection for mosquito larvae and pupa.

This intervention targeted key containers identified during the 2007 entomological survey. The first household orientation took place in San Jose Village. Due to a low turn-out, the project team, together with the SI, BHWs and homeowners' association officers, decided to make house visits. SIs and BHWs were tasked to implement the dengue strategies in the community—both were expected to instruct and monitor the households with regard to managing their containers. They taught the household head, members or helpers to inspect containers—located both inside and outside the home—for immature forms of mosquitoes (samples of *Aedes sp.* eggs, larvae and pupae were

shown); and to manage these containers when larva and pupa were present (i.e., proper way of discarding contents of and cleaning the containers). A checklist labelled “Form 1” was given to each household to guide household members on what containers to inspect (including drums, pails, and discarded containers like noodle cups and plastic bottles). The form also provided an instructional guide on things to do – from daily inspection to putting the pupa on dry soil (if found) to cleaning containers properly.

Most BHWs found it difficult to introduce this dengue control strategy in the gated subdivisions (Mutual Homes and San Jose Village), as compared to Manggahan and the other densely populated communities they were assigned to. In most cases, the BHWs

were not allowed to enter the subdivisions. At other times, no one was at home, as most of the residents were in their offices; while some showed annoyance with the visit. The residents of Manggahan were more accommodating, perhaps because one of the BHWs resided in their area. Unannounced spot checking was done to check whether household members were implementing the strategies properly and consistently.

Customized lids. The primary objective of using customized lids was to reduce vector density. Targeted were the usual key containers such as drums without proper covers or with covers that were in poor condition, as well as water not used within a week. Polyester nets were used to make the customized lids. A garter was sewn onto the net by a tailor following the specifications given by the study team. This made the lids more convenient to use. One standard size was produced to fit most of the epidemiologically important water containers.

Lids were distributed to 45 qualified households purposively selected from the residents of Manggahan Compound. Criteria for selection were the presence of drums without proper covers, and water stored for more than a week. Manggahan was also chosen because the residents were more cooperative; it had the highest pupa per person index (PPI); and it was found out that it had the most number of drums without proper covers. During the feedback meeting in Manggahan, in the presence of the Nagkakaisang Samahan ng Looban Esporlas, Inc. (NSLEI) president, the research team offered the lids to the community for free on the condition that they would promote this kind of intervention. The team also proposed the idea to the NSLEI to make the lids production an income generating project for their group. Spot monitoring results revealed that the lids could reduce the number of containers positive for pupa/larvae.



Information dissemination (video clip) on dengue prevention. The use of a public address system was initially planned for informing other community members of the presence of dengue intervention in their community, and for reinforcing its utilization. The assumption was that the resources from the city government or the barangay would be made available for executing this plan. It was expected that this strategy would be included in the planning sessions conducted during the TOT that was participated in by SIs and BHWs. However, additional financial resources could not be obtained. To pursue this strategy of informing other community members of dengue intervention efforts being undertaken in their area, then, the study team produced a video on dengue prevention. The criteria for giving a DVD copy to a household were as follows: the household should have a DVD player; and in Manggahan, they should have customized lids to complete the intervention package for 25 households. The knowledge, application and practice (KAP) results revealed that 23 out of 75 respondents had watched the video; all those who watched said that they had learned something about dengue and its vector; the majority became knowledgeable on the disease and its prevention; and some became knowledgeable on how to inspect key containers and properly discard larvae/pupa found in them.

Community meetings and assemblies and health centers proved to be effective venues for showing the video on dengue prevention. Most health centers in Muntinlupa also had a television set on which patients or their companions could view the video while waiting for their turn. Residents of one village involved in the study suggested that flyers containing guidelines could also be used as these are good tools for informing the homeowners

on dengue. These residents also expressed preference for the flyers to be produced in the local language so that their helpers could also read them.

Solid waste management. Solid waste management strategy is part of both the focal and continuous strategies, based on the period of application. As a continuous strategy, households are expected to segregate their solid waste; the subdivision, barangay and city government are likewise expected to mobilize, promote and advocate proper solid waste management and segregation. As a focal strategy during the rainy season, it was expected that households would be aware of pupa formation and that no potential breeding site of dengue mosquitoes should be found in their premises. At the barangay and subdivision levels, it was expected that intensive solid waste management would be promoted and implemented.

After the feedback meeting, the team sat down with the president and the chairman of the solid waste management committee of Intercity Homes to discuss solid waste-related plans to prevent the incidence of dengue. The team reiterated that the association should intensify the clean-up drive, especially in public/vacant spaces, as part of dengue prevention strategies. As part of this intensified effort, the group agreed that it would appoint three maintenance persons to cut the grass regularly, especially in the vacant lots, and to look for and discard or manage potential breeding sites like plastic bottles and noodle cups. The committee would also show the DVD on dengue after the Sunday mass to educate homeowners on dengue prevention. The homeowners' association staff would do spot checking of the vacant lots to assess if the maintenance personnel were doing their jobs. The staff were to submit a weekly report.

Monitoring Compliance and Acceptance of Strategies

To determine compliance to proposed dengue prevention and control strategies, the project team utilized Key Information Interviews (KII and Focus Group Discussions (FGDs).

Key Informant Interviews. After all the households in Manggahan compound, Mutual Homes, San Jose Village, and Intercity were oriented on how to manage their water containers, stakeholders who are part of the CDTF (i.e. the city health officer, assistant city health officer, medical coordinator for dengue, and a sanitary inspector, all of whom assisted the team in the implementation of the intervention strategies) were interviewed, first to determine whether the CDTF could assist the research team in implementing and sustaining the intervention that was introduced, and second to solicit suggestions on how to motivate households to participate in the intervention and to inspect their containers. A few months after the series of KIIs were held with city level stakeholders, other community key informants were interviewed to assess the introduction, implementation and acceptance of intervention strategies. At this point, the KIs were asked about their assessment of the intervention; the factors that facilitated or hindered the implementation of the strategies; and suggestions they could make for improvement.

Focus Group Discussions (FGD). Before the research team exited from the communities in Phase 2, the household members were invited to participate in an FGD to document their experiences in the implementation of dengue control strategies. They specifically provided an assessment of the strategies employed, shared the problems they encountered, and gave suggestions for improvement of intervention strategies.



Summary of Findings

It was found that only three city departments and one NGO were active in the CDTF after the re-composition and after the provision for their honoraria was discontinued by the mayor. The city departments were the Community Affairs Development Office (CADO), the Environmental Sanitation Center (ESC), and the City Health Office (CHO), while the NGO was the Kilusang Bayan sa Paglilingkod ng Muntinlupa City, Inc. (KBPMCI). The CHO collaborated with the KBPMCI during health awareness sessions in the community, because the latter has a network in the community and was created by the mayor to serve the area. On the other hand, the KBPMCI partnered with the CHO for fogging activities.

The findings of the study show the complexity of the approach to dengue vector control in Muntinlupa City. There are both focal hotspots in the clusters for pupa positive water-holding containers and seasonal differences in number of water-holding containers with pupa, location of these containers, and pupa per person index. Furthermore, during the rainy season, the distribution of houses with water-holding containers is skewed in favor of San Jose Village and the use of drums. The contribution of water-holding containers in public spaces to pupa productivity during the rainy season was determined as highly significant.

Although the description of the background of the clusters stratified by dengue incidence and aerial density is similar, the pupa per person index (PPI) of the clusters within these sub-groups differ. It is noteworthy that the patterns of responses to KAP are similar in all clusters. However, this will not guarantee a predictable involvement in, and response to, dengue control interventions.

Lastly, community observations underscore the *need for consensus building* (e.g. stakeholder analysis) as part of the control strategies.

THE KRITIKA FUNCTION: THE WORK OF CRITICISM IN THE AGE OF DIGITAL EXPANSION

Shirley O. Lua

The Bienvenido N. Santos Creative Writing Center. To contribute to the literary development of the country, in general, and to improve the literary skills and expertise of La Salle students, faculty and co-academic personnel, in particular, DLSU established the Bienvenido N. Santos Creative Writing Center (BNSCWC) in 1991. The Center, which immortalizes the contributions of Filipino-American writer Bienvenido N. Santos, conducts writing workshops, and individual creative and critical writing clinics; and sponsors literary activities such as book launchings, lectures, and readings, among others.

Abiding by the humanist thrust of Lasallian education, the Center serves as an imperative unit that affirms the University's involvement in the total education of its community and society.

The Center provides a response to the need for artistic training and literary outlets for persons with creative writing potential, thereby fulfilling the humanistic, artistic aspect of the University's commitment towards fostering literary excellence within and beyond the campus. BNSCWC, in cooperation with cultural development offices such as the National Commission for Culture and the Arts, and some corporate sponsors, hosts programs and activities that seek to harness the creative and literary skills of Filipinos.

Today, the BNSCWC continues to be at the forefront in the University's effort to preserve the tradition of excellent creative writing and research in the country, and cultivate the spirit of vital engagement with tradition and innovation.



In this era of Facebook and Amazon, everyone writes criticism. Ironically a surplus of opinions and attitudes is scattered to the four winds of our virtual world. The digital age has compelled criticism to become water to our thirsty soul, or an imp on our back. British poet T.S. Eliot continues to remind us that “criticism is as inevitable as breathing.”

The most important function of a critic is to tell a story, unveil an experience, or bare a soul that has been conceived by an artist-predecessor. Upon careful examination of the artist’s work, the critic honors his/her task of exacting interpretations and insights that seek to astonish or enlighten the spectators, even if they may be, as writer C. S. Lewis would say, “conjectures,” or as intellectual Edward Said would call them, “intuitive awareness.” The critic’s role is akin to that of the Holy Spirit—to “illumine” art for the spectators.

Like the Counselor, the critic needs to be sensitive to the sigh of the heart, the weeping of an orphan, and the silences of those in the shadows. Thus, s/he is able to draw from

the artist’s creation vigorous reminders of humanity’s basic decency, which are evidences of things unseen, for as critic John MacAleer observes, “[T]he human spirit is, after all, touched by the attar of divinity.”

The critic must write well, to rise above the hysteria of mediocre opinions flooding and clogging the channels of mediascape. S/he must write, perhaps with grace, seasoned with salt. Prof. Katie Roiphe of New York University, writing for the *New York Times*, declares, “More than ever, critical authority comes from the power of the critic’s prose, the force and clarity of her language; it is in the art of writing itself that information and knowledge are carried, in the sentences themselves that literature is preserved. The secret function of the critic today is to write beautifully, and in so doing protect beautiful writing.”

In 2001, three brilliant minds from La Salle schools in the Philippines began a revolution to address the development of criticism in our country and to inspire a culture of “beautiful writing”: eminent critic Isagani R. Cruz, and prize-winning writers Elsie Coscolluela and Marjorie Evasco.





Dr. Coscolluela was then the Vice President for Academic Affairs of the University of St. La Salle-Bacolod (USLS-Bacolod), and Dr. Evasco, the Director of the DLSU Bienvenido N. Santos Creative Writing Center (BNSCWC). A year later their vision would come to pass.

KRITIKA National Workshop on Art and Cultural Criticism is a summer workshop in criticism, covering the various arts, including architecture, literature, visual arts, music and performing arts, film, and multi-art. It is a one-week live-in workshop where notable art experts and talented young scholars assemble to form an intellectual community. They engage in a forum on Philippine art, examining its creative processes and issues relevant to it. This workshop serves as a short-term training program for young scholars and critics who will one day embark on a career of research and critical practice in the country.

The inaugural KRITIKA was held on May 9 -13, 2002 at USLS-Bacolod. It was organized by the BNSCWC in partnership with

USLS. Its co-sponsors were the National Commission for Culture and the Arts (NCCA) and the DLSU College of Liberal Arts, under the deanship of Dr. Estrellita Gruenberg.

The first director was Dr. Isagani Cruz. The panelists were: Dom Bernardo Perez, OSB (architecture), Antonio Hila (music), Oscar Campomanes (visual arts/literature), Soledad Reyes (literature/popular culture), and Bienvenido Lumbera (film and performing arts).

The ten applicants chosen for the fellowship were: Eileen Ang (film/pop culture), Christine Bellen (literature), Jonathan Chua (literature), Maria Joselina Anna G. Cruz (visual arts/museum practice), Cecille La Verne L. de la Cruz (theatre/literature), Florentino Iniego, Jr. (literature), Ferdinand Lopez (literature), Rommel Barona Rodriguez (theatre/film), Anne Frances Sangil (film), and Arwin Tan (music). These KRITIKA alumni, in their own way, have now made considerable mark in Philippine art and culture, and in the development of criticism.

The paucity of material resources could not sustain such aspiring project, forcing KRITIKA into hibernation for the next ten years.



The second decade of the twenty-first century witnessed the increased accessibility of mobile social media, spawning an astounding sea of information and habitual public explosions of voices across virtual networks. In the midst of all this sound and fury, BNCSWC resolved to revive KRITIKA.

KRITIKA took place for the next two summers, in 2012 and 2013, at the Balay Kalinungan, USLS-Bacolod. The revitalized project was funded by the DLSU Office of the Vice Chancellor for Research, USLS, and NCCA.

Rolando B. Tolentino, BNCSWC Associate for Criticism, served as workshop director. Dr. Tolentino is perhaps the most productive writer-scholar of contemporary Philippine literature and popular culture. He was supported by an impressive cast of experts—art critics who have enjoyed a certain degree of eminence and stature in both Philippine and international realms: urban design and landscape architect Paulo Alcazaren, cultural critic Isagani R. Cruz, visual art critic Cid Reyes, literature scholar Isidoro M. Cruz, and cultural historian Jose Victor Torres. In 2013, two more specialists joined the panel to ascertain a formidable team: Lito B. Zulueta, Arts editor of *Philippine Daily Inquirer*; and

Jazmin Llana, proponent of performance studies in the country.

The 2012 fellows were: Marie Rose Arong (literature), John Barrios (literature), Patrick Campos (multi-art), Feorillo Petronilo Demeterio III (visual arts), Rene Luis Mata (architecture), Chuckberry Pascual (multi-art), Jay Jomar Quintos (literature), Jaime Oscar Salazar (visual arts), Oscar Serquiña, Jr. (literature), Christian Tablazon (film), and Michael Carlo Villas (literature).

The 2013 fellows were: Ronn Andrew Angeles (literature), John Michael Dela Paz (visual arts), Glenn Diaz (literature), Wennielyn Fajilan (literature), Carlo Pacolor Garcia (performing arts), Skilty Labastilla (film), Rowell Madula (pop culture), Raul Navarro (music), Cheeno Marlo Sayuno (performing arts), and Manuel Agustin Singson (architecture).

In line with contemporary critical practice, KRITIKA retains interdisciplinary and multidisciplinary ways of approaching the various art forms as texts. The practice of art and cultural criticism is enriched with the creative integration of concepts and modes from diverse disciplines. Manuscripts which reflected such commendable effort included Serquiña's "Cities Like No Other: Urban

Representations, Metropolitan Mentality, and Critical Urbanism in Isabelita Orlina Reyes's *In Transitives*," Pascual's "Cine, cine bago quiere: homoseksualisasyon ng espasyo ng sinehan," and Campos' "The Present of the Past in the Fictions of Rizal."

Cultural activities were held throughout the week to supplement the sessions on manuscript evaluation and discussion. The



fellows and panelists were princely treated to a Negrense cultural tour, in which historically fascinating urban sites, architectural edifices and lifestyle museums in Bacolod, Talisay, Silay, and Victorias were viewed and acclaimed. These gems included: the Bacolod plaza and the Kapitolyo (bejeweled with the unusual sculptures of Francesco Riccardo Monti), the ancestral mansion of Monsignor Guillermo Gaston and the Cartwheel Chapel in Silay, the Ruins in Talisay, and St. Joseph the Worker Church (a.k.a. The Angry Christ Church) in Victorias, among others.

The KRITIKA week was further enlivened by the interface activities with the IYAS Creative Writing Workshop, occurring in USLS on the same week, and interactions with the local artists. In the 2012-workshop, homage was rendered to Filipino auteur Peque Gallaga, with the screening of *Oro Plata Mata* (celebrating its 30th anniversary) and an exhilarating forum with the filmmaker. In the 2013 workshop, Jay Abello's *Pureza, the Story of Negros Sugar*, an eye-opening documentary depicting the appalling truth about the sugar industry, was screened. KRITIKA also communed with visual artist Charlie Co and other local artists at the Gallery Orange, situated in the Arts District of Bacolod.

During a KRITIKA-IYAS gathering one evening, DLSU University Fellow Marjorie Evasco, who co-authored with Cuban poet Alex Fleites a bilingual poetry collection entitled *Fishes of Light/Peces de Luz*:

Tanrenga in two tongues (Sipat Publications 2013), reminisced about her “poignant collaboration” with different artists—poet, calligrapher, painter, book designer—to beget an exquisitely fashioned book. Critic Lito Zulueta astutely asked whether this venture was the artists’ reaction against the



apparent vanishing of the print medium, and further commented on the question of authorship. The writers, artists and critics all savored these soirees, the cerebral exchange intensified by a generous stream of wine, cheese, and napoleones.

The leading American critic Lionel Trilling underscores the “moral obligation to be intelligent.” In organizing a criticism workshop, BNSCWC has attained a modest function: the laying of a cornerstone to set up an intellectual environment on Philippine art and culture. One beneficiary observed, “[T]he forging of a community of critics was one of the most important outcomes of the workshop.”

Several perceptive statements made by the panelists were etched in the mind of the fellows. In the synthesis session, literature panelist Isidoro Cruz affirmed, “We write criticism because we care about people.” Prolific visual art writer Cid Reyes stressed that a good critical essay should be a page-turner. He also cited British film critic Barry Norman, who remarked that critics are parasites because they cannot exist unless

someone has first created something for them to feast on; however, they can be constructive in the cleaning of wounds. And Lito Zulueta, a journalist by profession and a man of many critical hats, called for a practice of critical writing that descends to the level of the ordinary people.

In his *Philippine Star* article on the KRITIKA workshop in Bacolod, Archt. Paulo Alcazaren delivered a winning parting shot, “Without critics and criticism all of our cultural disciplines will never improve or move forward. To be critical is to be aware

that we have miles to go before we sleep. And every night after a good steaming dish of *batchoy*, that’s what we all did.”

With faith in the future of Philippine arts and letters, BNSCWC upholds the virtue of excellence in praxis. It looks forward to the day when its alumni will be productive, prominent, and influential in art, scholarship and criticism. In the meantime, the Center, on behalf of the University, will persist in carrying on a gentle revolution of transforming souls and touching lives through creative and critical practices.

THE POET STILL WALKS IN THE GARDEN

DR. SHIRLEY O. LUA

Ordinary people of today speak of a Poet as if s/he is a declaimer of extraterrestrial utterances, an entertainer whose performance adds a modicum of Culture to an occasion, or a being of no use but of vague necessity in academia.

Once upon a time, in a multiverse far, far away, the Poet walked in the garden where earth and heavens meet. S/he was the Maker, who spoke and there was light. S/he was the Namer, who held dominion over the fish of the sea, the birds of the air, and the beasts that moved in the field. S/he was the Mage, who defied laws of science, arresting the setting of the sun or raising even the dead. S/he was the Healer, who mended broken lives and set captives free.

The Poet of today stills walks in the garden.

A poet, foremost, is Cirilo F. Bautista. He is the teller of a tale, “wherein all the voices of mankind might be found—not only the lyric, the wistful, the melancholy, but also the voices of courage and of hope” (Borges, 2000, 43-44). He is revered as the maker of *The Trilogy of Saint Lazarus* (2001), an epic poem of 9,872 lines, which remains unparalleled in Philippine letters. Like the Greek sage Homer, Bautista tells a moving story of heroes fighting for a cause, aware that the conquest of lands and cities, predestined for their kingdom, would nonetheless spell doom for their own lives.

Saint Lazarus begins with the imagining of Manila as a human organism. Through the intellect of its personae-heroes—Magellan, Legazpi, Rizal—the readers witness the birthing of a new city, the intensification



of its social formation, and the vision of its character. The epic manifests the paradox that defines the brilliance of the poet: a composite mind of scientific and spiritual schema. Bautista writes, “The epic had to be, like all epics, structured on the realities of the physical world, on the one hand, and on the realities of the psychic world, on the other hand.... Thus, I looked at the evolution of Manila from a poetic-historic perspective, and tried to weave, through intuition merging with facts, a more exciting and realistic tapestry than either history or fiction can give separately, because it was founded on the truth of the Soul” (“Manila”, 43-44). This viewpoint of a city as a microcosm of the archipelagic realm would flower into that of a nation in the third book of the trilogy—*Sunlight on Broken Stones* (2000).

The poet’s epic far surpasses the rigor of chronicle-writing so common in textbooks. The tale is a heart-rending paean to the Filipino nation, rendered in elegant lyricism and geometric precision of imagery and language. It is an incisive re-visioning of Philippine history and nationhood, investigating a people’s struggle towards the light of consciousness, and forecasting, in fear and trembling, a fragmented heritage refining into wholeness. The poet, even so, deems his tale a fearless indictment of a people’s inability to remember its nation’s past and the adulteration of their imagination, so fixated in narcissistic anxiety that the country’s short-term revolutions have begot “national immobility.” The poet pronounces, “We discover too late that this kind of zero-based future will remain an ideal, like tying a ribbon on the wind” (“Shaping”, 2007). The telling of a nation’s tale is vital, as an epistle of hope, as a gospel of revelation to give a future to humanity.

Saint Lazarus is a crowning testament to two score and ten years of the poet’s luminous literary career. The three volumes

have garnered the Don Carlos Palanca Memorial Awards for Literature, First Prize for Epic in the Philippine Centennial Literary Contests, the Gintong Aklat Award of the Book Development Association of the Philippines, and the National Book Awards of the Manila Critics Circle.

The poet declares:

For every writer is a storyteller, not a fortuneteller. His gift is a sociological grace with which he examines and qualifies the past for the enlightenment of the present. The gathering of humans is his terra firma, and his exploration of their body and soul is the mandate of his art. That is why art is longer than life—the writer resurrects himself, exposes himself, in the lives of other artists through the text that he leaves behind. In the process of inscribing, he fills in the spaces between his words and the words of other writers; or interprets critical ideas and national feeling; thereby clarifying the murky spots of national experience (“Shaping”).

A polymath, distinctively so, is the Poet. He possesses an astonishing array of knowledge gained from a multiplicity of experiences and fields. Like a gatekeeper, he holds keys to the knowledge for living. His writing is a trove of wisdom on the art of living well, of living with grace and valor on a “swiftly tilting planet” (Aiken, 2004). Consider the following gemstones that reveal bold, judicious insights into humankind and society:

When the rain softens the soil, I do some transplanting, some pruning. The first assures the proper growth of a plant, the second increases its

ability to nourish itself sufficiently. It is like a poem—you transfer part from here to there because that will be more effective to the overall design, and pare some parts so that the whole composition will not be too overdone. Because the garden shows the cycle of nature, it conveys the virtue of survival. There is always something left to live for even in a world not worth living for. (“The Way We Live”, 91)

Filipinos, for instance, are not of the sporting kind. To be sporting is to acknowledge the other person’s right to fairness in a competitive situation, be it in athletics, society, or politics; to be sporting is to give quarters where they are due, and not to kick a man when he is down. Filipinos ignore all these for their history tells them that to be fair is the first step to servitude (“The Advantage of Colonial Servitude”, 14)

We daub more red on the sunset, more rust on the windowframe, for we must trust the intensity of things that fail us but which, like dried bones of some giant mammals, strike our skull to wake us. (“The Intensity of Things”, 39) but true love travels and is blind to signals and hazards that stay the mind, O no, it pushes on, it moves on, it never weeps, and pushing on, moving on, increases, and keeps. (“Lovers Learn”, 120).

Aside from the epic, this trove comprises an astonishing diversity of creative works: *Galaw ng Asoge* (2004), a Tagalog novel exploring the commercial world and its clash with human values; *Believe and Betray* (2006), an exquisite collection of lyric poems from the 1960s to 2005; *The House of True Desire: Essays*

about Life and Literature (2011), a compilation of 115 essays from his influential “Breaking Signs” column in *Panorama*; and the prize-winning Tagalog verse collections *Kirot ng Kataga* (1995) and *Sugat ng Salita* (1985). *Bullets and Roses: The Poetry of Amado V. Hernandez, a Bilingual Edition* (2003) is a significant work of translation into English of selected poems of the late national artist. *Words and Battlefields—A Theoria on the Poem* (1998) is a profound rumination on the phenomenology of the creative process.

The number of national awards and recognition has affirmed Bautista’s position as one of the principal poets of his generation and one of the most remarkable writers in the annals of Philippine literature. These awards include: the Don Carlos Palanca Hall of Fame, Manila Critics Circle’s National Book Awards, Gawad Jose Corazon de Jesus, Diwa ng Lahi-Gawad Antonio Villegas at Patnubay ng Sining at Kalinangan, Gawad Balagtas from the Unyon ng mga Manunulat ng Pilipinas (UMPIL), Taboan Lifetime Achievement Award from the National Commission for Culture and the Arts (NCCA), and the Gawad CCP Para sa Sining from the Cultural Center of the Philippines, among others.

In the international realm, the Poet enjoys a venerable literary reputation. Foreign critics and writers (e.g., William Saroyan, Paul Engle, George Starbuck, Elizabeth Perkins) have critically acclaimed his writing. His poems have been published in the U.S.A, Japan, the Netherlands, the ASEAN regions, Romania, Hongkong, and England. He has been invited to literary festivals, seminars, and workshops in the U.S.A., Australia, England, Malaysia, Singapore and Thailand. He was a member of the Philippine Literary Arts Council that participated in the Singapore Writers Festival in 2002, giving poetry readings and lectures; he was invited to read his poems at the Adelaide Arts Festival in 1984; he was a Visiting Writer in Trinity College,

Cambridge University, England, 1987, the first Filipino writer to attend the Cambridge Seminar on Contemporary Literature. He received the degree of Honorary Fellow in Creative Writing from the State University of Iowa, in recognition of his literary production while attending the International Writers Workshop; he was an Exchange Professor at the Waseda University in Tokyo, Japan, 1985, and at the Ohio University in Ohio, U.S.A., 1989.

The words of National Artist for Literature Dr. Edith Tiempo aptly sums up the poet's gift: "Out of the many accomplishments that commend this notable literary personality of our country, I single out his great contribution toward our expanded sense of nationhood. His writings have done much to enhance the framework of Philippine nationalism beyond the narrow bounds of the traditional concepts of what is Filipino, and brought in a global inclusiveness that has set the Philippines as a vibrant member among the other nations of the world." (2007).

In the cool of the day, the Poet walks in the garden, now and forever.

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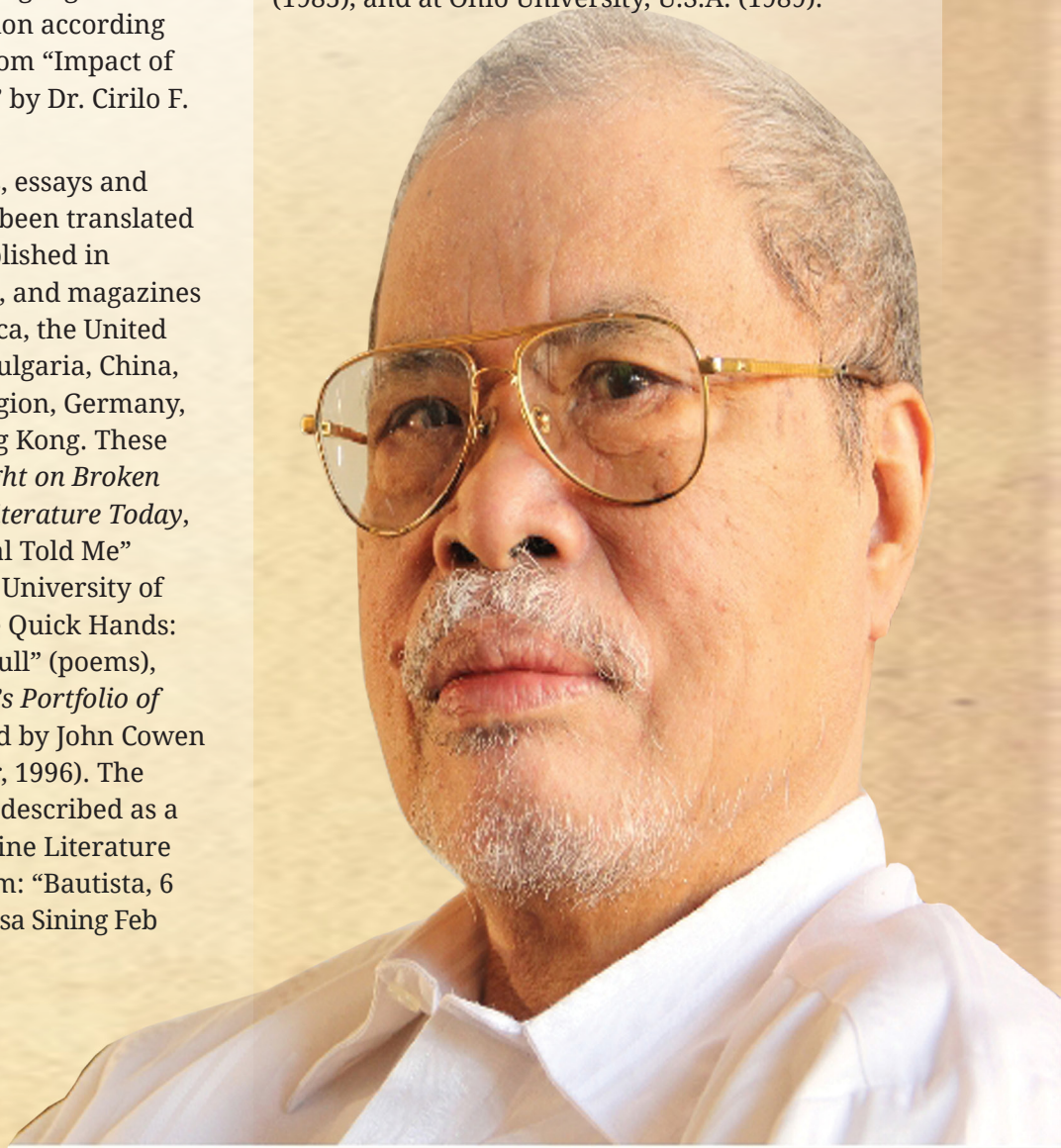
DR. CIRILO F. BAUTISTA

For poet Cirilo F. Bautista, “to write a poem or a story involves the deliberate reworking of social elements to achieve the writer’s intentions, one of them being to ventilate his social and personal perspectives.” Described as “a genius in language and imagination” by no less than 1973 National Artist for Literature Jose Garcia Villa, Dr. Bautista recognizes that the art of writing poetry or a story is “a linguistic construction, fixed in situ of specific explication, demanding of the writer... a vast expertise in language...to configure the human condition according to a planned aesthetics...” (from “Impact of Creative Writing Workshops” by Dr. Cirilo F. Bautista).

His poems, short stories, essays and other scholarly articles have been translated in several languages and published in various anthologies, journals, and magazines in the United States of America, the United Kingdom, the Netherlands, Bulgaria, China, Japan, Taiwan, the ASEAN region, Germany, Malaysia, Romania, and Hong Kong. These include: excerpts from *Sunlight on Broken Stones*, published in *World Literature Today*, USA, Spring 2000; “What Rizal Told Me” (poem), published in *Manoa*, University of Hawaii, 1997; and “She of the Quick Hands: My Daughter” and “The Seagull” (poems), published in *English Teacher’s Portfolio of Multicultural Activities*, edited by John Cowen (New York: Simon & Schuster, 1996). The works of Dr. Bautista, who is described as a “preeminent voice in Philippine Literature in English and Filipino”, (from: “Bautista, 6 Others to get Gawad CCP Para sa Sining Feb

27” published in Bayanihan.org on February 19, 2013) reflect a profound understanding of existing social realities.

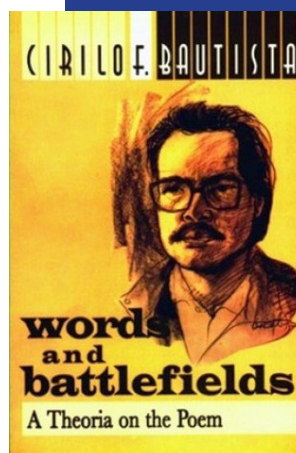
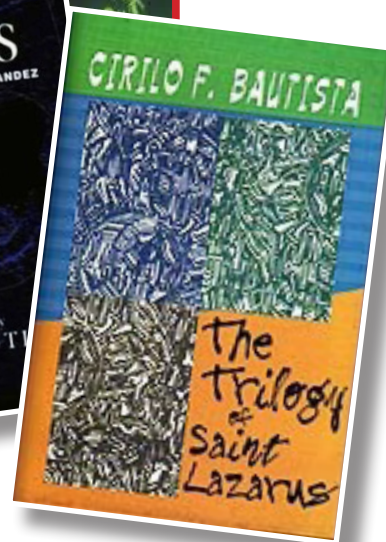
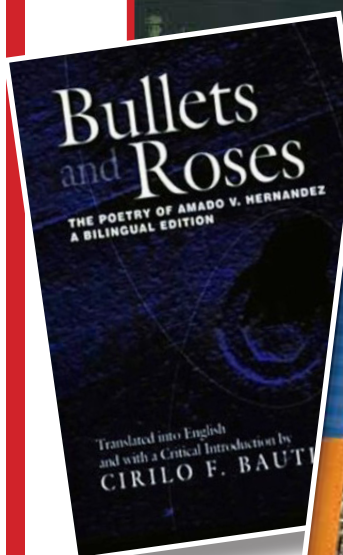
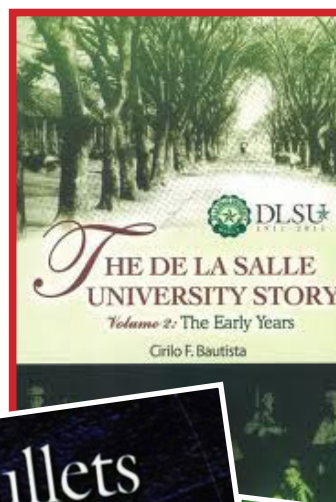
Before joining De La Salle University (DLSU), called De La Salle College at that time, as a full-time faculty member in 1970, he taught Creative Writing and Literature at St. Louis University (1963 to 1968), and at the University of Santo Tomas (1969 to 1970). He was also an Honorary Fellow in Creative Writing at the State University of Iowa, U.S.A. (1969); and a Visiting Professor at Waseda University, Japan (1985), and at Ohio University, U.S.A. (1989).

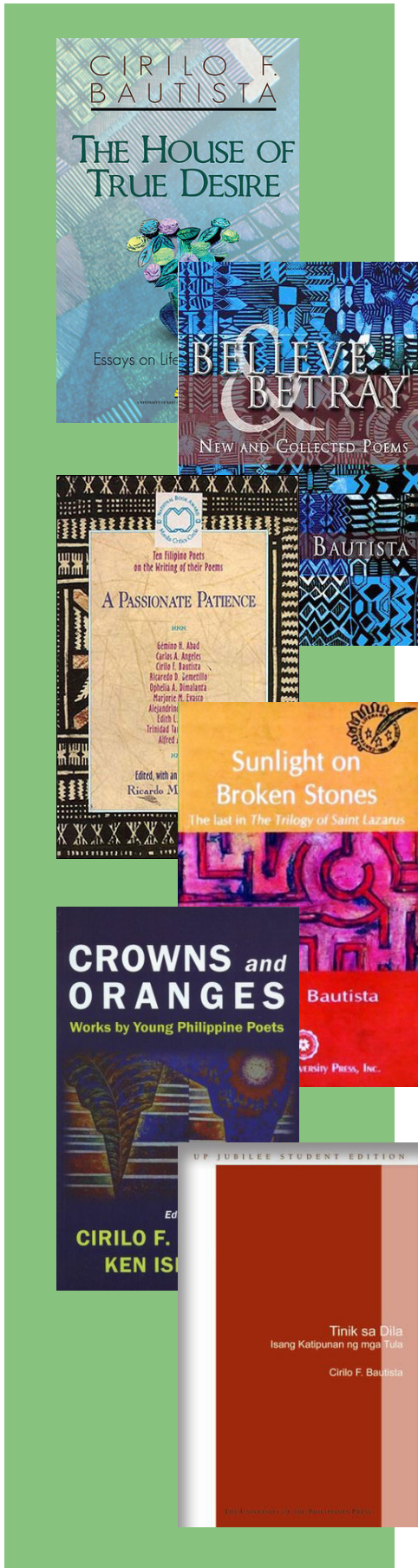


Dr. Bautista was the first Filipino writer to be invited to attend the Cambridge Seminar on Contemporary Literature, through a British Council fellowship grant as a Visiting Writer at Trinity College, Cambridge, England in 1987.

Dr. Bautista liked the philosophy of the Christian Brothers who ran DLSU, as well as the environment at the school, which had a smaller student population at the time. The faculty members had excellent qualifications, and the learning and teaching environment were exactly what he was looking for. As he puts it, "De La Salle was sympathetic to my excursions into the field of Imaginative Writing." In addition, he liked the spacious campus. He retired from the University in 2006 at the age of 65 with the rank of Full Professor, after 40 years of academic life, 33 of which were spent in DLSU.

Among his major publications are: *The De La Salle University Story Volume 2: The Early Years* (2011); *The House of True Desire* (2010); *Believe and Betray: New and Collected Poems* (2006); *Galaw ng Asoge* (2004); *The Trilogy Of Saint Lazarus* (three volumes in one edition) (2001); *Tinik sa Dila: Isang Katipunan Ng Mga Tula* (2003); *Bullets And Roses: The Poetry Of Amado V. Hernandez/A Bilingual Edition* (2003); *Sunlight on Broken Stones* (epic poem, last volume in the Trilogy of Saint Lazarus) (1999); *Words and Battlefields: A Theoria on The Poem* (literary theory) (1998); *Kirot ng Kataga* (collected Tagalog poems) (1995); *Boneyard Breaking* (collected poems) (1992); *Stories* (collected short fiction) (1990); *Breaking Signs* (essays on literature and semiotics) (1990); *Sugat ng Salita* (collected Tagalog poems) (1985); *Telex Moon* (epic poem, second volume in The Trilogy of Saint Lazarus) (1975); *Philippine Poetics: The Past Eight Years* (essays) (1981); *Crossworks* (collected poems) (1979); *Charts* (collected poems) (1973); *The Archipelago* (epic poem, first volume in The Trilogy of Saint Lazarus) (1970); *The Cave and Other*





Poems (collected poems) (1968); and *Summer Suns* (with Albert Casuga) (1963).

Dr. Bautista has received all of the country's major literary awards. His most recent was the Gawad CCP Para sa Sining "for his outstanding achievements in and contributions to Philippine arts and culture," which was conferred on him on February 27, 2013. For his invaluable achievements as a poet, fictionist, and critic, and his significant contributions to the advancement and enrichment of Philippine art and culture, he was included in the following international publications: *Who's Who in the World* (New Providence, New Jersey, U.S.A., 1996); *The Oxford Companion to the English Language* (edited by Tom MacArthur, Oxford University Press, 1992); and *The Traveler's Guide to Asian Literature* (1993). Becoming a Hall of Famer in the Carlos Palanca Memorial Awards for Literature in 1995, he has distinguished himself by winning at least five first prizes; and all in all, he has won nine (9) times in the Palanca Memorial Awards. His prize-winning works include: "Philippine Poetics: The Past Eight Years" (essay, 1981); "Crossworks" (collection of poems, 1979); "Charts" (collection of poems, 1973); "Telex Moon" (epic poem, 1975); "The Man Who Made a Covenant with the Wind" (short story, 1975); "The Archipelago" (epic poem, 1970); "Ritual" (1971) and "The Cave and Other Poems" (collection of poems, 1968). He also won in the Philippine Press Literary Awards for his short story "Resurrection" (1971).

In 1998, he won the first prize in the epic writing category of the National Centennial Commission's Literary Contest sponsored by the Philippine Government in commemoration of the centenary celebration of Philippine Independence, for his work "Sunlight on Broken Stones", the last volume in his work titled "The Trilogy of Saint Lazarus." The epic of 3,050 lines concludes his monumental work on Philippine history. The same volume garnered the 1999 National Book Award from the Manila Critics Circle (MCC), and the *Gintong Aklat* Award from the Book Development Association of the Philippines. His other works that have won the National Book Award include *The Archipelago*, *Sugat ng Salita*, *Sunlight on Broken Stones*, *The Trilogy of Saint Lazarus*, and *Tinik sa Dila*.

In 1997, he was conferred the Gawad Balagtas by the Unyon ng Manunulat ng Pilipinas for his achievements as poet, fictionist and critic. He was named Makata ng Taon in 1993 by the Surian ng Wikang Filipino for his poem *Ulat Buhat sa Bulkan*. This poem, his numerous Palanca awards for Tagalog Poetry, and his winning the first prize for his *Ilang Aeta Mula*

sa Botolan in the *Dyaryo Filipino* Poetry contest, affirm his importance as a bilingual writer.

Apart from the foregoing national awards mentioned above, Dr. Bautista has also received awards from local governments and private organizations. The Quezon City Government, in ceremonies marking Quezon City Day celebrations in 1996, conferred on him the Gawad Manuel L. Quezon for his outstanding achievement as writer, editor, and teacher. By virtue of Executive Order No. 98 signed by Mayor Alejo Yanes in 1997, Dr. Bautista became an Adopted Son of Iligan City in recognition of his contribution “in the development of creative writing in Mindanao, for serving as a role model among young writers, as well as his tireless promotion of Iligan City as a center for literary arts in the Philippines.” He was instrumental in the establishment of the Iligan Writers Workshop and was its prime mover in attracting young writers to congregate in Mindanao to learn the craft of writing. On June 22, 2001, as part of the celebration of the 430th Araw ng Maynila, Dr. Bautista was feted with the Diwa ng Lahi, Gawad Antonio Villegas at Patnubay ng Sining at Kalinangan in the Field of Literature by the Manila City Government for his invaluable contributions to the advancement of arts and culture. For his literary works that helped propagate the ideas and achievements of Philippine national hero Dr. Jose Rizal, he was conferred the title *Knight Commander of Rizal* by the Order of the Knights of Rizal in December 1998. His work *The Trilogy of Saint Lazarus* has the national hero as the main character and the focal point in a poetic recreation of the development of the Filipino soul from the beginning of the country's history to the present. Dr. Bautista was given the “Excellence Award” in 1982 by the Roman Foundation for his novel-in-progress, *Reconstruction*.

The schools he attended also feted him with awards for his outstanding achievements in Literature. He received the Most Outstanding Achievement Award in Literature from the Philets-Artlets Centennial Alumni Association of the University of Santo Tomas in 1996; and the Most Outstanding Alumnus Award for Literature in 1983 from the Alumni Association of Mapa High School where he graduated valedictorian in 1959. In 1982, he was conferred the Most Outstanding Alumnus Award for Literature by the Alumni Association of the College of Arts and Letters, University of Santo Tomas, and the Fernando Ma. Guerrero Award for Literature from the University of Santo Tomas Alumni Association in 1980. In 1975, Dr. Bautista was named Most Outstanding Alumnus for Literature by the Graduate School of St. Louis University.

At DLSU, he was conferred the title of Professor Emeritus of the Literature Department, College of Liberal Arts in May 2006 in recognition of his distinguished service to the University and the Lasallian community. He was a recipient of the St. Miguel Febres Cordero Research Award in 2002 in recognition of his achievements in research and creative writing; and the First Annual Dove Award from the College of Liberal Arts on February 14, 2001. Being an alumnus of DLSU's Graduate School, he was honored for his contribution to energizing the writing life on campus through his co-founding of the Creative Writing programs in the University and his activities as writer-in-residence for 15 years.

Dr. Bautista has been a lecturer and critic in literary workshops in various schools and universities and has mentored many of the country's young writers, a significant number of whom have distinguished themselves in the literary field. He has lectured all over the country, in the ASEAN region, in the United States of America, and

in Europe. He is a founding member and trustee of the Philippine Literary Arts Council, a member of the Manila Critics Circle and the Philippine Center of International PEN, and a past president of the Philippine Writers Academy. He continues to write criticism, literary reviews and essays in and serves as literary editor of *Philippine Panorama*, the Sunday supplement of *The Manila Bulletin* where he has a continuing column on literature and the arts, “Breaking Signs”. He is a member of the Board of Advisers and an Associate of the DLSU Bienvenido N. Santos Creative Writing Center, where he served as Director-General from 1991 to 1995. He is also a Senior Associate of The Center for Creative Writing and Studies of the University of Santo Tomas (UST).

Dr. Bautista earned his Bachelor of Arts in Literature *magna cum laude* from UST (1963), his Master of Arts in Literature *magna cum laude* from Saint Louis University in Baguio City (1968), and his Doctor of Arts in Language and Literature from DLSU, Manila (1990).

For Dr. Bautista, writers are valuable contributors to sharpening the people’s desire for the finer things in life and for the improvement of the national intellect. They draw inspiration from individual and national experiences. Through social commentaries embedded in their literary production, they, albeit indirectly, propose ways of upgrading the quality of national life. However, according to this multi-awarded author, critic, and teacher, just as artistic production demands from the writer the skill to configure the human condition appropriate to a planned aesthetics, so does it demand from the reader a vast expertise in language to be able to embrace the message, in order to arrive at an appreciation of ideas for social transformation and amelioration. Writers, according to him, render an honest and profound critique of social realities – they are a huge contribution to defining the nation’s identity. [Ed: If parts of the above are verbatim quotes from other sources, pls indicate them as such by enclosing them in quotation marks “ ”, and cite the sources](all these were his own words, culled from the pages of his blog)

TRANSPARENCY AND ACCOUNTABILITY MECHANISMS IN PHILIPPINE LOCAL GOVERNANCE

Antornio C. Pedro Jr.



Jesse M. Robredo Institute of Governance.

Established in 2001 as the La Salle Institute of Governance (LSIG), the Jesse M. Robredo Institute of Governance (JMRIG) is a research and training institute that aims to provide new knowledge, tools, and strategies to promote transparent, accountable, participatory and effective governance. It conducts analytical and technical studies that identify problems and establish baselines, benchmarks, and best practices in various aspects of governance. It coordinates training seminars, policy dialogues, consultation workshops, and learning exchanges. It creates partnerships and knowledge-sharing mechanisms to foster awareness, generate consensus, and build support for policy and institutional reforms. It seeks to find information age solutions to age-old governance problems. LSIG was renamed JMRIG on October 4, 2012 to honor the late Secretary Jesse M. Robredo for his outstanding achievements in public service and his brand of leadership that was ethical, innovative, collaborative, knowledge-based, and results-oriented. These conform to the Lasallian core values of Faith, Service and Communion in Mission. Robredo graduated from De La Salle University with dual degrees in Industrial Engineering and Mechanical Engineering in 1980.

The importance of transparency and accountability (T&A) in public governance has in recent years emerged to the forefront of development work. *Transparency* means the availability for public scrutiny of information about public decisions and actions; while *accountability* refers to the exercise of public authority and the use of public resources that redound to public interest. T&A governance begins with the recognition that ultimate power resides in citizens. This recognition is then actualized through the provision of increased capacities for citizens to exact performance from public organizations and officials.

At the local level, transparent and accountable governance is a key to realizing the promised benefits of decentralization. In theory,



devolution of powers from central to local government units is expected to translate to better delivery of public services. However, this causal connection is never automatic. A crucial ingredient to making devolution work is the actual capacities of citizens to demand better performance from power wielders who are now much “closer” to them. Indeed, as Philippine and international experiences demonstrate, where structures and processes of governance are characterized by T&A, multiple stakeholders at the local level become more efficient in promoting policies and programs that effectively address the concerns of local citizens.

The broad goal of this collaborative action-research project is to contribute to improvements in Philippine local governance through its emphasis on *evidence-based* and *participatory* local governance reform. More specifically, the project aimed to: (1) develop a framework and set of indicators for measuring key elements of local T&A systems, (2) produce information about the strengths and weaknesses of local T&A systems through the conduct of expert assessments, and, (3) facilitate participatory workshops among local stakeholders in order to translate assessment results into a set of concrete actionable strategies for reform.

Framework and Methodology

Whether or not public officials behave in a manner consistent with principles of T&A depends to a large extent on the institutional frameworks within which they operate. These institutional frameworks – consisting of relevant national laws, local ordinances, organizational structures and processes, and prescribed local practices – identify *mechanisms* through which transparent and accountable governance may take place.

An institutional assessment of local T&A systems examines three crucial components

of these mechanisms: (1) their *existence*, as specified by relevant policies; (2) their *effectiveness*, based on the soundness of institutional design; and, (3) their practical *accessibility* to citizens. The application of this institutional framework to mechanisms internationally identified as “best practices” and contextualized in Philippine local settings, resulted in the development of the Philippine Local Governance Transparency and Accountability Indicators (PLG-TAI), a set of 175 specific indicators measuring the existence, effectiveness, and citizen accessibility of key integrity mechanisms at the city and municipal levels. The indicators cover various aspects of local governance, including: the exercise of leadership functions; the organization of the local bureaucracy; and, roles given to other governance actors, from national government agencies to the media and civil society organizations. To facilitate identification of “strong” and “weak” mechanisms, assessment indicators are clustered around the following seven broad types of T&A mechanisms:

- Access to information;
- Proactive disclosure of information;
- Public participation;
- Local elections;
- Internal checks and balance;
- Rule-based procedures; and,
- External oversight institutions.

The project covered ten cities and municipalities located in various regions of the country. Partner Local Assessment Researchers – academics who mostly reside in or near the selected areas – were tapped to lead the expert assessments and assign “scores” using the PLG-TAI indicators. Fieldwork conducted from April to July 2011 generated data obtained through key informant interviews, document research, and observation of local governance processes.

Local multi-stakeholder workshops were held from October 2011 to January 2012 in each research site as part of the review and validation of the assessment results. The workshops, convened by partner local civil society organizations, served as participatory venues for local stakeholders to identify possible 'next-step' strategies to improve local T&A systems. This process was guided by both the assessment findings and the planning tools developed from the project's mechanisms-based institutional framework.

Key Assessment Findings

In view of diverse local contextual conditions, particularly in the operationalization of nationally-mandated T&A guidelines, there was some variation in the assessment findings across different sites. The project actually focused on how to treat each area as a separate entity, and to empower local stakeholders to conduct evidence-based reform towards improvements in T&A systems. It was not designed to compare cities and municipalities, or to produce generalizations about the state of T&A in the country. With this caveat, however, it is still possible to observe broad patterns from the assessment results.

First, of the seven broad types of T&A mechanisms, *external oversight institutions seemed to be a common strong point*. External oversight institutions include government organizations such as the Commission on Audit, the Office of the Ombudsman, and the Department of the Interior and Local

Government, among others. They also include the important roles of media and civil society organizations that serve as watchdogs in the exercise of local public authority. External oversight institutions are strong when there are adequate politically-independent structures and processes that monitor and review local actions and decisions; when these structures and processes have adequate capacities to perform these functions; and when they can easily be reached by local citizens.

Second, among the types of T&A mechanisms, *local elections and internal checks and balance systems seemed to be the weakest*. Internal checks and balance systems refer to mechanisms that promote self-discipline and thus help ensure the integrity of public transactions. When designed well, they help manage conflicts of interest, provide for limits to discretion, and prevent and penalize the misconduct of local officials. Important specific weaknesses observed include: inadequate monitoring of the accuracy of asset disclosures; loopholes in policies governing gifts; and the lack of measures that effectively promote and protect whistle-blowers. Democratic elections serve as an accountability mechanism by providing politicians with powerful incentives to respond to citizen concerns. The level of



competitiveness of elections shapes the degree to which these incentives are generated. High entry costs (i.e. campaign finances) and inadequate capacities to enforce election rules diminish the ways in which elections hold public officials accountable.

Third, *public participation and information disclosure mechanisms are still relatively weak*, except in certain research sites. The evidence suggests compliance with nationally mandated policies to establish local participatory bodies and to post relevant official information, especially those concerning the allocation of local resources. However, the evidence also suggests that legal compliance does not usually lead to the effective fulfillment of the spirit behind these mandated participatory and information disclosure mechanisms. It is apparent that there is plenty of room to improve the design of these mechanisms, to ensure that local citizens will be able to effectively utilize them.

Finally, and reinforcing the above point, although many specific mechanisms were identified as existing, *the poor design of these institutions rendered them largely ineffective and inaccessible to citizens*, suggesting possibilities for improving institutional design. An example is, even for external oversight institutions that were identified as a key strength, reforms can target the ways in which processes may be improved for citizens to report observations about local officials and their actions, as well as to access information related to investigations conducted by these external oversight institutions.

Organizing Evidence-Based Local Governance Reform

Local multi-stakeholder workshops were conducted in each of the ten research areas, with participants coming from the local government, national government

Type of mechanism	Existence	Effectiveness	Citizen Access
Access to information	Conduct regular "information caravans" at the barangay level	Properly document and update all information so that citizens receive the most recent, reliable information	Translate materials (e.g., Citizen's Charter, newsletters) into local dialects
Proactive disclosure of information	Enact local ordinance institutionalizing the DILG's Full Disclosure Policy at the local level	Post mandated documents under the Full Disclosure Policy in more conspicuous areas	Translate technical information (e.g., budgets) into formats more easily understood by local citizens
Public participation	Establish a clear and acceptable selection process for civil society organization (CSO) representation in Local Special Bodies (LSBs)	Streamline accreditation procedures and policies for CSO participation in LSBs	Tap Parents-Teachers Associations (PTAs) to broaden participation beyond the usual organized CSOs
Local elections	Enact campaign finance reform in order to more properly and effectively monitor campaign contributions	Provide COMELEC with more powers to enforce timely and accurate reporting of campaign contributions and expenses	Streamline registration and voting processes, including the availability of information to citizens, to minimize voter disenfranchisement
Internal checks and balances	Create a committee to properly document and monitor inventory of public assets up to the barangay level	Include CSOs in local budget formulation, and open local budget deliberation processes to public scrutiny	Improve accessibility of local government asset disclosures (i.e., Statement of Assets and Liabilities)
Rule-based procedures	Introduce "uniform barangay clearance fee" for standardization	Provide clear guidelines on "emergency" procurement and procurement by "shopping"	Provide adequate training to CSOs observing and monitoring procurement processes
External oversight institutions	Relocate offices of oversight agencies (e.g., Commission on Audit) outside the city/municipal hall to reduce perceptions of political influence	Improve staffing of oversight agencies to reduce reliance on personnel provided by the city/municipal government	Make the reports from oversight institutions available through the local office rather than the regional office

agencies assigned in the area, local academic institutions, the private sector, and civil society organizations. In four sites, the city/municipal mayor attended either part of or the entire workshop.

Two small-group discussions were conducted as components of each whole-day workshop. The first discussion focused on surfacing participants' qualitative observations on the state of local T&A system and mechanisms. This discussion was held prior to the presentation of research findings from the Local Assessment Researcher in order that the discussions could serve as a means of validating the research results. In addition, the discussions concretized to participants the mechanisms-based framework for viewing local T&A systems.

The second small-group discussion allowed local stakeholders to utilize the research results as the basis for planning improvements in local T&A systems. Again using the mechanisms-based framework as a planning tool, workshop participants identified concrete actionable strategies to improve the existence, effectiveness, and accessibility of local T&A mechanisms. A sampling of recommendations that surfaced from the different workshops is provided in the following table:

Raised as common "points for improvement" in several areas were many recommendations that emerged from the workshops, such as: the conduct of barangay-focused information dissemination strategies; the availability of key documents and reports at the local rather than the regional level; and the streamlining of policies and procedures for civil society participation in Local Special Bodies. Other suggestions were unique to particular localities, reflecting how the local contexts affect priorities and capacities for reform efforts. Still other suggestions focused on those that are doable at the national level, such as the enactment of a campaign finance reform and other measures that improve local electoral processes.

Conclusions

This action-research project provides broad lessons for thoroughly examining third-party and community-based assessments towards improvements in T&A in local governance. When objective third-party assessments are organized and presented in useful form, local stakeholders are able to generate local action plans based on their own knowledge of local priorities, capacities, and conditions.

At the core of this evidence-based and participatory reform process is a framework that allows an objective evaluation of structures and processes, rather than of individuals and anomalies; and that empowers stakeholders to translate assessment results into a set of concrete, specific and actionable recommendations. In any governance reform effort, it is important for the multiple stakeholders of local governance to find the assessment results credible, easy to understand, and readily convertible to action-points.

A mechanisms-based framework and the T&A indicators emerging from this framework proved useful for the research sites included in this project. Next-step strategies by the Robredo Institute include the production of a governance toolkit as part of learning resources to be made available to a broader public. This toolkit is expected to be useful for organizations and individuals both within and outside government. In government, the toolkit may supplement the efforts of national agencies (particularly, the Department of the Interior and Local Government) in monitoring the structures and processes that promote T&A in local governance, as well as enable local government officials to initiate systematic self-assessments. Outside government, local civil society organizations, academic researchers, and private businesses are provided a broad framework and an extensive list of indicators to consider in the conduct of local governance assessments that can inform policy and governance reform efforts.

DEVELOPING COMPUTER SYSTEMS THAT CAN GENERATE CHILDREN'S STORIES

Story Generation Group, Center for Language Technologies, College of Computer Studies



Advanced Research Institute for Informatics, Computing and Networking. Formerly called the Advanced Research Institute for Computing, which was established in 1994, the Advanced Research Institute for Informatics, Computing and Networking (AdRIC) is the research unit of the College of Computer Studies. Its mandate is to pursue the research ideals of the College, such as: setting the directions and priorities of research activities undertaken in the various fields of computing, encouraging research and development projects consistent with identified thrusts and priorities of the University, and seeking collaborative ventures with partners in industry, government and academe in the service of society through research. In 1998, AdRIC adopted the publications and seminar programs of CCS to provide researchers with opportunities to disseminate research and gain valuable feedback from peers.

The art of telling stories by sharing knowledge and recalling events is a gift that generally every person is capable of doing effortlessly. Endowing computers with similar skills, however, is not a trivial task. The Story Generation group of the Center for Language Technologies (DLSU-CCS) has been involved in building various forms of computer systems that can provide an interactive narrative environment for children. Dubbed as “Picture Books”, the research effort is motivated by two factors: in language and literacy, stories can be

used to support a child towards improving his language skills, while engaging him in interactive and entertaining activities. From a computing standpoint, computers that can mimic how people communicate and share information through stories can provide a more natural man-machine interaction.

Background of the Study

Started in 2007, the first Picture Books system (Hong, Solis, Siy, Tabirao and Ong, 2009) targeted

four- to six-year-old beginning readers with stories revolving around a child learning about good behavior with the support of a parent. Five key elements of stories are modeled in the system, namely character, setting, conflict, plot, and theme (Ong, 2012). Stories constructed like fables were selected because they are short and simple, and use common animals like bunnies, elephants and puppies as characters. The characters are depicted as having goals that motivate them to perform certain actions, which in turn, may lead them to experience positive and negative emotions as a consequence.

Picture Books stories are set in locations that are familiar to young children, such as the home, school and the park. Everyday conflicts that young children may experience as part of growing up are encountered and must be solved by the character as the story unfolds. Because fables convey lessons character development plays a central role in the progression of the story events. In the case of Picture Books, this is the learning of a desired positive behavior, such as honesty, cleanliness, bravery, and friendship.

In 2009, with funding from the Department of Science and Technology, the development of a second Picture Books system (Ang, Antonio, Sanchez, Yu and Ong, 2010) was initiated to explore approaches in enhancing the creative skills of older children, this time six to eight years old, as they fluently elaborate their stories through connecting sequences of scenes to form a single storyline. For this age group, the stories are set in more adventurous locations (i.e. camp) where the child explores the world and learns life's lessons on his/her own.

In a virtual world, multiple story characters interact to achieve their common or competing goals. In 2010, development of the third Picture Books system (Cham, Hapal, Quintos and Zaldivar, 2011) commenced.

It utilized the concept of intelligent agents to model the individual goals, needs and behavior of the different story characters. To make these characters believable and realistic, they have also been endowed with the ability to reason through their actions.

In 2011, a synthesized voice narrator (Alcantara, Lu, Magno, Soriano, Ong and Resurreccion, 2011) was added to the first Picture Books. This enabled the system to provide an emotional narration of the

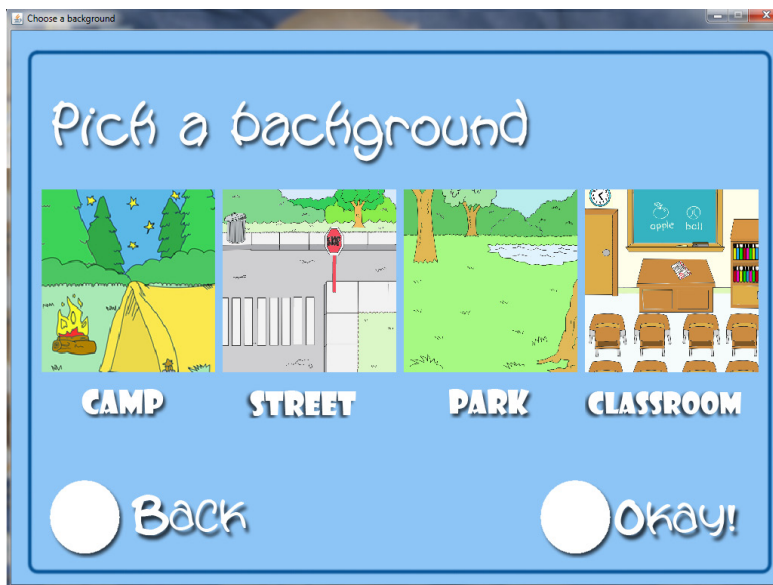


(a) Picture Books 1 (Hong, Solis, Siy, Tabirao and Ong, 2009)



(b) Picture Books 3 (Cham, Hapal, Quintos and Zaldivar, 2011)

(c) Picture Books 2 – Background Selection and Multiple Scences Editor (Ang, Antonio, Sanchez, Yu and Ong, 2011)



generated story to the young reader. Initial investigations have also been conducted to produce a Filipino counterpart, called “Booklat” (Ong, Abella, Santos and Tiu, 2011).

Findings and Further Investigations

The evaluation from human storytellers and linguists, which yielded an average score of 75% - 88%, showed the potential for

computers to generate narratives. However, three main areas of research remain to be addressed. First, computers must be endowed with the necessary knowledge about our world, as well as knowledge on how to write stories. People are able to communicate and understand each other because we all share a large body of common sense knowledge about things, concepts and their relationships. For computers to develop the same ability to interact naturally with their human users, a similar collection of knowledge must be made available to them. All Picture Books systems built their own collections of common sense knowledge (Ong, 2010) that are based on ConceptNet (Liu and Singh, 2004). This was a time-consuming task that led to a limited amount of story variants that could be generated, since the computer system can only share what it knows. Related research works were initiated to explore the use of ConceptNet itself as a possible resource for providing common sense knowledge that can be used to generate acceptable children’s stories (Yu and Ong, 2012), as well as to automatically acquire the needed knowledge directly from children using crowd sourcing techniques (Chua and Ong, 2012).

The second research question involves the design of a story planner that can reason with this knowledge. Test results showed that a set of manually built planning operators that represents high-level tasks of the narrative construction process, produced better stories than a story planner that dynamically applies causal reasoning over possible story events (Ang, Yu and Ong 2011). However, the latter approach was more flexible and allowed greater variances in the generated stories. To address issues on incoherency (i.e., the sequence of events do not make sense) and inconsistency (i.e., character actions are not believable), Ang and Ong (2012) developed a model for representing the current state of the story world and the changes that had already

taken place, such as previous actions of the character, previous events that had taken place, and changes in the objects that were in the character's possession or in the story world.

The third research question deals with converting abstract computer models of stories into surface text in a target language that is linguistically correct, understandable and coherent for the readers. The various Picture Books systems continue to encounter problems because there are exceptions to the rules of English grammar (e.g. correct use of articles (a, an, the), use of personal pronouns, existence of discourse markers, proper sentence structures, and appropriate delivery [narrative vs dialogue between two characters, formal vs personal]).

Testing was also conducted on 15 preschoolers aged 5 to 6 years to gather feedback on their acceptance of the first Picture Books system, as well as its potential for enhancing their engagement and learning. A handful of older kids (seven to eight years old) were also included in the testing to determine to which age group the system would be more suitable.

Results showed that the participants were able to understand the generated stories while enjoying the task of specifying the story elements (characters, objects, location) through the Picture Editor facility. The younger participants also expected the visual representation of the story characters and objects to animate, based on the narrated events. This, however, did not deter their ability to remember the lessons imparted by the fables, although the characters were insignificant (i.e., one animal character is the same as the other, possessing no distinct traits). After repeated use the older children also noticed that the story variants as well as the lexicon are limited.

Overall, Picture Books system was able to keep the participants engaged by

giving them control over the story elements. This control can be enhanced by providing more interactive features to enable users to participate in steering the events of the story toward the achievement of the story theme. Because the system heavily relies on its manually built knowledge base, appropriate and meaningful semantic relations between concepts must be provided to generate good and meaningful stories. Furthermore, diversity in the plot should be considered to produce twists in the story.

Bringing Computer-Generated Stories to the Community

Recent developments in technology brought about the availability of low-cost handheld mobile devices within the reach of the consumers, in general. Tablet devices not only promote mobility ("anytime anywhere" computing paradigm). More importantly, they can process different applications that can be utilized by students for their learning. This offers new possibilities that can lead to innovative trends in delivering educational services, where technologies are tapped as platforms for the acquisition of human knowledge and the exploration of human values.

The Story Generation Group of CCS has recognized this trend and is currently developing Mobile Picture Books for tablet devices. A related development effort is the utilization of an interactive storytelling environment that supports the collaborative development of shared stories between the computer (virtual agent) and the user (player). In this environment, the user's choices affect the flow and progression of events in the narrative, thereby providing an opportunity for enhancing creativity while encouraging more active user participation and engagement in the story-construction process.

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DEVELOPING AN INOPERABILITY INPUT-OUTPUT (IIM) MODELING PROGRAM FOR THE PHILIPPINES

Dr. Raymond Girard Tan, Dr. Joost R. Santos, Dr. Kathleen B. Aviso, Dr. Michael Angelo B. Promentilla, Krista Danielle Yu

Through the URCO Research Program Workshop (RPW), the CESDR conducted brainstorming sessions on potential research topics in Systems Engineering. The wave of natural disasters that have plagued the country in recent years figured prominently in the discussions. Strongly felt was the urgent need to direct the Center's efforts toward problems prevalent in disaster-prone areas of the Philippines.

Workshop Outcomes

The CESDR and the DLSU School of Economics agreed to invite world renowned risk modeling expert Dr. Joost R. Santos to serve as key resource person. Dr. Santos's visit was made possible by a grant under the Balik Scientist Program of the Department of Science and Technology. As a leading researcher in "inoperability input-output modeling (IIM)", a methodology that predicts the "ripple effects" of disasters, Dr. Santos's own innovative Ph.D. work several years back developed a method for calibrating IIM using national economic accounts. He demonstrated the effectiveness of the technique by conducting an *ex post* analysis of the economic damage in the aftermath of the 9/11 terrorist attacks on twin towers in New York City in the United States.



The Center for Engineering and Sustainable Development Research (CESDR) is the research arm of the Gokongwei College of Engineering (GCOE). Established in 2003, CESDR is mandated to promote, catalyze and crystallize scientific activities in Engineering sciences and technology to achieve strategic advances in complex engineering systems and firm-level technologies necessary for the sustainable development of the country. CESDR is envisioned to become a Center of Excellence in Engineering research and technology innovations.

It aims to make significant contributions to the growing scientific knowledge in Engineering and technology. It has engaged in experimental research and modeling of industrial systems and technologies and has facilitated the effective transfer of these technologies from the academic research community to industry and society in the pursuit of sustainable development. The Center has also endeavored to tap expertise from different fields of Engineering and the Social Sciences in the development of scientifically rigorous, systems-oriented technological solutions to emerging complex and multidimensional challenges that are associated with contemporary environmental problems and issues.

During his visit to DLSU, Dr. Santos conducted a series of lectures on systematic disaster risk modelling techniques, and led discussions with local researchers on key opportunities for research. Despite numerous weather-related disruptions, his brief visit led to a number of significant developments. An IIM team composed of Dr. Raymond Tan, Dr. Santos, and Ms. Krista Danielle Yu of the School of Economics (specializing in economic policy and economic modeling), Dr. Kathleen B. Aviso (specializing in mathematical programming) and Dr. Michael Angelo B. Promentilla (specializing in decision analysis), both of the Chemical Engineering Department, was formed to handle various aspects of the nascent IIM research program. Much of the work is still in progress, and is expected to yield significant outputs for publication in well-reputed scientific journals, and in terms of intellectual property, human resource development and assistance to the Philippine government in planning for disaster preparedness.

Highlights of the IIM Program

- Important opportunities for the use of IIM methodology to address Philippine problems were identified. These issues include risks arising from recurrent weather-related and seismic disasters, climate change and pandemics. The IIM methodology allows the prediction of ripple effects of such events on economic livelihood, thus providing valuable insights for the appropriate prioritization of resources for both disaster preparedness and disaster response measures by the Philippine government.
- On August 17, 2012, the IIM team is set to hold a seminar, “Systems Perspective on Disaster Risk Management”, in cooperation with the DOST Balik Scientist

Program. Topics to be covered during the seminar include the role of modeling in disaster preparedness (by Dr. Tan); allocating increasingly scarce water resources due to climate change (by Dr. Aviso); and, the use of systematic methods for vulnerability analysis (by Dr. Promentilla). The seminar participants include representatives from DOST, the Department of Energy (DOE), the Climate Change Commission, the Oscar M. Lopez Center for Climate Change Adaptation and Disaster Risk Management (OMLC), and members of the academic community. Participants will also tackle key national issues which may be addressed through systematic models developed in DLSU.

- The IIM team also developed a series of research proposals to secure funding for future activities. Two projects already in place are now being funded through an internal VCR Challenge Grant and an externally sourced grant from the Commission on Higher Education (CHED) under the Philippine Higher Education Research Network Sustainability Studies Program (PHERNet-SS). A third research proposal submitted to the OMLC is still undergoing peer review. All together, the projects cover a wide range of IIM activities, including theoretical developments, software implementation, case studies and capacity building. The projects also include a mentorship program for graduate students working on various aspects of IIM as part of their theses.
- Initial work by the IIM team was accepted for presentation in various conferences, including Ms. Yu’s paper “*Modeling Philippine Climate Risks Using Inoperability Input-Output Analysis*”, which will be presented at the Climate Change Conference organized by the

National Academy of Science and Technology (NAST) in September 2012 and Dr. Tan's *Modelling Climate Risk as Constraint on Renewable Energy Production*", which will be presented at a seminar on "Risk and Resilience: Securing Energy in Insecure Spaces" organized by the S. Rajaratnam School of International Studies of Nanyang Technological University in Singapore in October 2012. Several manuscripts were also submitted for presentation at different international conferences, and/or for publication in peer-reviewed international journals.

Capability Building

Dr. Santos also agreed to host GCOE faculty Ms. Yu as a visiting Ph.D. student at George Washington University in 2013. Ms. Yu, who is working on her Ph.D. under the joint supervision of Dr. Tan and Dr. Santos, is scheduled to leave in January 2013 and is expected to complete the bulk of her Ph.D. research during her stint at George Washington University. Her advisers anticipate the successful completion of her work by mid-2014.

ACADEMIC ADVISING AND APTITUDE TESTS FOR INDIGENOUS STUDENTS

Dr. Carlo Magno, Project Leader, Valerie VirGarde-Farol and Marie Leoneth Martinez



Lasallian Institute for Development and Educational Research (LIDER). Established in 1993, the Lasallian Institute for Development and Educational Research (LIDER) is the research arm of the College of Education (CED). Through LIDER, the college brings together the expertise of various educational professionals to serve the needs of the different sectors of the educational community. LIDER assumes the dual role of generating knowledge and helping solve the nation's developmental and educational problems. It responds to the growing demand for cooperative and multidisciplinary efforts to address the aforementioned problems. In general, LIDER aims to contribute to nation-building by conducting research studies, training educational leaders, and developing innovative strategies and culturally relevant educational materials; provide leadership in pushing the frontiers of education by offering varied and creative programs in different disciplines; and initiate interdisciplinary research-based educational technology, human development and formation programs. It also facilitates linkages with various end-users—policy makers, funding agencies, parents, teachers, students, community leaders, and researchers.

The Philippines has over 110 known indigenous groups, which are isolated by geographic distance such that access to development facilities and education is difficult for them. This has resulted to low participation and completion rates relative to education. Cognizant of the need to recognize, protect and promote the rights of indigenous peoples (IPs) in the country, Republic Act 8371 issued in 1997 has mandated the Department of Education (DepEd) to provide a National Indigenous Peoples Education Policy Framework (NIPEPF). The framework addresses the basic education needs of IPs, particularly those who live in far flung mountain villages and remote *sitios* of the country. The NIPEPF supports the country's commitment to help achieve the target of Education for All (EFA), the second Millennium Development Goal, and the Basic Education Sector Reform Agenda (BESRA).

In support of these education initiatives, the National Commission on Indigenous Peoples (NCIP) established the Educational Assistance Program (EAP) nationwide. The EAP promotes and empowers the IP through the provision of financial assistance to poor but deserving indigenous students. The NCIP Office of Education, Culture and Health (OECH) administers all scholarship programs and other educational projects intended for Indigenous Cultural Communities (ICC) and beneficiaries from indigenous groups. The

NCIP has regional centers that are strategically located throughout the country to expedite and maximize the delivery of basic services and technical support ICCs and IPs. These regional offices are equitably distributed nationwide according to the projected and actual number of clientele and requirements of the ancestral domains/lands of ICCs/IPs in each region. The 12 regional offices are located in the following areas: Ilocos Region, Cordillera Region, Caraballo and Cagayan Valley Region, Pinatubo and Northern Sierra Madre Region, Southern Sierra Madre and Bicol Region, Western Islands Region, Central Philippine Islands Region, Zamboanga Peninsula Region, Northwestern Mindanao Region, Northeastern Mindanao Region, Southern and Eastern Mindanao Region and Central Mindanao Region. To date, NCIP has about 12,000 scholars nationwide.

Academic Advising Project for Regional Focal Persons

Part of the NCIP EAP policy is the provision of financial support to selected indigenous youth from the different regions. To achieve this, each region has selected focal persons assigned to assist students in their scholarship in terms of processing their application forms/papers and distribution of monthly allowance. Part of the tasks of the NCIP OECH is to empower the focal persons as they are the



ones who directly deal with the indigenous scholars. It equips the focal persons with the skills to undertake “academic advising” of the indigenous scholars. Academic advising is the developmental process which assists students in the clarification of their life/career goals and in the development of educational plans for the realization of these goals (Raushi, 1993). In the process of academic advising, through course and career planning and academic progress review, the focal person becomes a coordinator of the learning experiences of indigenous students. Through academic advising, the focal persons helps the indigenous students cope with and adjust to college or university environment they are enrolled in, maintain their schooling, and most importantly reduce drop-out rates.

Ms. VirGarde-Farol and Ms. Martinez, faculty members of the College of Education Counseling and Educational Psychology Department, in coordination with NCIP conducted the national training of focal persons on academic advising. The goal of the NCIP for this project is to help their EAP scholars to maintain their college education so as to optimize the scholarship grant. During the training, the regional focal persons were given the basic workshop about academic advising emphasizing on the role of focal persons to provide academic assistance to the indigenous students assigned to them. The focal leaders were provided with the basic information about academic advising such as the purpose, the role of academic advisers, theories, models, delivery systems, standards, and best practices. Role playing was conducted to review and evaluate the current strategies of the focal persons in handling their indigenous clients based on the National Academic Advising Association Standards. The best practices of the focal persons in conducting academic advising were also determined through a Focus Group Discussion.



Nationwide Aptitude Test for Selecting IP Higher Education Scholars

One of the responsibilities of the NCIP OECH in implementing the EAP is to ensure that the indigenous applicants who will be awarded scholarships are deserving students and would finish their higher education studies. In order to achieve this, a group of experts from De Salle University, Manila headed by Dr. Magno together with Ms. Martinez and Ms. VirGarde-Farol was commissioned by the NCIP OECH to formulate a test that can be used to screen the indigenous candidates for financial grant to pursue higher education. The project team designed an aptitude test that consists of items appropriate to the indigenous applicants. The test assesses the applicants' aptitude and their ability to learn in their future studies. It identifies the specific area of their inclination (e. g., science, language, commerce, arts, vocational, etc.); and reveals the programs and courses the applicants can take at the college or university level. It informs teachers and parents about the strengths and weaknesses of the applicants and children, respectively. It measures competencies and the readiness of applicants to pursue higher education studies.

Resing, Tunteler, de Jong, and Bosma (2009) explain that a different form of testing,

such as aptitude test, would be beneficial for indigenous populations. Rather than testing what they have learned in school, they are tested on their future potential to learn. The items are figural, numerical, and common verbal ability that are culture free or are not culture-based. The test is composed of the following (Hatrup, Schmitt, & Landis, 1992; Magno, 2010):

Verbal reasoning	Ability to comprehend and utilize verbally expressed relationships. Composed of word analogy.
Numerical aptitude	Ability to comprehend and manipulate quantitative information. Composed of number series, fractions, and problem solving.
Abstract reasoning	Ability to form correct assumptions from abstract premises. Composed of progressive series, visual discrimination, and surface development.
Reading Comprehension	Assesses an individual's ability to make inference of the passages presented.

The test items were reviewed by experts to establish the content validity. The items were pre-tested to a group of 473 students from Benguet State University and Cagayan State University. To ensure the standardization of administering the aptitude tests, Ms. VirGarde-Farol and Ms. Martinez came up with a test administration manual. The focal persons nationwide who will serve as proctors and examiners for the pre- and actual tests were given training separately on how to administer the instrument.

The reliability test showed that the items had adequate internal consistencies using Cronbach's alpha with values ranging from .62 to .88. The highest means obtained were for visual discrimination, progressive series, and surface development under abstract reasoning. All the nine subsets were significantly correlated using a zero-order correlation indicating the convergent validity of the test.

The following Confirmatory Factor Analyses (CFA) were conducted for the subtests on numerical aptitude, abstract reasoning, and verbal aptitude. All three measurement models indicated an adequate fit.

The one-parameter Rasch model was used to calibrate person ability and item difficulty. The person reliability obtained is .80 (Separation=1.98) and the item reliability is .99 (Separation=11.61). All items had an infit MNSQ within .80 to 1.2, which indicates that none of the items are out of bound or redundant. The area of the Test Information Function (TIF) covers two standard deviations which indicate accuracy of the construct measured by the test. The item map showed that the items are well-balanced across the abilities of the indigenous applicants.

The recommendations include: (1) future work-matching of test skills with the courses; (2) a primer be distributed to indigenous applicants explaining what the new test is all about, and should include pre-baccalaureate courses (Math, English, and science); (3) strengthen academic advising

TABLE 1
Model Fit for each Subtest of the Aptitude Test

Model	χ^2	df	RMS	RMSEA	PGI	NFI	GFI	CFI	IFI
Numerical Aptitude (four factors)	986.65	269	0.08	0.09	0.83	0.55	0.80	0.62	0.49
Abstract Reasoning (three factors)	716.62	272	0.06	0.06	0.91	0.6	0.88	0.7	0.55
Verbal Aptitude (two factors)	2090.05	1174	0.05	0.04	0.92	0.34	0.85	0.52	0.32

between focal persons and the indigenous applicants/scholars to further hone their academic skills; and (4) provide the faculty in higher education with the academic profile of the indigenous student.

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CONSULTANCY BASED LEARNING FOR ASEAN SMALL AND MEDIUM ENTERPRISES (SMES)

Dr. Aida Licaros Velasco, Ms. Jhoana Acosta, Ms. Honorata Dimapilis, Mr. Harvey Ong, Dr. Maria Victoria Tibon

Center for Business Research and Development. The Center for Business Research and Development (CBRD) envisions itself to be a leading research institution producing scholarly work and influencing business and policy in the Philippines and Asia-Pacific region. It focuses its research thrusts on business education, entrepreneurship, and policy-making. It positions itself to become the cradle of SME growth and sustainability in the country. CBRD was established in 1996 as the Center for Business and Economic Research and Development (CBERD), the research arm of the College of Business and Economics (CBE). In 2010, CBE was split into the College of Business (COB) and School of Economics (SoE). The center was renamed CBRD and was retained by the COB. For the past 17 years, collaborative research in business and economics has been undertaken by the center, covering a wide range of topics and policy issues in these disciplines. It has prepared teaching materials on business education, and rendered consultancy services for the government, business sector, and non-government and international organizations.



The Philippine COBLAS Team and Partner SMEs



Workshop Conducted during the first COBLAS visit.

Academic Year 2011-2012 was marked by CBRD's active participation in the ASEAN Entrepreneurship Education program through its active involvement in the Consultancy Based Learning for ASEAN SMEs (COBLAS). COBLAS is part of the ASEAN Common Curriculum for Entrepreneurship that was started in 2010 by the Asia Science and Education for Economic Development Institute (AsiaSEED), with support from the Japan-ASEAN Integration Fund, in collaboration with universities in the region. The first collaboration was with the Mae Fah Luang University in Thailand (2003) and thereafter, with the National University of Management in Cambodia (2004). Inspired by the success of the two collaborations, the research program was then implemented in Malaysia in cooperation with the Faculty of Economics and Business of the University of Kebangsaan Malaysia (2006) and in Cambodia, with the University of Puthisastra (2009).

These collaborative endeavors have successfully enhanced industry-academe

partnerships, developing local business and SMEs, and student appreciation of the concept of entrepreneurship. COBLAS hopes to foster a closer working relationship between Filipino SMEs and university students through a consultancy-based methodology. Nineteen undergraduate students of the Bachelor of Science in Business Management who were enrolled in the practicum or on-the-job course were divided into four groups and each group was assigned an SME. The groups were to help solve a management issue and improve the operations of the SMEs assigned to them. The Philippine COBLAS project was undertaken in collaboration with the Foundation for Enterprise Management Innovations, Inc. (FEMI) whose president, Mr. Manuel Avanceña, Jr., provided the network with the different SMEs that participated in the project. Four SMEs were engaged in the project, namely: CJR Junkshop (Cainta, Rizal), JC Soap Manufacturing (Antipolo City), FEMI (Quezon City), and Stanpuz Corporation (Taytay, Rizal).

Training programs on entrepreneurship and consultancy-based learning were conducted from July 25 to 29, 2012 by a team led by Prof. Takeru Ohe of Waseda University. The other members of the team were professors from different ASEAN countries, namely: Mr. Stephen Patterson, Puthisastra University in Cambodia; Dr. Tih Sio Hong, National University of Malaysia; and Dr. Phosy Chanhming, National University of Laos

Following are the profiles of the four SMEs which participated in the study:

▪ **CJR Junkshop**

CJR Junkshop is a sole proprietorship, which started operations in 2003. However, it was only in 2006 that it was formally registered with the Department of Trade and Industry. Classified as a small enterprise and operating as a family business, CJR Junkshop is presently operating in Cainta, Rizal and has a branch in Angono, Rizal. It buys scrap materials from various sources such as big organizations like EEI Corporation and walk-ins from the

Rizal community. Junkshop personnel would clean and refine the scrap materials such as removing rust from metals—a procedure that serves as the company's value added. It would then sell the scraps to customers from manufacturing /recycling plants located in Valenzuela City.

▪ **Stanpuz Corporation**

Stanpuz Corporation produces household decor, novelty items and other crafts for export. Mr. Danilo Cuervo founded Stanpuz together with a Belgian partner. It started out as a partnership in Cainta, Rizal in 1993 and was officially incorporated in 1996. The first products it produced were toy puzzles made of wood. The experience and networks developed by Mr. Cuervo during his work in a luxury liner provided the avenues for him to export the products. Today, Stanpuz Corporation exports its products to Europe and the Middle East. It specializes in decor using laced metals.





▪ JCF Soap Manufacturing

Ms. Josephine “Josie” C. Festejo started out as a sales agent of cosmetics and beauty care products. She founded the JIMAR Cosmetics Manufacturing, a sole proprietorship that was registered with the Department of Trade and Industry in 1996. The company name was later changed to JCF Soap Manufacturing. JCF is a small soap manufacturing company that specializes in natural product based ingredients like papaya and Acapulco. The business initially focused on the manufacture and sale of perfume, detergent soap, and bleaching chemicals. To date, the company concentrates on the production and sale of papaya whitening soap. JCF directly sells its products to end users, distributes to retailers and produces ‘on toll manufacturing agreements’ for some dermatologists.



▪ **Foundation for Enterprise Management Innovations, Inc.**

FEMI is a non-stock, non-profit organization, which caters to the growth and development of small and medium enterprises known as “the missing middle.” Envisioned to serve as a key driving force in the social and economic development of the country, FEMI’s mission is to enable social development through economic empowerment by recruiting, developing and facilitating the growth of the missing middle enterprises outside Metro Manila. Its key indicator of success is employment generation. Through FEMI’s major services, which include credit services, learning and development, and enterprise networking, it hopes to generate

and sustain rural jobs by improving the employability of rural workers, increase the income of people in the provinces, and thereby help minimize urban migration by keeping people in the provinces.

Interventions

The groups of university students assigned to each SME did an in-depth study of the needs and problems of the company. Applying what they learned in class and in consultation with their mentors, they offered recommendations that were later adopted by the SMEs. They assisted the SMEs in implementing the recommendations and were able to resolve the problems raised by the companies.

SAMPLE ONLY

VISION

FEMI will be a substantial contributor to driving social and economic development in the Philippines and will be recognized in the industry as expert of the missing middle segment.

MISSION

We will enable social development through economic empowerment of the Filipino entrepreneurs. We will recruit, develop, and grow “missing middle” enterprises outside Metro Manila. Employment generation will be our key indicator of success.

WE SUPPORT FEMI MISSING MIDDLE ENTERPRISES OPERATING IN THE PROVINCES BECAUSE:

- We want to generate/ sustain rural jobs
- We want to increase the income of people in the provinces
- We want to help minimize urban migration
- We want to develop employability to rural-workers









CREDIT SERVICE
LEARNING AND DEVELOPMENT
ENTERPRISE NETWORKING

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Project 4, Quezon City
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Enabling social development through
economic empowerment of the
Filipino entrepreneur

Matrix of Interventions

SME	PROBLEM	RECOMMENDATION	ACTION TAKEN
CJR JUNK SHOP	Need for a more organized and systematic information system in accounting	Computerized book keeping and record system and documentation of operations	Development of operations manual, and MS Excel templates for record keeping
STANPUZ	Need for human resource policies and procedures to address employees' complaints and improve their performance	Development of a Human Resource Manual	Human resource manual – policies and procedures are for implementation
JCF SOAP CO.	Need to increase market size	New brand name, and new marketing strategy	Implemented suggested brand name and new market distribution strategy with increased sales after implementation
FEMI	Need for formal documentation of processes, policies and procedures	Development of management information system for credit and collection	Documentation of policies and procedures for credit and collection; development of website; and use of social networking sites

Lessons Drawn and Insights Gained

Valuable insights and lessons have been drawn from the implementation of the project; these are useful in the development and nurturing of strong collaboration between academe and SMEs. The participants developed greater appreciation for COBLAS and realized that this can be more effectively implemented if it is integrated into the

academic curriculum. Faculty who teach entrepreneurship would do well to have a more active consultancy engagement with SMEs to bring SME experience into the classroom. Teaching materials for ASEAN entrepreneurship students and faculty would stand to benefit from COBLAS cases that can be developed from the experiences of its various participants.

GROWING-UP WITH TATA

DR. JESUSA M. MARCO

I have spent most of my adult life with Dr. Tata E. Lamberte, during my thirty years or so at DLSU. There have been numerous things we shared – as faculty colleagues, researchers, administrators. Although these have come to an end with Tata's retirement, what remains is our personal friendship. So how can I describe Tata in the variety of roles she has assumed in the University?

Tata lives what she advises. Despite more than forty (40) years of a multi-faceted and productive professional life, her family tops her list of priorities. She always tells her colleagues, "Family comes first"; thus, in running her rather hectic life, she appeals for space and time to spend at home. No questions or doubts are raised when she suddenly excuses herself from events or occasions in which she may even be the central figure. She is a role model for career-oriented women who resist being caught in a conflict of roles. For her, quality can be achieved in spite of the multiplicity of tasks that are presented to us every day, because it is we who decide and choose how to strategically perform these tasks.

Tata teaches and researches with a cause. Throughout her career in DLSU, whether as a teacher or a researcher, she has sought to stimulate her audience/reader to question, probe, reflect, act, and if necessary, to transform. She is an activist at heart because she seeks and desires to create an impact, no matter how small it may seem. She teaches or conducts research because she is motivated to share, learn, and help enable others, from simple information, guidance, and reflection to evaluating and allowing appropriate actions or outcomes to occur. A look at her works in the areas she has focused on will attest to this: families, children and youth at risk, quality assurance and health systems development, poverty and development, and last but not least, population and responsible parenthood.

Tata is a liberal-conservative. This is a polar set that I doubted could be possible; however, that is what she is! Spending her formative years in her hometown in Mindanao, she is conservative at heart. But through my long years of friendship with her, I surmise that DLSU "liberalized" her. Our department, our home for at least three decades, is one setting that has provided a wealth of differing perspectives and beliefs due to a number of factors – educational background, age, civil status, gender, work experiences, and political leanings, among others. I suspect that the diversity simply and inevitably challenged her innate conservativeness. I believe however that Tata managed to meet the challenge of diversity that has come to the department in different waves rather well.

This may be a short piece that does not do justice to the generosity that distinctly characterizes. Tata as a teacher, researcher, administrator, colleague and friend. Nevertheless, I can say without hesitation that Tata's generosity is the defining quality that those that engage with her in both professional undertakings and personal friendships will always remember her for.



PROF. EXALTACION ELLEVERA LAMBERTE

Exaltacion Ellevera Lamberte or “Tata” to friends and persons who know her, considers research not as a mere scholarly exercise to simply generate new knowledge, validate existing theories, or advance one’s career. For her, research like teaching, is a vocation, a disciplined enterprise and a commitment. She aligns with the thoughts and works of classical sociologist Max Weber, and a highly esteemed contemporary Anthony Giddens. Locally, she follows closely the sociological works of John Carroll, S.J., Dr. Gelia Castillo, and the late Fr. Francis Senden, ICM. She undertakes research with an utmost desire to understand people and their social realities as well as the context in which they are situated. She likewise views her research engagement as a Catholic mission meant to advance the frontiers of knowledge which are useful in improving the well-being of people and in addressing issues affecting their lives and development. Although she maintains her independence and objectively employs sound methodologies in her works and discourses, all her research engagements revolve around these themes, all closely associated with the Church’s tenets:

A Catholic college or university must make a specific contribution to the Church and to society through high-quality scientific research, in depth-study of problems, and a just sense of history, together with the concern to show the full meaning of the human person regenerated in Christ, thus favouring the complete development of the person. (Canon 808 of the Code of Canon Law, cited by Fr. Joaquin Bernas, S.J., Philippine Inquirer, September 3, 2012).

Call it passion for research, Tata seems to have been blessed with an unfathomable depth of it. There has been no trimester or academic year when she was not involved in research, either as the principal investigator/project director, co-proponent, or consultant. Her creative imagination and ability to conceptualize ideas as well as her analytical skills enable her to think visually and concretely the social phenomenon and vital issues which work toward broadening the knowledge base. This notwithstanding, she never lets her work get in the way when it comes to her responsibility to her family. She has a unique way of balancing her priorities. Perhaps this is why among the topics closest to her heart are those that pertain to managing primary groups and sectors such as family, youth and children at risk, and responsible parenthood.

She is not content with just seeing, nor simply understanding the world as it is, but is in constant search of better ways to improve living conditions, particularly those that hinder people’s growth and development. She holds on to a dream: a world as it could or should be. A highly respected sociologist and researcher, Tata focuses on the sociological enterprise as the aspect of “social relations as capital - its pattern, its positive and negative faces” and as “agency”, especially on how it shapes and is shaped at the same time by human beings and the world of groups/communities. It is not surprising that much of her research has focused on social inequities and development, and children and youth at risk. Her other major areas of interest are: health systems development; institutional

research management; quality assurance systems; and program/project management and evaluation.

Perhaps it is her penchant for details, her methodical approach and ability to translate ideas into questions and corresponding programmes of action, as well as her confidence, that have earned her the respect and trust of numerous local and international funding agencies which have sought her services as researcher and/or commissioned her to undertake studies aimed at crafting programs. Among these significant and reputable agencies are: United Nations Children's Fund (Manila Mission); Global Health Forum for Health Research – Geneva; World Health Organization-Western Pacific Region; East Asian Development Network; United Nations Fund for Population Activities-Manila; World Bank-Manila; Office of Population Health and Nutrition of the United States Agency for International Development-Manila; Liverpool School of Tropical Medicine-DFID (United Kingdom); Department of Health, Bureau of Food and Drugs and Community Health Services Bureau; Philippine Council for the Welfare of Children; Philippine Council for Health Research and Development; National Statistics Office; Department of Social Welfare and Development; and Commission on Higher Education (CHED).

Tata's commitment is further demonstrated in her various public engagements aimed at evidence-based advocacy toward the development and improvement of organizational practices. She was a member of the Government of the Philippines – United Nations Development Programme (GOP-UNDP) Outcome Board for the

Philippine Country Work Programme for the Program Portfolio on Human Poverty and Millennium Development Goals (April 2007-March 2009); and the Steering and Systems Committee for Monitoring Children's Well-being in the Philippines, Philippine Council for the Welfare for Children (January 2006 to March 2009). Representing a private academic institution, she was also appointed as a member of the National Governing Council of the Philippine Council for Health Research and Development, Department of Science and Technology, Philippines (January 2003 May 2005); and the Technical Working Group in Quality Assurance, Department of Health, Manila, Philippines (February 1998 – June 2002). She also became a member of the Inter-Agency Committee on the Monitoring of the Basic Minimum Needs, National Statistics Office (October 1998); and a reviewer and member of the Research Proposal Review Committee of the Planning and Research Division of Commission on Higher Education (CHED) (February 1997 to December 1998). She also intermittently served as one of the reviewers of the works of nominees for the National Outstanding Research Paper/ Research Project, an award for excellence given by CHED to college/university faculty researchers.

She remains a member of the East Asian Development Network (EADN) Research Advisory Board, a network of research institutions in developing countries under the **Global Development Network**. EADN aims to strengthen the capacity of research institutions and researchers in social science research that can be used in the analysis of and debates on policy matters, and as inputs for discussions at the regional and national levels.

Her most recent major publications include: a DLSU Centennial book "Rethinking Perspectives, Practices: Thriving, Moving Out of Poverty" (DLSU Academic Publishing

Office, 2011); “Mental Health Research Priorities in Low- and Middle-Income Countries of Africa, Asia and Latin America and the Caribbean” in *The British Journal of Psychiatry* (Royal College of Psychiatrists, London, United Kingdom, 2008); and “Social, Theory and Urban Poverty: Implications for Research and Development in Human Capital and Development in the Philippines, A Festschrift in Honor of Alejandro N. Herrin” (Philippine Institute for Development Studies, 2008).

Asked in what ways her studies have made an impact on Philippine society, Tata says that as a researcher and child welfare advocate, she believes her projects have had the greatest impact on policy, local government resolutions, and program interventions; poverty alleviation and social development; and the improvement and organization of basic social services. She considers the following researches to have had the greatest social impact on and broad utilization in policy making, resolutions, and program interventions: “Ours to Protect and Nurture: The Case of Highly Visible Children ‘in’ the Streets” (UNICEF-Manila, 2002), and “Family Relationships and Street Children” (special issue on the Filipino Family, Philippine Social Science Council Information, 1995). She explains that these two works have moved concerned agencies, groups and individuals to seriously provide “adequate attention” to the phenomenon of street children/youth by implementing curfew hours for children/youth, strengthening the monitoring of beggars on the streets, and providing preventive programs, especially child protection programs that address child abuse, child labor, and child trafficking at the barangay level, among others. One of the concrete outcomes of these advocacies was the establishment of a database on children/youth below 15 years old.

In the area of poverty, social development and policy, her plethora of works in the last decade promotes the idea of a multi-faceted approach to poverty against a solely economic approach to poverty, reinforcing the policy on inclusive growth, quality employment and negative faces of patronage and political dynasty, all of which are deterrents to the institution of democratic principles and mechanisms toward people’s growth and development. These include *Rethinking Perspectives, Practices: Thriving, Moving Out of Poverty*, a research based book on poverty in Philippine cities (a Centennial Book, DLSU Academic Publications Office, 2011); “Urban Poverty in the Philippines: Old Problems, New Lenses, Implications for Social Safety Net Programs” in *Emerging Urban Poverty and Social Safety Net in East Asia* (Zhang Yunling, Ed., China Academy of Social Sciences and East Asian Development Network, World Affairs Press, Beijing, China, 2005); and “Monitoring Poverty Using Non-Income Measures” (with Melissa Lopez Reyes, PhD, co-author, Philippine National Statistics Office, Sta. Mesa, Manila, 2003).



In terms of improving and organizing basic social services, she has advocated the importance of quality assurance management and clear quality standards, especially in the promotion of better health and well-being of Filipinos. She has significantly contributed toward the harmonization of complex benchmarks of hospitals, in consultation with primary stakeholders, keeping in mind their ranking and classification. Her principal studies in these areas include: “Beyond Socio-Economic Status: Some Implications for Planned Health Intervention Among the Poor” in a special volume of the *Journal of Philippine Development* honoring Dr. Gelia T. Castillo (Philippine Institute for Development Studies, 1994) “Quality of Family Planning Counselling: Lens from Stakeholders” (Loyd Norella, MD, Jose Alberto Reyes, PhD, and Cristina Rodriguez, co-authors, DLSU Press and Johns Hopkins University-Center for Communication Programs, USA, 2004); “Tracking and Monitoring Health Outcomes” (in *Kaya Tao*, the journal of the Behavioral Sciences Department, DLSU, 1997); “Organizational Strategies Make a Difference: The Utilization of Maternal Health Care Services Among Rural Women in Leyte” (Philippine Sociological Review, 1991); and “What, How, and Why? Fundamentals of Generic Quality Assurance: A Handbook” which she edited (DLSU Social Development Research Center, 2004).

She joined the Behavioral Sciences Department (BSD) of DLSU in November 1978, where she taught key courses and mentored thesis and dissertation writers until she retired in December 2011 with the rank of Full Professor. To her credit, many of her students/mentees, inspired by her guidance,

enthusiasm, and example, have joined the ranks of the university’s faculty researchers and administrators.

Tata has shown that one can be a productive researcher, a dedicated educator, a passionate advocate of people’s enhancement, and at the same time a respected academic leader and research administrator. She rose from the ranks through hard work and sustained institutional commitment and served DLSU in various capacities in the past as: BSD coordinator for the Sociology and Anthropology disciplinary areas, and Department Chairperson (September 1995 to May 1998); Director of the University Research Coordination Office (May 1989 to May 1995); Director of the DLSU Social Development Research Center (May 2001 to August 2005); Dean of the College of Liberal Arts (May 16, 2008 to September 10, 2011); and Founding Editor-in-Chief of the *Asia-Pacific Social Science Review*, now a regional social science journal (June 1998 to May 2003).

Within her 33-year service at DLSU she received various awards and fellowships, a Visiting Research Fellowship grant from the British Council, Manila at the Liverpool School of Tropical Medicine (LSTM) in Liverpool, England, UK (October 1998); and a Visiting Researcher and Lecturer at the LSTM grant from the British Council, Manila and the World Health Organization, Geneva (November 1997). In November 1993, Tata was also invited to be an exchange professor and researcher at the Institute of Social Science, Waseda University, Tokyo, Japan.

In 1995, DLSU conferred on her the title of University Fellow, the highest award and recognition given by the University to faculty members for consistent research and publication and for effective teaching and exemplary Christian role modeling. That same year, she was awarded the Don Francisco Ortigas, Sr. Distinguished Professorial Chair in Philippine Studies, which she held until May

1998. Thereafter, she was awarded the Distinguished Professorial Chair in Applied Social Sciences at DLSU (June 1998 to May 2006);

Even in her retirement, Tata continues to engage in opportunities to upgrade her skills as a researcher and to share her expertise as an advocate of people's well-being and social transformation. For those aspiring to follow in her footsteps, she offers the following advice: be forward and outward looking; engage, collaborate, and do not be afraid to compete for resources from local and international organizations; feel the discomfort of being merely satisfied, or of relying solely on internal university support; circulate and be visible in the public arena, since one's reputation is earned from a strong and consistent track record in networking with reputable national and international organizations; and internalize the role of being a member of a Catholic university, engaging in quality research and education that bridges faith and scholarship in the service of society.

Tata earned her Ph.D. in Sociology and Master of Arts in Sociology from the University of the Philippines in Diliman, Quezon City and Master of Science in Sociology at Asian Social Institute. With a grant from Soka University of America, she pursued post-doctoral studies in public and social policy at the Belfer Center for Science and International Affairs, Kennedy School of Government, Harvard University, Cambridge Massachusetts, USA.

TOWARDS INNOVATIVE, LIVEABLE, AND PROSPEROUS ASIAN MEGACITIES – CITY INNOVATION SYSTEMS ASIA (CIS-ASIA)

Dr. Aida Velasco, Dennis Beng Hui, Paulyne Castillo, Mitzie Irene Conchada, & Dr. Raymund Habaradas



Angelo King Institute. The De La Salle University – Angelo King Institute (DLSU-AKI), established in 1999, was inspired by the complementary noble goals of DLSU and Angelo King Foundation, its two founding institutions. Committed to becoming “a leading learner-centered research university” in Southeast Asia, “bridging faith and scholarship in the service of society, especially the poor”. the university participates actively in improving the quality of life in Philippine society and the region. Through the Institute, the Foundation addresses its overriding concern, which is poverty alleviation, by pushing for appropriate government policies and by promoting entrepreneurship and self-help among economically disadvantaged groups.

More than half of the world’s human population now lives in urban areas and the figure is expected to increase to 75% by 2050, according to a report of the UN HABITAT on the State of the World’s Cities 2010/2011. The unprecedented increase in global human population that live in cities has changed the urban landscape, giving rise to megacities—cities with over 10 million inhabitants. As rapid urbanization takes place, these megacities are confronted with greater and tougher challenges in the area of sustainability and development, particularly on issues related to housing, governance, transport, air pollution, inadequate supply of clean water, and waste management

Towards Innovative, Liveable, and Prosperous Asian Megacities – City Innovation Systems Asia (CIS-Asia) is a timely project, overall objectives of which are: to help six ASEAN megacities foster their innovativeness, productivity, and competitiveness in various aspects of the economy; to develop practical solutions to address the adverse effects associated with rapid urbanization; and, to identify sustainable development pathways that are responsive to the needs and interests of local stakeholders in these cities. Completed on August 15, 2012, the three-year project was funded by the International Development Research Centre. It involved the collaborative effort of research teams from the participating cities of the ASEAN: Bangkok (Thailand), Ho Chi Minh (Vietnam), Jakarta (Indonesia), Kuala Lumpur (Malaysia), Manila

(Philippines), and Singapore (Singapore). The findings of the project that was undertaken in three phases comprise mainly of studies relating to identifying underlying reasons for the differences in innovative capacities of the six ASEAN megacities, which are the center of socio-economic activities in their respective countries. Specifically, the project was able:

1. to map the organizational, structural and institutional factors that define the anatomy of change of the six city innovations systems;
2. to identify and link the drivers of creativity, innovation, and entrepreneurship, and the drivers of intra-regional urban market dynamism in the six (6) ASEAN megacities;
3. to conduct a comparative analysis of the six (6) cities identifying the drivers of creativity and innovation, strengths and weaknesses of the innovation capacities in six (6) ASEAN megacities, in order to develop a framework for integrating innovation and urban development policies;
4. to propose policy options, guidelines and recommendations to enhance the innovativeness, productivity and competitiveness in the cities involved;
5. to establish a regional network of researchers, urban planners, policymakers, and other stakeholders involved in innovation and urban development;
6. to build the research capacities of the project team members, their partners, and young researchers relative to innovation, the role of cities in economic growth, and urban poverty; and,
7. to facilitate the sharing of information, knowledge, and learning among

partners involved in the megacities project.

One of the major impacts of this project is the development of the research and analytical skills of the members of the different teams. Given the young age of some of the project's team members, the study has given them the opportunity to apply the various methodologies and theories which they have learned from the university. Moreover, the cadre of researchers involved has established a network that is more than capable of advising policymakers and other stakeholders with regard to innovations. Among the significant contributions of this collaborative project are the initial results and generalizations reached that are useful to other researchers involved in similar projects. The teams hope that the country studies and the initial integrated results will influence relevant policies and contribute toward institutional strengthening for innovation in the ASEAN region.

Phase I- Review of Literature and Current Status of ASEAN Innovation Systems

In an effort to identify knowledge gaps in the body of research of city innovation systems, and to determine the academic and policy contexts of existing literature, the project teams of Indonesia, Malaysia, Philippines and Vietnam undertook a review and analysis of existing literature on innovation systems in their respective countries, through a qualitative documentary research. Thereafter, the current status of ASEAN innovation systems was reviewed by exploring institutional evolution, the impact of path dependency and key factors in the success or failures of innovation systems in each country.

Indonesia	Malaysia	Philippines	Vietnam
<p>There is not much literature regarding innovation systems in the country; and innovation policy was rarely discussed explicitly or used as a basis for national policy review and formulation.</p> <p>Despite the fact that the National Innovation System (NIS) was formally adopted in the science and technology (S&T) community in 2008, mechanisms for connecting the numerous government research institutes and laboratories, and universities to industries were not in place.</p> <p>Innovative firms were clustered in the food, furniture, and garment industries; and the sources of innovation were limited to universities and government research and development (R&D) institutions.</p>	<p>Because of the global economic downturn, innovation has continued to be a challenge in the country.</p> <p>The NIS, in Malaysia is not about creating knowledge but more about diffusing and deploying it. The team's findings can be summarized into three Ls: linking, leverage, and learning. As in other developing countries, Malaysian NIS is dominated by the public sector. Not much research has gone into learning and there is weak diffusion and linkages between its sectors.</p> <p>S&T in Malaysia has been institutionalized for over a hundred years. The first National S&T Policy was adopted in 1986 and was followed by another set of S&T policies in 2003. Periodic planning is done every five years.</p> <p>The National Innovation Model that was launched in 2007 remains market-driven. Malaysia's S&T Policy aims to increase R&D expenditures, enhance capacity, promote commercialization, enhance public understanding, and foster collaborations.</p>	<p>There is low R&D expenditure and a scarcity of scientists, although the number of research firms, which proved to be good innovators, has increased over the past 20 to 25 years.</p> <p>The following competitive advantages were to help foster innovation: its institutions, macroeconomic stability, prevalence of higher educational and training, large market size, technological readiness, business sophistication, and significant corporate spending on R&D. However, corruption, inefficient bureaucracy, inadequate infrastructure, poor work ethics of its labor force, and poor public health, were also seen as factors that can hinder the innovation process.</p> <p>In the absence of a formal innovation system in the Philippines, the team of researchers concludes that the country could benefit if innovation starts with a pull of market demand instead of a technological push.</p>	<p>There are existing limitations to the development of S&T in Vietnam, as evidenced by: a mismatch between R&D capacity and demand; the lack of information channels and intermediary agencies; the very little fund infused by the state to S&T and the lack of venture capital; and the fact that technological diffusion is from foreign partners.</p> <p>NIS is confronted by three major problems: weak interactions between actors, poor institutional framework, and lack of motivation for innovation.</p> <p>There was a suggestion to build R&D capacity by developing and merging this with businesses, and to move the country's focus from technological innovation to institutional innovation.</p>

Phase II – Mapping and Comparing City Innovation Systems (City Case Studies)

This phase identified the underlying reasons for the differences in innovative capacities among the four ASEAN megacities, namely: Indonesia, Malaysia, the Philippines and Vietnam. It sought to explain the different development patterns of innovation through

a new analytical framework and relate these to current knowledge and policy on NIS in the ASEAN region. Each city was monitored, compared and benchmarked using a common analytical framework called *Paths, Processes and Positions*, derived from the concepts of “dynamic capability” and “Foresight”. Thus, the shifting characteristics of the environment and the key role of strategic management in

fostering new *paths* (strategic alternatives for development or the attractiveness of opportunities) were examined side by side with *processes*, appropriate organizational and institutional mechanisms (the way things are done in the city: ‘routines’, ‘style’, or patterns of current practice and learning), and

the present systemic *positions*, by identifying strengths, weaknesses, drivers, and inhibitors of each participating city’s innovation system. *Positions* refer to the current endowment of knowledge and technology as well as innovators and citizen relations with other input domains.

Indonesia	Malaysia	Philippines	Vietnam
Through a review of literature and a discussion with experts, city innovation projects and development criteria and indicators of city innovation were obtained. Four case studies were selected for implementation: the <i>maisonette</i> housing project; information-sharing practice through the government’s website; “waste bank” practice; and the green village program. The innovativeness of these cases were examined using 4 criteria and 14 sub-criteria and indicators developed through two focus group discussions with experts, government officials and academicians. The case studies showed that while city innovation systems require an interconnection among government, university research groups, individual innovators, training and the community, the practices of innovation in the Jakarta Metropolitan Area (JMA) were partially carried out unsystematically by individuals or a group of actors.	The report probed into three selected case studies on urban innovations: city redevelopment, housing, and governance. The first case study on the Kuala Lumpur City Centre (KLCC) showcased a pioneering redevelopment project geared towards national interests, as well as to alleviating the city’s perennial traffic and environmental problems. The second focused on the development of low and medium cost housing in Kampong Abdullah Hukum, Mid-Valley City, which revealed that with the participation of the private sector and greater engagement with residents, public housing projects can be win-win solutions for every party. The third case study examined an organizational innovation adopted by the City Hall of Kuala Lumpur (CHKL) — the One Stop Centre, established to expedite the processing of applications for property development, along with its decision support system	Focusing on the country’s most urbanized region, the study documented the following city innovations: <i>Gawad Kalinga</i> (GK); medical tourism; and UP-Ayala Technology Park. These were analyzed with respect to how they impact on the development of Metro Manila. They were evaluated using the seven dimensions of innovation: novelty, impact, equity, economic and financial stability, environmental sustainability, transferability and political acceptability. GK is an institutional innovation that changes traditional notions of community organization and development because it is based on partnership and community-building resulting from the concept of volunteerism. Medical tourism is an innovation on institutional configuration resulting from a co-evolution of social functions and social interests with technological developments. The UP-Ayala Technology Park is a government-industry-academe partnership that directly supports the newly-established Philippine innovation strategy through the development of knowledge resources or technology-driven businesses.	Two topics were selected for this study, namely: innovation in housing for low income earners, and innovation in the solid waste collection service. The first aims to transform slums and shanties in the urban district into spacious and comfortable residential areas. There are four initiatives noted in this innovation strategy: the mobilization of human capital in constructing buildings; the re-design of building to reduce costs and sell-prices without sacrificing quality; the re-design of buildings to provide services and environmental landscapes for people; and the relocation of buildings to areas near the center, with good road infrastructure. Regarding innovation in the solid waste collection service, it was observed that the city recently embarked on improving the organizational structure of primary waste collection. Given the lack of proper management, private waste-collectors will be kept as independent workers, until an official organization shall have been established for them.

Phase III – Scenario Building, Multi-Stakeholder and All-Stakeholders Workshop

Scenario Building Workshop

At the start of this phase in 2011, Scenario Building Workshops were held in each of the cities that were studied, including Singapore and Thailand. Local urban planners, policy makers, environmentalists, economists, and engineers were gathered to help in envisioning their respective megacities through an expectable scenario (what is likely to occur given the current trend in growth and development), a challenging scenario (what would happen should circumstances turn for the worst), and a visionary scenario (what is the ideal in establishing a megacity).

Multi – Stakeholders Workshop

Held on November 10, 2011 at the New World Hotel in Manila, Philippines, the workshop served as a venue for each city team to report on the results of their workshops, and subsequently propose innovations for their respective cities. They identified uncertainties, key drivers, and inhibitors that influence the growth of their megacity and contrasted the issues and strong points of each city to come up with a forecast for the ASEAN region for the year 2030.

Expectable Scenarios – Except for Singapore, most of the megacities are currently developing and the most serious threat they would face is environmental degradation, such as intense flooding. Given developments in their economic sector, more pollution may be expected in the future, leaving the megacities unprepared and unable to mitigate/adapt to climate change. Issues on sustainability may also plague them due to

rapidly increasing population and inefficient distribution of goods and services.

Despite efforts of ASEAN cities to efficiently prepare for economic integration, rapid urbanization will widen the gap between rural and urban sectors. New industries may emerge to address increasing needs of the cities, but rigidities in education and other human capital formation sectors may result in greater skill/training mismatch. In terms of socio-demographics, the most critical threat that each megacity would likely face is rapidly increasing population which, despite greater migration, cultural diversity and multi-ethnicity, may entail an aging population, greater congestion and conflicts resulting from a fragmented society unable to manage its multi-ethnic members. In terms of governance, an increasing trend toward decentralization will highlight the importance of local and national governments in addressing the issues in other aspects of the megacities. In the area of consumption and provision of utilities, consumption may become uncontrolled because of increasing population, which will be true also for the consumption of utilities. It is noteworthy that the megacities are increasing their efforts to research renewable energy sources and energy efficient resources in housing. Technology-wise, these megacities are expected to become dependent on these developments more than ever, as they are essential to speeding up the process in various industries and in providing common ways of communication.

Challenging Scenarios – The most serious challenge faced by the megacities is associated with socio-demographics, economics and environment. Rapid population growth will increase congestion in the cities, and result in lowering the standard and comfort of living of citizens, as well as increase the number of urban poor families

	Indonesia	Malaysia	Philippines	Singapore	Thailand	Vietnam
Expectable Scenario	Jakarta is perceived to become a flooded city because of its inability to cope with climate change and its incapability to adapt greener technology; and a city with a growing informal sector that is unproductive, uncompetitive, and with an increasing unskilled labor force.	Should Kuala Lumpur allow its technological and economic progress to widen the gap of inequality among its people, it will have a technologically advanced, yet desolate society, where the economic system will become uncoordinated.	Metro Manila is expected to have 58% of the population residing in urban areas, causing extreme congestion, and significant implications on service delivery to the people.	Singapore is perceived as a top-class global city, a cosmopolitan city-state connected globally, with a very diverse culture, and with an environment conducive to creative and knowledge-driven industries. Singapore is also perceived to be a sustainable "garden" city wherein beautifully landscaped gardens may be found on top of buildings, where nature and urban living are brought together as one.	Bangkok is perceived to be a very environmentally-friendly city, equipped with many green choices for living, where most people are aware of efforts that help reduce carbon footprints and promote sustainability. Alongside this is the establishment of private mass transportation and social network technology geared to the preservation of Bangkok's environment. Included here as well is better management of wastes and cleaner and leaner production processes.	Ho Chi Minh City is expected to be an unsustainable city that is increasingly congested, greatly polluted; a city experiencing unregulated development.
Challenging Scenario	If nothing is done, it may become a drowned city with disintegrated values and culture, weak leadership and high costs of living.	It will be highly congested, and will absorb the influx of unskilled foreign labor, diminishing the delivery that each citizen receives from the economy.	Unemployment and corruption is expected to worsen, and if left unsolved, the government will keep on going through restructuring, and projects started will have lower chances of being finished. There will be very bad traffic congestion and increasing demand for more affordable housing.			Should the city do nothing about its inhibitors and not respond to its challenges, it may become a hurtful, exhausted, unsafe city because of its vulnerability to environmental degradation and national disasters; a city whose humanity may be declining due to rising social tensions
Visionary Scenario	Should it develop its drivers towards becoming a mega-city, it has the potential to foster green infrastructure, buildings and technologies, with effective justice, strong leadership and an abundance of skilled labor	However, should Kuala Lumpur enhance the factors that drive its growth, they can establish a truly green city where development is not only for the richer half but also the marginalized sectors. They will be able to achieve a more sustainable lifestyle with the use of environmentally-friendly technology, good governance and efficient allocation of natural resources.	If these inhibitors are removed and Metro Manila's key drivers are improved upon, then the city will become adaptable to any kind of weather condition, make use of clean and green technology, and develop many emerging industries such as the creative industry	However, in the far future, a significant portion will be aged above 50; but this will instigate the emergence of an industry comprised of the aging population itself, a mature workforce teeming with experience and expertise.	Bangkok is also perceived to become a city of learning, where identity takes various digital forms, where communication as well as medical, learning and working credit activities may be done through a digital channel. Lastly, despite its aging population, Bangkok is perceived as a city conducive for retirement, where the population is provided with more public space and digital access by the government and social enterprises.	But given a chance to develop the mega-city's drivers and mitigate its inhibitors, Ho Chi Minh may be envisioned to be a prosperous, livable, culturally and creatively diverse city, where its government and citizens together govern the city under a democratic climate

and accelerate the incidence of crimes committed due to poor law enforcement. The diversification of cultures (or rather the cultural merge) may lead to conflicts arising from differences in views as well as changing social values. In terms of economics, there will be a wider income gap, not only between urban and rural sectors, but also among income groups in the urban sector. This will pose a tough challenge to resource allocation especially since the in-migration of foreign labor will not only force constraints on infrastructure, utilities and social facilities, but will also translate to a greater skill mismatch for domestic labor. Environment-wise, degradation will be inevitable, given the pattern of living of most people, and may result in making the cities more vulnerable to various disasters, such as flooding. There is a need to improve the management of waste and of the impact of climate change. There is likewise a need to manage the sources of clean water. Weak governance and corruption among law enforcers and in local and national government units also constitute a robust challenge to the megacities.

Visionary Scenarios – In contrast to the first two scenarios, the ASEAN megacities may be envisioned, albeit interdependent of each other, as cultural, economic and technological capitals of the world. Societies will be cultural convergent and cooperative, and will live in harmony despite cultural and ethnic diversities. A common language for all will be established, and an equitable distribution of housing will be in place to cater to the free flow of migrants. There will be full integration of the ASEAN which will improve inter-city mobility, urbanization, and resource integration, given greater trans-boundary movement of professionals, academics, and experts. There will be monetary integration similar to that of the EU, which will facilitate the emergence of an ASEAN

Currency Unit. Technology transfer will facilitate governance, economic and societal activities, reduce inefficiencies, and expedite many processes. Improved organization of decentralized governments, supported by a centralized consultative mechanism, will enable transparency in governance as well as efficient delivery of services. Given greater interdependence in societies, government will also be interdependent and cooperative, especially in establishing development policies aimed at justice and welfare for all parts of the region. Finally, a heightened environmental awareness among citizens to induce them to take the initiative to embark on green innovations, can help mitigate the effects or adapt to climate change. Carbon emissions will be controlled significantly, and cities will be more prepared for flooding and other natural disasters.

All-Stakeholders Workshop

Held at the Sari Pan Pacific Hotel in Jakarta, Indonesia from May 29 to 30, 2012, this workshop was divided into three sessions. One session was devoted to the discussion of innovations and system development in South East Asia, and lessons learned from city innovations. The second session delved into scenario building for the ASEAN as a whole; while the third session focused on testing the Delphi Survey to be used as a tool for policy makers to envision the future of the ASEAN.

The six ASEAN megacities follow the same trajectory as that of western cities whose emphasis is on the development of S&T as a catalyst for the emergence of innovation systems. While this may be a good start, the emerging innovation systems are found to be fragmented. The further development of S&T needs to be complemented with the more intimate involvement of the contributors to innovations present in the megacities. Institutions and governments in particular

play a very important role in the development of innovations, whose data gathering should be both forward-looking and historical, and whose implementation should not only be at a national level but also at the regional level. It is also a necessity to understand culture using community-based approaches in order to understand what motivates the people to innovate.

Educational institutions as intermediaries in the development of innovation systems are confronted with the problem of fund sourcing. This is because innovations are mostly public goods; therefore it may not be easy to get private financing. There is, therefore, a need for public sector involvement in the provision of innovations. This involvement must be flexible and adaptable in order that policies involving innovations can serve as avenues for inclusive development. The management of large scale innovations will depend to a large extent on policies that allow for the immediate taking advantage of opportunities that may contribute to the development of megacities.

For policymakers to have a greater impact on innovations, they should be involved from the inception of the innovations to their development through regular interaction with various key stakeholders. There will be a paradigm shift from an industrial economic orientation to a socio-spatial approach that will redefine new combinations of innovation encompassing its various facets, including financial, social, intellectual, natural, and political. This will require an interdisciplinary approach that will entail close coordination between governments and actors relevant in developing the innovation systems.

Growth and development of the ASEAN cities shall be hinged on climate resilience, city governance, and regional cohesion. The cities face common problems, albeit in varying degrees, and possibly with different preconditions to face each problem. General policies and innovations may be implemented for all cities, but data from the local level is crucially needed to fine-tune these policies and customize them to correspond to the needs and characteristics of each city.

HEALTH DIMENSION OF FILIPINO AND CHINESE MIGRATION TO SPAIN

Dr. Trinidad S. Osteria



Yuchengco Center. The Yuchengco Center conducts innovative studies and produces excellent research outputs that highlight friendly bilateral relations between the Philippines and Japan and other groups in neighboring countries. The Center's mission includes: heightening public knowledge and awareness on political, economic, and social policy concerns in the Philippines and the Asian region, and enhancing its role as a think tank where research results are regularly transmitted to the end users for evidence-based legislation, policy formulation and program planning. It received an award from the Japanese Government for its invaluable contribution in the promotion of mutual understanding and friendly relations between the two countries through researches, conferences and publications.

Inaugurated on August 29, 1994 as the Yuchengco Institute of Philippines-Japan Relations, the Board of Trustees renamed it Yuchengco Center for East Asia in 1997 to reflect the expansion of its concerns to Northeast and Southeast Asia. In 2002, the Board shortened its name to Yuchengco Center to signify a shift towards a broader perspective that is more issue-oriented and policy-focused.



On September 1, 2011, the Asia-Europe Foundation approved the research proposal submitted by the Yuchengco Center in the Philippines and Fondazione Iniziative E Studi Sulla Multiethnicita (ISMU) in Italy to study public health implications of Asian migration to Europe. The study was conducted in Madrid, Spain and Milan, Italy, among Filipinos and Chinese, the two largest Asian migrant groups in these cities. This report pertains to the Madrid study, the component of the project Yuchengco Center was responsible for.

The general objective of the research was to arrive at meaningful recommendations for the incorporation of Asian migrants' health concerns in European public health policies and programmes. To achieve this objective, the study sought to draw the health picture of migrants in terms of predisposing factors to illness, their health seeking behavior including health services utilization pattern, and attitude toward health services and providers. It identified barriers and facilitating factors in access to and utilisation of health services by migrants, and posited issues and recommendations toward a meaningful Asia-Europe cooperation in health services.

Findings of the Study

The study found that many Asian migrants to Spain face significant occupational hazards, including exposure to chemicals; physical exertion from manual labor such as heavy lifting; and mental health problems due to isolation and loneliness. Higher numbers of work-related problems and injuries were reported among migrant workers such as musculoskeletal disorders, chronic respiratory infections, and accidents. Ischemic heart problems and cerebrovascular diseases showed higher prevalence due to changes in lifestyle and eating patterns. Incidence

of hypertension, obesity, diabetes, smoking, and alcoholism has also been increasing. Cancer incidence rate may not be higher than the native population but the illness tends to be diagnosed at a later stage. Preventive programs are deemed important but few health promotion activities were adapted to migrants' cultural and social backgrounds. Lack of comprehension of the Spanish language exacerbates health risks (e.g. inability to read health warnings, misunderstanding of safety instructions, and lack of awareness of risks).

The concern that migrants bring infectious and communicable diseases to the majority of the population of receiving countries has been raised in many European regional dialogues. However, the risk of transmission of these illnesses from migrants to receiving countries seem small, as only 22 percent of new cases of tuberculosis (TB) in 2008 involved migrants, mostly from Asia or Africa.



TB is considered an important infectious disease. Latent TB infection rates of 52-72 percent and active infection rates of 7.8 percent have been reported among migrants. Most cases are reactivated in the first five years after arrival. Thus, migrants have to be actively screened for both latent and active infection. Early treatment has been necessary. Delayed treatment has been caused by the tendency of many migrants to hide their condition. They do not access health care services until the illness has worsened.

Factors Affecting Utilization of Health Services

In light of the above findings, the study probed deeper into the migrants' reasons for not immediately accessing health care services at first sign of illness. The following barriers surfaced in the process:

Health Beliefs and Health-seeking Behavior. Migrants' knowledge and beliefs regarding the nature and causation of their problems and health management affect their health-seeking behaviour. Problems may be due to their inadequate "health literacy" related to causation, symptoms and management of illness. Another factor is the variance in the recognition of the health problem and its management between migrants and providers. The resultant divergence leads to a mismatch in actual and expected treatment, with the labelling by migrants of "providers' incompetence." For migrant groups with specific health beliefs and health-seeking behavior, health promotion through education is needed. However, it would unlikely be taken seriously unless deemed acceptable.

Lack of Knowledge of the Health System. Another barrier in accessing health services is lack of knowledge of the health system, the services it provides and the means

of its access (e.g., obtaining a health card). Migrants bewail the tedious bureaucratic process to obtain a health card.

Language Barrier. Language barrier is the most serious obstacle to quality health service provision. Colloquial knowledge of the Spanish language is not sufficient to address the migrants' health needs. What the migrant conveys may not be well understood by the provider and vice versa. Cultural mediators need to translate not only words (verbatim) but meaning and context of statements to both clients and health providers. To do this, considerable knowledge of the patient's socio-cultural and health context is deemed necessary, as well as the basics of illnesses. Brochures, folders, and posters are distributed in migrants' languages to reach potential users. However, their viability and effectiveness have not been assessed in terms of comprehension and behavior modification.

Fear of Discrimination. Some migrants have been reluctant to utilize health facilities for fear of discrimination by the community and health service providers regarding illnesses, including TB, HIV/AIDS and mental conditions. Mental problems such as depression and anxiety can be stigmatizing in migrant communities. Many migrant clients do not know that confidentiality of medical interactions is ensured by the law. Among the more common mental health disorders are depression and anxiety which affect their functioning, but go unreported for fear that these might jeopardize their work prospects.

Employment Constraints. Migrants encounter difficulties in taking time off from work during clinic hours. This is particularly true for domestic and restaurant as well as factory and shop workers. The situation is aggravated by long waiting time in clinics. The distance of migrant residence and workplace to clinic also cause inconvenience as travel is time-consuming and consultation hours detract from their income generation which is

based on hourly inputs (e.g. domestic work).

Socio-cultural Issues. Differences in mindset between providers and patients cause problems when illness and its management are explained by providers from the biomedical perspective. The patient regards this as incomprehensible. Moreover, migrants have their own expectations in health service provision to the point of calling the professionals incompetent when these expectations are not met. Due to medical pluralism, the tendency to seek remedies from traditional systems initially delays timely consultation, thus constraining appropriate management. When migrants move to the country of destination, they bring with them the health practices they adopted in their home countries. Thus, health consultations are made only when these practices are not able to remedy the problem. The tendency to seek health care as well as medicines during their periodic visits to their home country also detracts from adequate health management in Spain.

Sequelae of Employment

The migrants reported pathological conditions resulting from the nature of their employment and the latter's effect on their health; these were also studied.

Health Effects. Those whose responsibilities include cleaning (domestic workers) mentioned exposure to products that are chemically hazardous (detergents, bleach). Acute physical reactions include those which were dermatologic and respiratory in nature such as eye and throat irritation, difficulty in breathing, suffocation, and burns. The physical nature of household work could be exhausting. Generalized musculoskeletal pain occurs from the tasks and the travel between houses if they work in more than one. Women

whose work involves the care of persons with limited mobility including the elderly, reported physical problems and injury in assisting their wards to bathe, dress, and move about the house. Elderly care is an activity for which they have no formal training. Those whose main tasks are done inside the house complained of physical strains associated with repetitive and speedy mobility in scrubbing, ironing, and mopping; and suffered from back pain from lifting furniture and cleaning windows or doors. Some of the women cleaners and caregivers were prescribed pain relievers but felt that these medicines were of limited efficacy. The amount of work and the time they have to complete the tasks were deemed stressors. They also complained being assigned more work than they are able to manage at a reasonable pace.

Psychosocial Effects. Caregivers have little control over their working time. They suffer from psychological and emotional demands by the elderly and encounter problems in organizing their tasks because they are given multiple responsibilities. Boredom is associated with workplace isolation because they work alone, with few people to talk to or interact with. As bonding is established with the elderly, depression sets in when deterioration and eventual death happen to their wards.

Health Seeking Behavioral Patterns

Preference for Emergency Care. *Patient pathways* provide the process in which migrants can seek medical care. Often, they walk into hospital emergency wards or primary health care emergency centers where there is less waiting time. A review of data from Spanish National Health Surveys and findings from various studies showed that immigrants visit general practitioners and specialists less frequently than the native-born population and tend to stay in hospitals

for fewer days. Their rate of utilization of emergency services is higher than that of the Spanish population, suggesting that emergency services are used as a substitute for primary health care clinic services. This is possibly due to their inability to take time off from work during the day to consult a general practitioner, not considering that the health condition may be too serious for the health provider to address. Their exposure to risky activities may also provide the explanation for the use of emergency services. Emergency care is legally available to all immigrants regardless of registration in their municipality; whereas to access other avenues of care, registration with the municipality is required.

Health service providers have cited problems related to migrants' health services utilization. They affirm that major barriers are the migrants' language and culture. One suggested solution to address this problem is the deployment of translators or cultural intermediaries. Clinically, doctors noticed no differences in pathology or greater psychiatric problems between the immigrants and the native population. Some indicated that protocols should be observed to address migrants' needs. To analyze these in the provision of healthcare to the immigrant population and provide suggestions for improvement of service delivery, healthcare managers and professionals from primary and specialized care units were questioned. Support in providing healthcare to the immigrants strongly emerged. Translated materials and information with a longer period of time allocated per patient are required to address barriers. Specific providers' training focusing on cultural aspects and modalities of client-patient interaction was also mentioned.

The Chinese migrants consult acupuncturists for specific health problems. The therapeutic management of specific



illnesses is guided by the yin-yang system. The first line of approach is the Chinese system with its own diagnostic mechanism and management through herbal medicines and acupuncture. However, when symptoms persist, they seek external consultation preferably from younger Chinese relatives who obtained their medical degrees in Spain or the public or private health services available. For common illnesses, fever, cough and colds, they take Chinese medicines. The review of the Chinese basis for health service provision revealed detailed information

on causation, symptoms, and management of particular conditions. Apart from these, those who frequently return to China consult traditional providers there and bring back the prescribed medicines with them to the destination country. The health centers are commonly utilized but frequency of visit is low and varies from once a month to once every 2 months, to once or twice a year. The crisis orientation of the migrants is manifested in their visit to the health facility when the illness becomes serious or when home- or self-management fails. Consultation is free and the service delivery point is accessible from their residence. Clinic hours are usually from 9 am to 8 pm; 8:30 am to 8:30pm, and 8:30 am to 9pm. The waiting time, however, is long, ranging from 45 minutes to 2 hours due to the number of patients. In the hospital, waiting time is between 1 to 2 hours. The hours of waiting time is a deterrent to availing of health services, because their income is based on hourly rates. There were Filipino clients who expressed their displeasure in the seemingly “inadequate services.” According to these clients, providers in health centers and hospitals are too formal and serious. Some of them even question the providers’ competence. Tales of “incompetent practices” were shared. There were claims that information was seldom provided and explanations were not given at length. No detail was given regarding illness management. The migrants decried their inability to understand the Spanish explanation and would like to consult English-speaking health care providers. Medicines are free or easily affordable. Despite this, they opt to get their medications from home. They bewail their inability to discuss their problem with the doctor. Thus, at the end of the consultation, there was the feeling that not much was gained despite the prescription of medication.

Concerns and Challenges in the Incorporation of Southeast Asian Migrants’ Issues into European Health Policies and Programmes

The two basic questions in this research are:

- What are the issues and challenges in the incorporation of Asian migrants’ health concerns in European health policies and programmes; and
- What are the prospects for an Asia-Europe cooperation in this area?

Challenges in the Translation of Regional Recommendations into National Plans

- assessment of the extent in which national health policies are reflective of the regional prescriptions and how they have been translated into operational terms at the clinic level to encompass migrants’ equity and rights to health; basically, the congruence of policies and programmes is to be ensured; and
- systematic approach to the translation of policies into programmes (guidelines, trainings) taking into consideration the regional recommendations in clinic operations, services provision, monitoring and evaluation of outcomes as related to migrants.

Health Services’ Delivery and Migrants’ Utilization of Services

Priority areas are:

- Understanding health and social issues related to migrants’ health services;

- Provision of health services that are culturally and linguistically appropriate within a comprehensive, coordinated and financially sustainable frame;
- Capacity building of providers for the delivery of culturally and linguistically appropriate health services;
- Enhancement of continuity and quality of care through adequate toolkits and standards in programme management; and
- Ensuring systematic record keeping and development of database on health problems and services utilization by migrants.

With the above suggestions, the questions are:

- What training would the workforce need to meet the health needs of migrants? Who should provide the training? What should be the contents of the training programme?
- Given the multiplicity of migrants' cultural groups and their linguistic variability, how could equity in access to services be realized within different health service delivery points?
- How can culturally and linguistically appropriate preventive, promotive and curative services be planned and implemented at the clinic and community levels? What are the prospects of migrants' involvement in these spheres? What are the requisites for their participation? How can they be technically co-opted?
- How can information and education programmes become culturally and linguistically sensitive? How effective are current information programmes with translated leaflets and other

materials in raising health awareness of migrants and transforming their health-seeking behavior?

- How viable and sustainable is cultural mediation in the patient-provider interaction to enhance the quality of service provision?
- How can programme operations and information/education programmes on migrants' health be monitored and evaluated?
- To what extent can best practices be documented for their replication and sustainability?
- What should be the indicators of best practices in terms of the integration of migrants' concerns in health services delivery? How could innovation, health impact, replication and sustainability be assessed?

Challenges from the Research

Four major issues and concerns emerged from the study, which can influence the adequate utilization of services by migrants. Recommendations can then be extrapolated from these:

- Quality of health services delivery;
- Medical pluralism;
- Cultural and linguistic competence of providers; and,
- Transnationalism versus integration of migrants into the Spanish mainstream.

Areas for Asia-Europe Cooperation

- Sharing of policies and programmes related to the prevention and management of communicable and non-communicable diseases;
- Exchange of epidemiological data disaggregated by sex and age or

- knowledge transfer in terms of classification and categorization of illnesses, information retrieval, processing, analysis and presentation for evidence-based policy making and programming (by nationality and demographic characteristics of migrants). (epidemiological reporting);
- Strengthening of health systems in sending and receiving countries based on emerging health issues;
 - Bilateral and multilateral cooperation in assessment of health status and access to health care as well as indicators' identification and retrieval;
 - Exchange of information, education, and training programmes and best practices related to health in both regions, using mutually agreed upon indicators;
 - Collaborative research programmes in the assessment of socio-cultural determinants of health practices of migrants, interventions to improve their utilization of services and the efficacy and safety of traditional/alternative medicines;
 - Assessment of the prospects of adoption of traditional medicine within the public health system in receiving countries; and
 - Development of data bank with common indicators for use by receiving and sending countries.

EFFECTS OF STORAGE AND PROCESSING ON THE ANTI-CANCER PROPERTY OF *raphanus sativus* (RADISH)

Carmen Tan, Marissa Noel, Ma. and Luisa Enriquez



The Center for Natural Sciences and Ecological Research (CENSER) is the research arm of the College of Science (COS). Initially established as the Environmental Research Center (ERC), it had the mandate to encourage and nurture scholarly activities related to the environment among the COS faculty. At its inception, ERC offered administrative support for projects by way of providing clerical assistance, facilitating the processing of contracts for personnel, and fund management and auditing, among others. Today, the former ERC has evolved into the CENSER, a dynamic conduit for excellent scholarship in the natural sciences and mathematics. It hosts the externally-funded research projects of COS faculty and provides basic administrative and clerical services.

There are 5 research units under CENSER: Alfred Shields Marine station (SMS); Molecular Science Unit (MSU); High Performance Computing Lab (HPCL); Biodiversity Unit (BU); and, Materials Science and Nanotechnology Unit (MSNU). The first three units (SMS, MSU, and HPCL) maintain core facilities which house a common pool of equipment essential to the operation of their respective research areas. The MSU initially received considerable funding support from the University through the initiative of the late Bro. Andrew Gonzalez FSC to build its laboratory at the Science and Technology Research Center. Later, an additional amount was also provided to set up the HPCL facility at the St. Joseph's building. Because of its unique nature, SMS receives its operating budget from the University. The common pool of equipment in these core facilities is shared among faculty researchers and is primarily (but not exclusively) for their and their apprentices' use. This streamlined set-up is aimed at building a critical mass of research-oriented faculty in COS.

R*aphanus sativus* or radish (locally known as *labanos*) is a popular Philippine vegetable that has found its way into many local dishes. Filipinos usually eat *labanos* salad with grilled pork or fish. It is also used as one of the vegetables in the tamarind-based soup dish called *sinigang*; as well as in the popular Chinese dimsum radish cake. The vegetable comes in various colors, sizes and shapes (Figure 1), although Filipinos are more familiar with the long white variety. In Japan, white radish is popularly called “daikon”. The entire plant is actually edible, but what Filipinos usually eat is the thickened, fleshy root.

Radish is rich in ascorbic acid, folic acid and potassium. It is also a good source of vitamin B6, magnesium, copper and calcium. One cup of sliced red radish bulbs provides approximately 20 calories largely from its carbohydrate content.¹ Moreover, radish belongs to a group of vegetables that have selective biological properties.²⁻⁴

Medicinal properties of Cruciferous vegetables

In a more scientific sense, *Raphanus sativus* belongs to a family of vegetables called the *Brassicaceae* (also known as *Cruciferae*). Other well-known members of this family are broccoli, cabbage, cauliflower, mustard, turnip, horseradish and wasabi. What is

interesting about crucifers is that they are often referred to as the “super veggies” because they contain disease-fighting phytochemicals such as glucosinolates, the sulphur containing compounds responsible for their pungent odor and bitter taste.^{2,5,6} Glucosinolates (GLs) are classed under secondary plant metabolites (SPMs), natural products that are not essential for their growth and development, but are synthesized by plants to increase their overall survival against invasion of pests, herbivores and pathogens.⁷ In addition to glucosinolates, many SPMs have already been identified; and these are alkaloids, flavonoids, carotenoids, polyphenols, terpenoids and phytoestrogens, to name a few. These metabolites have caught the interest of the medical community because of their potential health benefits, most especially in the prevention of human cancers.^{3,8}

When any cruciferous vegetable is chopped, frozen, thawed, cooked or chewed, an enzyme, myrosinase, is released and this breaks down glucosinolates into a biologically active compound called isothiocyanates (ITCs). There are many kinds of GLs in cruciferous vegetables and each is hydrolyzed or converted into a particular type of isothiocyanate.^{6,8,9}

The anti-cancer property of the family *Brassicaceae* or *Cruciferae* is largely due to their isothiocyanate content. Many studies have documented that regular intake of

Figure 1. Three cultivars of radish used in the study: (a) White and long variety; (b) short and stout variety; and, (c) red globe radish. (photos a and b courtesy of M.L. Enriquez; photo c from www.bbcgoodfood.com)



cruciferous vegetables can lower cancer risk, and in some cases even stop the growth of tumors.^{6,10,11} These compounds work on cancer cells through various pathways.^{3,12} One pathway is by activating in the body enzymes whose function is to detoxify cancer cells before they can do harm.¹⁰ Another is the reduction of oxidative stress brought about by harmful molecules called reactive oxygen species (ROS) or oxygen free radicals. The human body produces free radicals when it is subjected to environmental stress (e.g. radiation, harmful chemicals); and these free radicals can destroy cells, oxidize lipids and proteins, and damage the DNA which may consequently result in the development of diseases like cancer. Decreasing the amount of these free radicals in the body is believed to be one way of reducing cancer risk¹³.

Cancer preventive activity of *raphanus sativus* (radish) and how processing and storage can affect this activity

Like other cruciferous vegetables, radish has a number of pharmacological and therapeutic (medicinal) properties: antiseptic, antifungal,

antibacterial, anti-cancer, antirheumatic, diuretic, laxative, tonic, and even as immune booster.^{3,14,15} This paper will only highlight the anti-cancer property of this vegetable.

The research team focused on locally available cultivars of radish. These were investigated for the presence of glucosinolates, isothiocyanates and myrosinase activity. The effects of processing and storage on these compounds, as well as the anti-cancer properties of extracts obtained from the tubers, were also studied.

Radish tubers were found to contain glucosinolates in amounts which differ with variety. Intact glucosinolates occur in larger quantities in red tubers than in the white Daikon and Korean varieties. The most prominent glucosinolate both in white and red radish is glucoraphasatin, which potentially hydrolyzes to form 4-methylthiol-3-butenyl isothiocyanate (MTBITC), a compound reported to be a potent anti – carcinogen (Figure 2).

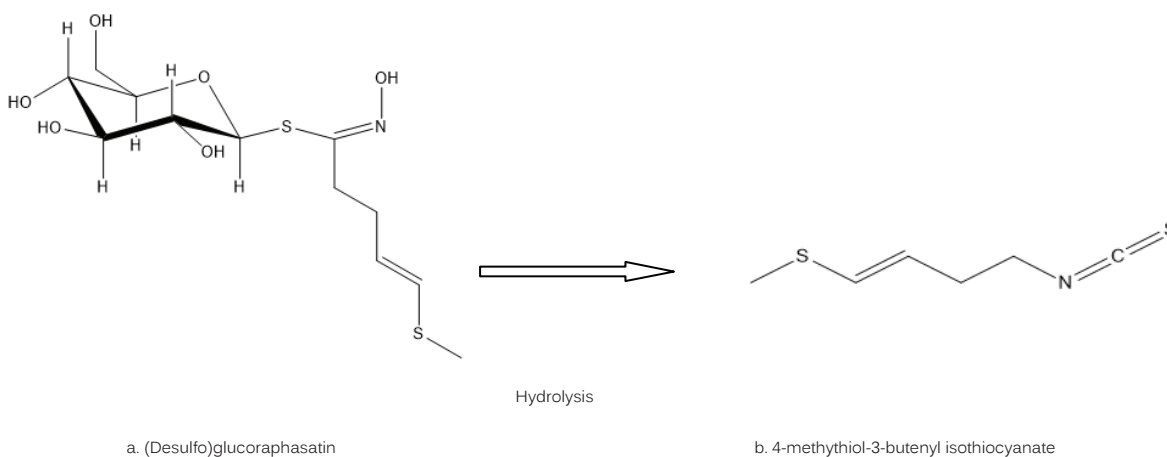


Figure 2. A. The chemical structure of glucoraphasatin, the glucosinolate mostly found in red and white radish. (B) This glucosinolate when hydrolyzed becomes 4-methylthiol-3-butenyl isothiocyanate (MTBITC), the anti-cancer compound of radish.

The team found this isothiocyanate pre-formed in higher concentrations in the juice and pulp of white radish than in the red radish variety. This may explain why lower concentrations of intact glucosinolate are found in white radish. Processing, such as grinding or homogenization, allows further enzymatic hydrolysis of glucoraphasatin and consequently increases the production of isothiocyanate.

Significant changes in glucosinolate content, myrosinase activity and the concentrations of *4-methylthio-3-butenyl isothiocyanate* were observed during various phases of processing. The effects of heating (e.g. boiling, steaming) on total glucosinolate content were variable and dependent on the variety of the radish, the form in which the tubers were processed, and the time of exposure. Changes during storage were also variable and dependent on the conditions to which the samples were exposed. Processing and storage decreased myrosinase activity. Moreover, the amounts were higher in the juice than in the pulp; and higher in samples that were cut into bigger portions prior to analysis than in those that were macerated or homogenized.

In general, heat can inactivate or degrade the enzyme myrosinase, and without this enzyme, the glucosinolate is not broken down into isothiocyanates. Glucosinolates were kept intact in radish tubers which had been boiled for up to 15 minutes or steamed for up to 10 minutes. The results of the study show that while denaturation of the enzyme due to heat inactivation was evident, it did not completely prevent the formation of ITCs. The integrity of the bioactive *4-methylthio-3-butenyl isothiocyanate* (MTBITC) was preserved in samples which had been boiled for 15 minutes or steamed for 10 minutes. Preliminary tests showed that white radish tubers prepared using a popular tamarind-based soup sinigang had glucoraphasatin content comparable to that of raw, unprocessed samples.

Radish commonly prepared as a pickled side dish is often more acceptable as food. The process involves the addition of salt, sugar and sometimes vinegar. Pickling degraded most glucosinolates in radish. The hydrolysis product, *4-methylthio-3-butenylisothiocyanate*, was unaffected by the addition of salt; but its concentration was seen to increase when sugar was added to the salted mixture. Vinegar was found to decrease MTBITC concentration. The isothiocyanate persisted even in prolonged storage of pickled radish.

Testing the anti-cancer property of *raphanus sativus* (radish) by Comet Assay

To determine if radish indeed has an anti-cancer property, the research team treated 3 cancer cell lines with the vegetable extract. The cell lines used were: MCF7 (breast cancer); HT29 (colon cancer); K562 (chronic myelogenous leukemia). One normal cell line from the pulmonary artery endothelial (PAE) cells served as control and was also treated with the extract. Damage to these cells was determined using the COMET Assay, also called the single cell gel electrophoresis (SCGE) assay.

The Comet assay is a simple yet sensitive test that measures DNA damage at the level of individual cells.¹⁶ It works on the principle that DNA (genetic material) in the cell is a negatively charged molecule that will normally migrate to the positively charged end of the gel. If the nucleus of the cell is undamaged, the DNA is supercoiled and it does not move fast when current is run through the gel. If the nucleus is damaged, meaning its DNA is fragmented, these broken pieces are free to move through the gel at a given period of time. This DNA movement elongates the nucleus which looks like a tail. The cells are stained with SYBR green, a

fluorescent dye that binds to DNA. When this dye is hit by ultra violet light (coming from an external source), it emits a green fluorescent light. When viewed under the microscope, undamaged nucleus will appear round while a damaged one would look like a comet. The longer the tail, the more fragmented or damaged the nucleus of the cell is. Comet-shaped cells with their fragmented DNA are

actually undergoing early stage of apoptosis (deliberate cell suicide or programmed cell death). This means that whatever substance triggered this event is genotoxic to the cell.

Figure 3 shows the various steps in Comet Assay.* Representative images of cancer cells treated with radish extract are presented in Figure 4.

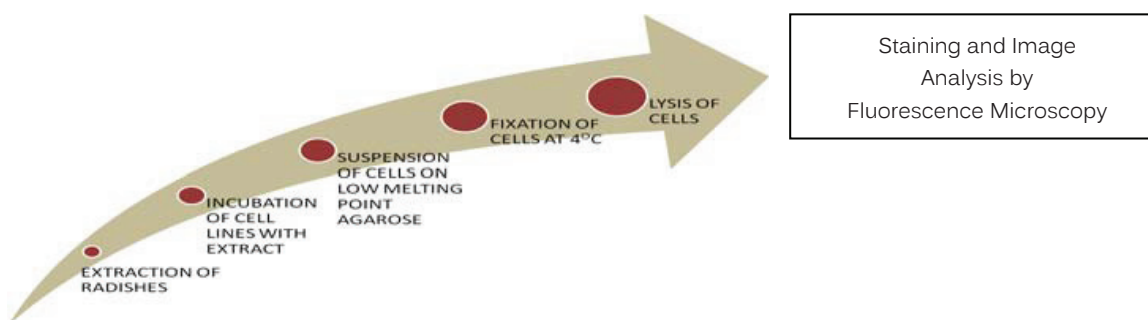


Figure 3. A summary of the Comet assay from vegetable extract preparation to image analysis

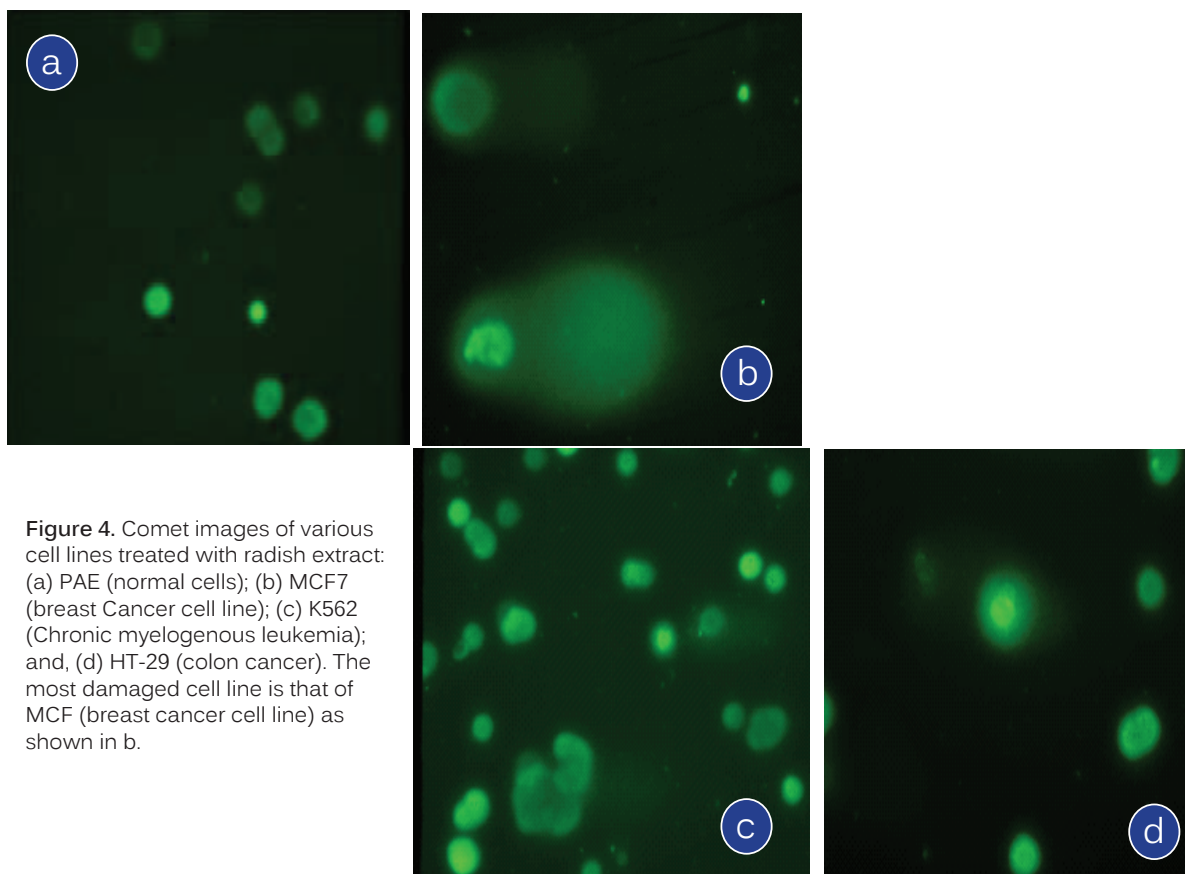


Figure 4. Comet images of various cell lines treated with radish extract: (a) PAE (normal cells); (b) MCF7 (breast Cancer cell line); (c) K562 (Chronic myelogenous leukemia); and, (d) HT-29 (colon cancer). The most damaged cell line is that of MCF (breast cancer cell line) as shown in b.

*Acknowledgment: The team would like to thank the Research & Biotechnology Division (RB) of St. Luke's Medical Center where the COMET Assay was conducted.

The results of the study show that radish juice and radish extracts induce cell death in cancer cells but leave the normal cells intact. They induce malignant cancer cells to undergo apoptosis or programmed cell death. Radish extracts were most active against breast cancer (MCF7) cell lines. They also exhibited toxicity against leukemia (K562) and colorectal cancer (HT29) cell lines. Furthermore, the extract from the white (native) radish was found to be more genotoxic than the red radish extract.

Extracts from radish tubers effectively induced apoptosis in breast cancer cell lines even in lower concentrations. This proves that the major anti-cancer (apoptotic-inducing) component of the vegetable is 4-methylthiol-3-butenyl isothiocyanate.

The study also reveals that the isothiocyanate produced from the degradation of glucosinolates from raw and processed radish could be responsible for the anti-cancer property of radish. More tests, however, can be done using different experimental materials (e.g. animals) to substantiate and verify the current findings.^{2,4}

Optimistic with the initial results of the study, the research team highly encourages the inclusion of radish in daily food consumption; and warns against overcooking the vegetable, which may result in the loss of its anti-cancer properties.

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DR. REUBEN V. QUIROGA

DR. GIL NONATO C. SANTOS

Professor Reuben V. Quiroga, a recognized Solid State physicist, is one of the country's top research scientists in the area of semiconductors, superconductors, conducting polymers, and just after his retirement, nanomaterials. He has been a leading innovator in growth techniques and characterization of new materials, and its possible applications. His deep theoretical mastery and elegant experimental insight have allowed him to make germinal contributions to a broad range of problems in computational, theoretical, and experimental interest in physics and chemistry. Among Reuben's outstanding contributions to the Physics Department is to make sure that all his colleagues obtain their PhD degrees either locally or abroad. He established the Solid State Physics Research Laboratory in order for all his Master's and PhD students to develop their analytical and experimental skills through a grant he obtained from the Department of Science and Technology (DOST). He strengthened ties internationally by collaborating with Osaka University's Kasai Laboratory, where he sent DLSU's top caliber Physics students to do international research in Computational Materials Design. Although now retired, Professor Quiroga remains a vital presence in the Physics Department of DLSU.



Prior to joining DLSU, Dr. Quiroga worked as a scientist at the National Institute of Science and Technology (now the Industrial Technology Development Institute), his first job after earning his Bachelor of Science in Physics from the University of San Carlos in Cebu City in 1970. He joined DLSU, then De La Salle College, in SY 1973-1974 as an Instructor at the Physics Department. He retired in December 2010 with the rank of Full Professor after 37 years of service.

A seasoned researcher in his department, his significant studies have revolved around his subjects of interests: IV-VI semiconductors, high-T_c superconductors, electrically-conducting polymers, terahertz spectroscopy, and nanomaterials. Dr. Quiroga has authored and co-authored articles that appeared in the *International Journal of Scientific and Engineering Research*, an open access peer-reviewed international forum for scientists and engineers; and in *Applied Physics Letters*, the weekly journal of the American Institute of Physics. He has likewise authored teaching modules on Mathematical Methods in Physics for PhD students of the distance-education program of the University of the Philippines Open University (UPOU). The modules were published by UP-OU OASIS, Diliman, Quezon City in 1997 and 1998.

Dr. Quiroga has a pending patent application for the horizontal vapor phase growth of

nanomaterials, a technique which he developed with the current DLSU Physics Department chairperson, Dr. Gil Nonato Santos and with Dr. Arnel Salvador, the former director of the National Institute of Physics of the University of the Philippines. The patent application was published in *e-Gazette Patents* in March 2011 by the Intellectual Property Office of the Philippines. Nanomaterials are tiny crystalline materials that are of the order of one-billionth of a meter in size in at least one dimension. They have a wide range of potential applications, such as the next generation computer chips, long-lasting medical implants, cancer cell detection, high sensitivity sensors, and environmental pollution control.

Dr. Quiroga has authored and co-authored papers which were presented at the 2009 National Physics Congress organized by the Samahang Pisika ng Pilipinas; the 2011 Science and Technology Congress; and the Osaka University-De LaSalle University Joint Academic Research Workshops (2008 to 2011), of which he was the workshop committee chair for many years. He played an important role in the evolution of the linkage between DLSU and Osaka University from a department-to-department tie-up in 2003 to a full blown university-to-university linkage in 2009. Some of the papers he co-authored with colleagues were also presented by the latter in international conferences.

Recognizing his expertise and specializations, Dr. Quiroga

has received grants from national and international bodies, including: a Japan Society for the Promotion of Science-Department of Science and Technology Bilateral Research Grant to undertake a DLSU-Osaka University joint project on *Hydrogen-hydrogenase/oxygen-hemoglobin/myoglobin reaction dynamics, functionality, their control and manipulation* (2007-2010); a Monbuscho Scholarship for Waseda University (1986-1987); a Department of Science and Technology Scholarship grant (1982-1987); and a British Council Fellowship to pursue a research on advanced semiconductor Physics at the Brunei University in London, United Kingdom (1981-1982). He was an exchange visitor at the Laser Research Center, Institute for Molecular Science in Okazaki, Japan (2005) and at the Kasai Laboratory of the Osaka University (2003); a participant in the Australian Universities' International Development Program (1990); and an exchange scientist at Tohoku University, Waseda University, and Sophia University (1999, 1997, 1993, 1987, and 1985). He was also a recipient of an Engineering and Science Education Program-Department of Science and Technology World Bank Equipment Grant (1993-1995). He was the holder of the Distinguished Ellen Francisco Fajardo Foundation Professorial Chair in Physics from 2000-2009.

Dr. Quiroga has held various positions during his 37 years in the University. He was chair of the Physics Department (1987-1993), editor-in-chief of the Journal of Science, Computing and Engineering (2007-2009), workshop committee chair of DLSU-Osaka University Joint Research Workshops (2004-2009); and head of the Solid State Physics Laboratory (1992-2010).

His professional involvements outside DLSU include serving as vice president of the Samahang Pisika ng Pilipinas (1996-

1997), and as a member of the Technical Panel for Materials Science, the Philippine Council for Advanced Science and Technology Research and Development of the Department of Science and Technology (2000-2008).

Dr. Quiroga considers the greatest challenge faced by any Christian who pursues a career in science to be that of trying to reconcile scientific knowledge with his faith. He says, "It took me some time to resolve the so-called conflict between science and religion. Science is religion. Religion is man's way of reaching God on his own terms by sheer self-effort. Science is man's way of explaining why the universe behaves the way it does, by the exercise of his five senses, within the realms of time and space. It cannot explain why the universe exists. Science seeks to discover the laws that govern the universe, but does not seek to discover who put those laws there and set them in motion. The laws of science are but approximate expressions of the truth. They are constantly changing. From time to time, newer discoveries make it necessary to amend or modify the 'laws' discovered by science. Some would have us believe that the universe happened by accident. I believe that the universe is an intelligent design, spoken into existence by the one true God, and that true science will never contradict the words of the Bible".

Dr. Quiroga earned both his Master of Science Physics (1979) and Ph.D. in Physics (1988) from the University of the Philippines in Diliman, Quezon City.



REMOTE SENSING INFORMATION FOR LIVING ENVIRONMENTS AND NATIONWIDE TOOLS (RESILIENT) FOR SENTINEL ECOSYSTEMS IN ARCHIPELAGIC SEAS (SEAS)

Dr. Wilfredo Y. Licuanan

The Remote Sensing Information for Living Environments and Nationwide Tools (RESILIENT) for Sentinel Ecosystems in Archipelagic Seas (SEAS) is a three-year research program on climate change in coastal zones. The program is funded by the Department of Science and Technology. Completed in 2012, the reef monitoring research system engaged the expertise of marine scientists from the Marine Science Institute of the University of the Philippines (UP) Diliman, UP Visayas, Bicol University, Xavier University, Mindanao State University-Naauan, and De La Salle University (DLSU).

This large-scale research involved over 20 local government organizations and agencies. DLSU's Br. Alfred Shields FSC Marine Station in Lian, Batangas was part of MIRROR (Monitoring and Impact Research on Resilience of Reefs) that observed and examined the reefs in six locations selected to represent different climate types. More than 20 RESILIENT SEAS studies related to climate change were presented at the 11th National Symposium on Marine Science convened by the Philippine Association of Marine Science.



Br. Alfred Shields FSC Marine Station.

The Br. Alfred Shields FSC Marine Station (SMS), formerly the DLSU Marine Biological Station, is a teaching and research facility of the College of Science intended to further research and extension activities in coastal areas. Located on a one-hectare parcel of land in Matuod, Lian, Batangas, the Marine Station has the following basic laboratory and field research equipment and facilities: a dry laboratory; a reference collection of common marine organisms; computers and various communication and video equipment; a small outrigger boat, SCUBA diving gear, tanks and a compressor; basic housing facilities for faculty and students, including a small kitchen and 10-bed dormitory rooms, and freshwater supply from a deep well; and a generator for emergency power.

Recent research and outreach activities conducted by the SMS include: monitoring of coral reefs in Tubbataha, Palawan; Bolinao, Pangasinan; Lian, Batangas; Sablayan, Mindoro Occidental, and the Island Garden City of Samal, and the completion of the advanced training of the first batch of Sea Scouts

Alarming Trends

Despite decades of cutting edge research, coral reef monitoring is still in its infancy in the Philippines.

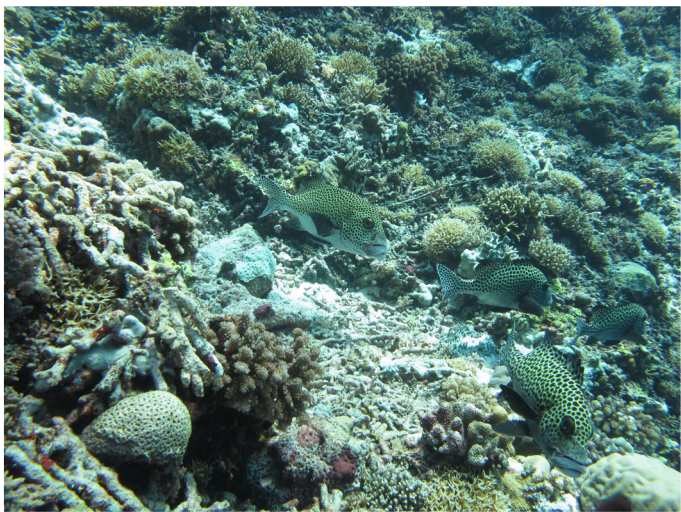
The year 2010 was marked by a cold phase or “La Niña” of yet another El Niño-Southern Oscillation (ENSO) cycle that began a year earlier. The ENSO cycle causes the inter-annual warming or cooling that occurs across the tropical Pacific Ocean. The cold phase actually caused abnormal warming of the waters around the Philippines from April to December 2010, staying the longest around the South China Sea/West Philippine Sea basin where temperatures in excess of 3° Celsius above normal were recorded.

When the sea water is 2 degrees warmer above normal and this temperature persists for one to two weeks, coral reef bleaching happens. In the Philippines, the temperature ranges from 25° C in March and February to about 29° C in the summer. The last time a long time temperature anomaly of this scale was observed was at the end of the 1997-1998 ENSO cycle, an event that was marked by widespread coral bleaching.

The two most monitored reefs in the Philippines are in Talim Bay near the Br. Alfred Shields Marine Station in Lian, Batangas and the Bolinao-Anda reef system in Pangasinan (the site of the UP-MSI Bolinao Marine Laboratory). In 2010, coral

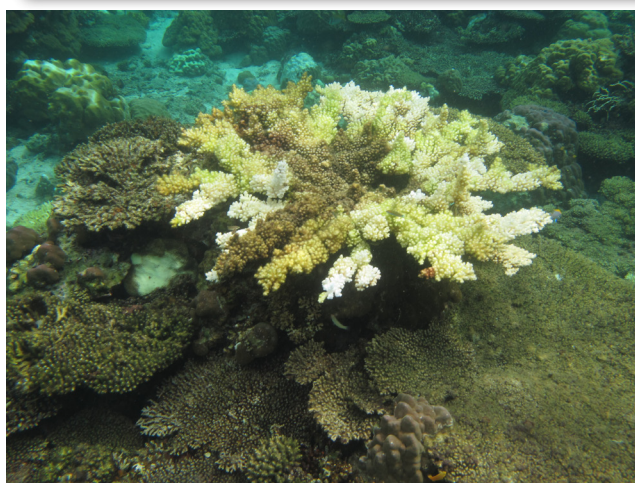
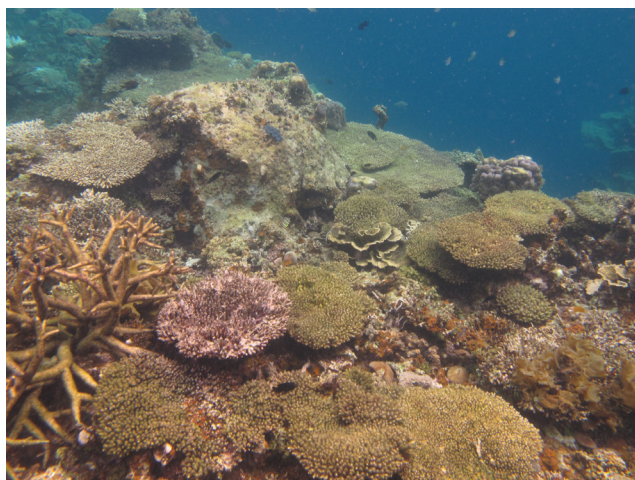
bleaching and its impact were most distinct in Talim Bay, Lian, Batangas, and in Cagaluyan Island in the Bolinao-Anda reef system in Pangasinan. Data on corals were collected from images taken with digital cameras. The fate of individual colorless corals was tracked, while growth, shrinkage or coral deaths were measured. It was an unprecedented insight into the causes and impact of bleaching and the future of Philippine reefs. It has painted a troubling picture of what is happening in Philippine waters. While the 1998 warming appears to have been the worst, the 2010 warming was even worse.

Data suggest that reefs in both Talim Bay and Bolinao-Anda are declining, but that coral reef bleaching is not necessarily the sole culprit. In Bolinao, few corals are left alive in the six sites monitored. The average coral reef cover as of April 2011 was 8.9 percent, compared to the 10.8 percent in May 2009 when monitoring started. The figure is way off the 30 percent to 50 percent observed in the 1970s. The corals in Lian fared better, with an average coral cover of 19 percent in April 2011. While this is two times higher than that of Bolinao, the loss of coral cover was more abrupt in Lian – a loss of 6 percent coral cover during the summer of 2010. This occurred before the bleaching in May of that year.



Marine scientists are trying to relate patterns in the life of the coral populations to events such as ocean warming and storm impacts. In Lian, all staghorn corals and brown stem corals, which are the most sensitive to ocean warming, were dead by the summer of 2010. The *Acropora*, is also the preferred food of the crown-of-thorns sea star. The relatively resistant *Porites* coral fared much better. Most of those alive in April 2011 were small fragments which could grow a few meters across. Unfortunately, they lose tissues and shrink during stressful conditions.

Based on the 2009 rate of decline, *Porites*, which is not as sensitive to coral bleaching as other corals, and is among the last to be attacked by the crown-of-thorns, should disappear from Bolinao-Anda area by 2019. It is disturbing that even this coral survivor, hich is a major coral builder and is the most common coral (along with *Acropora*) on the fringing reefs that surround the large islands



in the Philippines such as Luzon, Mindanao and Samar, will not likely last for long. Without *Porites*, the reefs in Bolinao-Anda will have lost an important framework builder.

While *Acropora* corals may have disappeared in Lian, these same corals make up the most abundant coral family in the Tubbataha Reefs, where it covers large portions of the reef slope. Like the coral reefs in Bolinao-Anda and Lian, those in Tubbataha experienced severe ocean warming with temperatures of above 29°C persisting for at least 246 days in 2010 (compared to 198 days in Lian and 217 days in Bolinao-Anda). The crown-of-thorn sea stars have also decimated some sections of the reefs.

Tubbataha, which is world renowned for its breathtaking corals and unique marine life, clearly shows that entire reef systems can thrive, despite challenges posed by ocean warming, coral bleaching, and even crown-of-thorns sea star outbreaks, provided that reef stresses are reduced. This requires fishing to be managed (banned in the case of Tubbataha), sedimentation and pollution controlled, and crown-of-thorns sea stars kept to a minimum.

Some Imperatives

The studies underscore the fact that to save the remaining reefs, it is imperative to begin reviewing current management and conservation efforts, and determine if existing protected marine parks are large enough and are in the right places. Even while these are determined, there is also a need to assess if they can function alone, or if there is a need to put a connected and coordinated network in place. The findings affirm how concerted action can save and is actually saving some of the best coral reefs of the country. Against this backdrop, the work of the marine scientists continues.

URBAN ROOFTOP HYDROPONICS FOR DIVERSIFIED AGRICULTURE: PILOT PROJECT

Dr. Jose Santos R. Carandang VI, Robert W. Taylor and Jose Mari S. Calleja



De La Salle Food Institute. The De La Salle Food Institute is a consortium between the Institut Polytechnique La Salle Beauvais and Lasallian institutions belonging to De La Salle Philippines for the purpose of education, research, innovation and transfer of technology in the different areas of study along the food supply chain. The Institute is guided by the Lasallian mission of generating and propagating new knowledge for human development and social transformation. It seeks to serve the food supply chain requirements of the Philippines in particular and Southeast Asia in general; take advantage of the Philippines being one of the platforms of education in the region; and use the French image in Food and Gastronomy.

The Philippines is rapidly urbanizing. By 2020, the percentage of the country's population living in urban areas is projected to increase to 73%, from a relatively low 39% in 1980. Much of this urbanization is taking place in the country's largest cities. Metro Manila, for example, is home to 12 million people, with a substantial portion living in densely populated communities with a large building stock. Traffic congestion, rising fuel prices, and poor road infrastructure, among others, have contributed to the problems associated with the transport of agricultural produce from rural areas to urban markets close to consumers. Increase in the rates of spoilage of perishable vegetables and transportation costs constitute food security issues that need to be addressed.

Recognizing these, the research team viewed Urban Rooftop Hydroponics for Diversified Agriculture as one possible way of addressing the issue on food security and consequently contribute to a reduction in the country's carbon footprint. Already, a number of cities worldwide are exploring this method. Singapore has calculated having 212 hectares of available building rooftops that are underutilized, but with the capacity to produce 39,000 tons of vegetables annually. Other cities like Montreal, Toronto and New York are exploring the potentials of urban rooftop agriculture as well.

Funded by the DLSU Angelo King Institute, this pilot project developed a hydroponics installation on the rooftop of St. Joseph Hall of DLSU in Manila to cultivate lettuce that the community can consume on site. Green wave and fanfare lettuce varieties were chosen because they are rapid-growing plants.



Project Highlights

- The project proved that achieving sustainable agriculture in open spaces of urban areas is feasible and that urban agriculture is doable. A hydroponics set-up was installed at the northern end of the rooftop of DLSU's St. Joseph Hall, which is 6 floors high. The set-up was installed in a vacant space exposed to the elements.
- To protect the plants from direct sunlight, heavy rainfall and strong winds, a shed was constructed, with steel pipes used as framework and nets wrapped around the whole structure to shield the materials from direct exposure to the elements. Three layers of nets were found to be capable of protecting the plants against gusty winds and very heavy rainfall without reducing too much the sunlight penetrating the shed. In view of the project team's apprehensions that the plants might be destroyed by strong winds and heavy rainfall caused by typhoons, waterproof canvass sheets were prepared to cover the roof side of the shed when needed. The entire set-up occupied 18.5 square meters and was made of lightweight materials so as not to provide additional weight stress on the building.

To minimize loss of water due to evaporation, a closed hydroponics system was devised with the use of PVC pipes. In this way, water bubbled and circulated for 1 hour every 6 hours using submersible pumps and aerators. The whole system was powered by a solar panel. The mini-weather station installed recently to monitor air temperature, and relative humidity, and predict rainfall was powered by rechargeable batteries. Thus, the environmental footprint of the entire set up was very minimal.

- The results of the experiment also affirm that agriculture practice will not compromise water security in urban areas. Urban agriculture is able to also address the large carbon footprint created with the transport of agricultural products from the farm to urban markets. The pilot project outcome indicates that 140 liters of nutrient solution (the initial volume needed to meet the required volume that can maintain complete circulation for the duration of the two-week experiment) is enough to support 50 lettuce plants to maturity, which is about two weeks after germination. On extremely warm and dry days, there may be the need to replenish the water that has evaporated. This notwithstanding, the nutrient solution is still able to grow a second batch of lettuce after two weeks, before more nutrient solution is added. Sterilized tap water has to be added however, to maintain the volume to 140 liters.

About 90 liters of nutrient solution is utilized to grow 100 plants using the rooftop hydroponics method. Average yield per harvest is 25 grams of green wave and 50 grams of fanfare. When 90 liters of nutrient solution is required to grow 2.5 kilograms and 5 kilograms of lettuce, respectively, around 4 liters of nutrient solution is needed by green wave and around 2 liters by fanfare to grow 1 kilogram of lettuce. According to Waterfootprint.org (2008), the global average water footprint of 1 kilogram of lettuce is equivalent to 130 liters. The water footprint using the DLSFI method is less than 1% of the global estimate, as shown in Table 1.

TABLE 1.
Reduction in water footprint of lettuce cultivation using
DLSFI method

Decrease in Lettuce Water Footprint (in liters of water)	
Global Footprint (Waterfootprint.org, 2008)	130
Green Wave variety (current study)	4
Fanfare Variety (current study)	2

To determine carbon reduction resulting from rooftop hydroponics, the amount of lettuce supplied to Metro Manila was determined. Through discussion with Dizon Farms, the primary provider of lettuce to major supermarkets in Metro Manila, it was revealed that 50% of the farm's lettuce is distributed to the consumers through major supermarkets, while the remaining 50% is distributed through local markets (open markets, sari-sari stores, etc.). Dizon Farms air freights 12 tons of lettuce in 3 flights per week from Cagayan de Oro, Mindanao, Philippines to Metro Manila for a distance of 786 kilometers. It is estimated that the amount of lettuce supplied annually to Metro Manila supermarkets is 624 tons, with another 624 tons supplied to the open markets and smaller stores, for a total of 1,248 tons of lettuce supplied annually to Metro Manila. The local markets receive their lettuce from diesel trucks that come from Benguet Province in Luzon, Philippines, a distance of 563.27 kilometers or a 6-hour trip due to poor infrastructure and traffic congestion.

Two calculations were made. The first was on the amount of carbon that could be reduced through lettuce production on rooftops in Metro Manila. This calculation is based on zero Food Miles that is associated with rooftop hydroponics. Food Miles is a term referring to the distance food is transported from the time of its production until it reaches the consumer.

Since rooftop food is produced and consumed on site, rooftop products have little or no carbon from Food Miles. Air freight Food Miles of lettuce, which is 50% of the lettuce market, was computed at 2.48 tons of CO₂ per ton of lettuce shipped to Metro Manila. This produces an annual emission of 1,545.95 tons of CO₂. Most of the remaining 50% of the lettuce market is transported through truckers from Benguet Province, and the corresponding Food Miles was calculated at 0.45 tons of CO₂ per ton of lettuce. The total amount of CO₂ from Food Miles for the annual delivery of lettuce to Metro Manila was calculated at 1,829.13 tons. This is the annual reduction in CO₂ if a transition is done from transporting lettuce from the provinces to on-site production and consumption of lettuce through rooftop hydroponics in Metro Manila.

A second consideration about carbon savings from rooftop hydroponics is the amount of carbon reduction realized through building cooling and the reduced need for air conditioning. While lettuce and micro greens sequester carbon in their leaves by as much as 40%, this study did not calculate the amount of sequestration that rooftop hydroponics would achieve. Studies of plant carbon sequestration generally emphasize soil-based carbon sequestration. Based on the research completed in New York City on green roofs, it was calculated that for every 96 square meters of rooftop vegetation, an equivalent 62.59 kilogram of carbon emission is reduced through better building systems efficiency. The amount of carbon emission that can be reduced in Metro Manila through building energy savings is calculated at 134.54 tons, assuming lettuce is grown on rooftops. This figure is based on the 1,248 tons of total amount of lettuce supplied to Metro Manila, and the formula of an

average of 100 tons of lettuce capable of being grown on 15,000 square meters of rooftop space. This translates to 187,200 square meters of rooftop space needed to fill the current demand for lettuce in Metro Manila.

TABLE 2.

Reduction in CO₂ from Lettuce Supply to Metro Manila through shifting from traditional transported lettuce to on-site growing via rooftop hydroponics

Source	COs Savings (in Tons)
Food Miles from Air Freight	1,544.95
Food Miles from Truck Freight	283.18
Energy Building Efficiency of Green Roofs	134.54
Total CO2 Reduction in Lettuce Hydroponics	1,962.67

- The pilot study also determined the comparative costs of urban hydroponics production based on the model of on-site production and consumption and the price of lettuce purchased from markets.

The average national wholesale prices of lettuce has more than tripled from its 1990 level of PhP 12 per kilo to its 2010 level of PhP 43 per kilo in Metro Manila. Prices in Metro Manila were higher only by PhP 2 in 1990, compared to current prices which are higher by PhP 10. The retail prices are, however, much higher. Currently, there are only four lettuce markets found in major urban centers; these are in Manila, Cebu, Iloilo City, and Cagayan de Oro City. Two of the more popular varieties are Iceberg and Romaine. Locally grown Iceberg lettuces can be sold on retail for as low as PhP 75 per kilo, while the imported variety Romaine can be sold at PhP80 per kilo. Hydroponically grown lettuce by RFM Hydroponics in Parañaque City is sold at

PhP 30 per pot. Based on the results of the study, a pot of hydroponically grown lettuce contains around 25 to 50 grams of leaves; if lettuce is to be sold at PhP 30 per pot, then the price of lettuce per kilogram can be as high as PhP 600.

Including the cost of electricity for sterilizing water used to prepare the nutrient solution, the total cost of materials per 100 plants is less than PhP 500 or around PhP 100 per kilogram. If the lettuce produced through rooftop hydroponics is sold at PhP 30 per pot, this will yield earnings of PhP 3,000 per harvest, translated into a profit of PhP 2,500. If the cost of the entire set-up, which is PhP 100,000 is to be recovered and considering that one-cycle of germination and growth takes a month, then at least a period of 40 months or 3.3 years is needed. The major profit to the country, however, is the reduction in the ecological footprint resulting from the rooftop hydroponic method.

Conclusion

The results of this pilot study clearly show that urban farming in open areas such as rooftops is not only feasible but also productive. The germination and growing period is shorter, the yield is higher, and the set-up can be designed in such a way that ecological footprints produced from traditional methods can be drastically reduced, because the agricultural produce need not be transported. The rooftop hydroponics method is also more energy efficient because it can use alternative sources of power such as solar powered pumps and aerators. Water conservation is also enhanced by this method.

Rooftop hydroponics stands as a viable solution to the food security problem as well as in addressing the need to reduce the country's contribution to carbon footprints.

UNIVERSITY RESEARCH COORDINATION OFFICE

As part from providing quality education to Filipino youth and engaging in activities to improve the quality of life among its partner communities and institutions, DLSU has made a significant impact on society through its various basic, applied, participatory and action researches for close to five decades. In marking new milestones as it journeys toward its next hundred years, the University has revisited and revised its Vision-Mission to further emphasize its *raison d'être* and competently address challenges posed by fast evolving needs and issues that have defined Philippine society in recent years.

Major Highlights

The academic year kicked off with activities to mark the year-long celebration of DLSU's Centennial Year. The output of several researches heralding the history and contributions of DLSU and the Brothers of the Christian Schools in the Philippines were published, some of which were launched by the Academic Publications Office during the Centennial Year, while a significant number were scheduled for launching by the first term of AY 2012-2013.

Also among the highlights of the academic year was the creation of the Office of Vice Chancellor for Research (VCR) which initiated the identification of a new research agenda for DLSU. Among the research topics identified for the academic year for which the University has allocated a significant amount of resources were: food, nutrition and health; sustainability, environment and energy; women, children and family; living culture and contemporary societies; and learners and learning innovations. And as



envisioned, faculty research activities in DLSU have been significantly vibrant this academic year, with the University Research Coordination Office (URCO) continually providing valuable support to DLSU's Vision-Mission of becoming "a leading learner-centered research university, bridging Faith and scholarship in the service of society, especially the poor". The establishment of the Office of the VCR gave the research core function a big boost and URCO was handed a fresh mandate to pursue a more aggressive campaign for high-impact and path-breaking research. Through the Office of the VCR and URCO, the University continued its pursuit of research that seeks alternative and viable solutions to social and environmental concerns that have defined the decade.

Another milestone this Centennial Year was the launching of the Challenge Grants, a program that offers faculty members from diverse research backgrounds a venue to work together, not limited to their respective disciplines, to achieve more innovative and more practicable solutions that address the earlier identified research topics. Collaborative projects under this program are intended to increase the chances for DLSU researchers to engage in high-impact research by assisting them to have greater access to the required external funding. Through the URCO, a call was issued for research proposals that would affirm the University's support for projects that secure positive, meaningful, lasting and inclusive growth in society and contribute to nation building. The selected proposals were to receive a maximum budget of one million pesos each. Eight Challenge Grant projects were approved with a total funding of P7,780,000. These Challenge Grant projects focused on the following topics: e-learning for public basic education; the empowerment of local communities through e-participation; the investigation of the emotions of Filipino learners; Air and Weather Observation System in the DLSP

schools for sustainable development; the development of an unmanned aerial vehicle-assisted imaging and monitoring system for algal blooms; the engagement of La Salle Schools in the identification, conservation and propagation of Philippine plant species that indicate the presence of heavy metals in soil environment; threats and opportunities from invasive Suckermouth Armoured Catfishes; and the determination and characterization of anti-cancer properties of metabolites from vegetables, fruits and mushrooms in the Philippines.

And because research is a vital tool in educating students, efforts were also made to sustain interdisciplinary research in order to further nurture a community of scholars and learners in producing and generating knowledge that can help society solve its most relevant and pressing problems.

Thus, the Research Program Workshops (RPWs) were launched. Intended to boost DLSU's research thrusts, funds were provided by the University through the URCO for the holding of RPWs in the different colleges and school. The RPWs further support the University's mission of serving as a leading resource in the fields of natural, social, and human sciences; and seek to enhance collaboration among faculty and graduate students in DLSU's research priority areas.

Starting in June 2011, the URCO provided assistance to different academic core groups and departments in the conduct of their respective RPWs. Of the eight RPWs held within the academic year, seven were completed, while one is on extension to work on crafting proposals for possible funding by external agencies. The seven completed RPWs generated 37 project proposals. As of February 2012, four of the 37 RPW proposals received an estimated total external funding of PhP2,755,161.00: PhP300,000 from the Department of Science and Technology (DOST) and the National Research Council of the Philippines; and PhP2,455,161.00 from

the Filipino French Scientific Cooperation Program (FFSCP). The funding from the FFSCP will cover the travel expenses for three of the four RPW projects. Meanwhile, ten of the 37 RPW proposals were funded from internal sources: three proposals received a total of PhP2,999,278.00 from the DLSU Challenge Grants; four proposals received a total of PhP4,000,000.00 from the Angelo King Institute; two proposals were given a total of PhP495,500.00 by the URCO; and one proposal received PhP115,300.00 from the New Ph.D. Grant. Three of these ten RPW projects were completed within the academic year. The remaining 23 of the 37 RPW proposals are either awaiting approval of grants from external sources, or are still in the process of revision to conform to the requirements of their prospective funding agencies.

Another major highlight for the academic year had to do with further professionalizing the research exercise by providing clear parameters for the conduct of research in the university. On August 23, 2011 the University Research Council (URC)

approved, the Code of Research Ethics and Guide to Responsible Conduct of Research. The document was disseminated to the academic community by the 2nd term of AY 2011-2012. Pilot-testing of the document started in the 3rd term of AY 2011-2012 and will run until the 3rd term of AY 2012-2013. During this period, necessary revisions and amendments shall be incorporated. Starting on AY 2013-2014, however, revisions/ amendments to the Code shall be done every two years.

This academic year also saw the establishment of the De La Salle Food Institute, a consortium between the Institut Polytechnique La Salle Beauvais and Lasallian institutions belonging to De La Salle Philippines for the purpose of education, research, innovation and transfer of technology in the different areas of study along the food supply chain.

Continuing Tasks

The URCO continued to administer the Faculty Research Program (FRP), Special Project Grants (SPG), and Interdisciplinary Research (IR). The SPG offers additional incentives to faculty in the form of a St. Miguel Febres Cordero Research Award, New PhD Grants, Thesis/Dissertation Projects, or Sabbatical Leave Project grants. The research coordination office also continued to monitor and coordinate externally-funded projects undertaken by the different colleges and school, as well as other University-commissioned researches.

Faithful to its mandate, the URCO was at the helm of the University's effort to sustain research productivity in order to generate new knowledge and broaden the knowledge base. Recognizing that research findings are meaningless unless they are shared with and communicated to their various stakeholders, the URCO provided venues for disseminating research results in forums/symposiums/



lectures/roundtable discussions attended by University faculty and representatives of relevant private and government institutions and sectors. During the academic year, the URCO hosted the following forums, led by the respective faculty members

- Research and scientific frontiers in higher education (Dr. Carlo P. Magno, July 6, 2011);
- Vehicle energy and emissions instantaneous modeling and its applications in vehicle design, technology evaluation, and policy development (Dr. Jose Bienvenido M. Biona, July 18, 2011);
- Kalusugang Pampubliko sa Kolonyal na Maynila (1898 – 1918): Heograpiya, Medisina, at Kasaysayan (Dr. Ronald B. Mactal, August 16, 2011);
- Global Production Networks and Local Support Structures in the Philippine Electronics Industry (Dr. Myrna S. Austria, September 14, 2011); and,
- Lecture of Engr. Laurence A. Gan Lim, the recipient of the 2011 National Academy of Science and Technology Outstanding Scientific Paper Award for his paper “Analysis of Colonic Histopathological Images Using Pixel Intensities and Hough Transform” (September 21, 2011).

The URCO also organized the following symposiums/lectures on Interdisciplinary Research Projects:

- Developing Natural Language Processing Application for eLegislation
 - Dr. Rachel Edita O. Roxas, Project Coordinator; Charibeth Cheng,

Sherwin Ona, and Allan Borra, Members (August 19, 2011);

- Testing the Invariance of Dualistic Model of Passion for Group and Individual Sports
 - Dr. Carlo Magno, Project Coordinator; Dr. Elizabeth Mascardo and Janet Mariano, Members (December 7, 2011);
- Color-Based Global Algorithm for Dynamic Object Recognition
 - Dr. Elmer Dadios, Project Coordinator; Edwin Sybingco, Laurence Gan Lim, Members; Dr. Noel Gunay, Co-author (September 21, 2011);
- A Bi-level Input-Output Model for Optimal Bioenergy Production and Trade in a Two-region System with External Costs
 - Dr. Raymond Tan, Project Coordinator; Rachel Reyes and Bryan Gobaco, Members (March 28, 2012); and,
- Characterization of Coal Ash from a Typical Coal Fired CFB Power Plant in the Philippines
 - Dr. Susan Gallardo, Project Coordinator; Dr. Marin Ernesto Kalaw, Dr. Jonathan Dungca, and Engr. Ronaldo Gallardo, Members (April 16, 2012).

As part of the celebration of University Mission Statement Week 2012, the URCO organized a series of symposiums on environmental research. These aimed to further raise the DLSU community's awareness of the research endeavors of faculty and how these can effectively address current social and environmental problems and issues. These gatherings also hoped to initiate more focused discussions among community members and concerned

groups and organizations on contemporary environmental sustainability issues. Among the topics featured during these symposiums were the following, led by the respective faculty members:

- De La Salle University: Sewerage and Sanitation System Status (Dr. Pag-asa Gaspillo, February 13, 2012);
- Environmental Sustainability: Forecasting Sustainable and Healthy Marine Life and Resources for the Community (Dr. Wilfredo Licuanan and Dr. Carmen Lagman, February 16, 2012);
- Environment Impact Assessment: How Can We Address the Ever Increasing Environmental Constraints (Dr. Edgar Vallar, Dr. Susan Gallardo, Dr. Jose Santos Carandang VI, February 16, 2012); and,
- Sustainable Energy: Achieving the Promise of Renewable Energy (Dr. Alvin Culaba, Dr. Luis Razon, and Dr. Raymond Tan, February 16, 2012).

The URCO continued to help DLSU's faculty researchers further hone their skills and raise the quality of their written works. During AY 2011-2013, 20 Manuscript Writing Sessions were organized and coordinated by the office to enable research writers to meet with faculty readers who are experts in their fields to discuss strategies and tips on the preparation of manuscripts for publication. One of the manuscripts critiqued during the session, "Degradation of Polychlorinated Biphenyls in Aqueous Solutions after UV-Peroxide Treatment: focus on Toxicity of Effluent to Primary Producers" by Dennis Yu of the Chemical Engineering Department, was published by Elsevier in the *Ecotoxicological and Environmental Safety* journal); while another, "Numerical Validation of a Savonius Wind Turbine" by Aristotle Ubando of the Mechanical Engineering Department, was

submitted for publication in *Renewable Energy Journal*.

Three research proposal writing workshops were likewise held within the academic year. In addition, a forum, "Publication in High Impact Journals in the Social Sciences", and a roundtable discussion on the same topic were hosted, with faculty members of the University, many of whose works have been published, serving as resource speakers.

Using the Google Citations Gadget, the Office of the VCR determined the number of times the works of DLSU's faculty was referenced locally and abroad in scholarly publications. As of February 2012, significantly impressive figures were noted. Among DLSU's colleges and schools, the School of Economics emerged as the academic unit with the highest number of full-time faculty members cited in scholarly publications. Meanwhile, the Gokongwei College of Engineering emerged with the highest number of cited publications (251) and of citations (4215), and the highest total H-index (115). These figures measure "both the productivity and impact of the published work of a scientist or scholar" and is "based on the set of the scientist's most cited papers and the number of citations that they received in other publications" ("h-index" in *Wikipedia*, September 28, 2013).

Faculty Involvement – For AY 2011-2012, 24.7% (or 268 teaching and academic service faculty members out of an average of 1,085* for the AY) were actively involved in URCO-managed internally-funded (IFR), Interdisciplinary Research (IR) projects, and externally-funded projects housed in the different colleges.

New Projects – Seventy-eight proposals were approved in AY 2011-2012. These proposals are broken down into projects under the Faculty Research Program – 47; Special Project Grants (SPG) – 11, Interdisciplinary Research Grants – 12; and

Research Program Workshops - 8. The SPG projects can be further classified into New Ph.D. Grants – 8, and Thesis & Dissertation Grants – 3.

The total approved budget for these 78 project proposals amounted to PhP11,082,183.20, drawn from the following sources: URCO – P2,922,807.70; New Ph.D. Grant – P798,000.00; DLSU Science Foundation – P904,883.50; College Research Fund – P144,008.00; Vice Chancellor for Research Jump Start Funds – P600,000.00; Interdisciplinary Research Program – P3,291,384.00; and, Research Program Workshop budget – P1,600,000.00.

Meanwhile, 74 new externally-funded projects for the academic year received an estimated total grant of P29,492,926.00 (in various denominations). The funding sources of these new projects are: Asia Science and Education for Economics Development Institute (Asia-SEED); ASEAN University Network/Southeast Asia Engineering Education Development Network (AUN/SEED-Net)/Japan International Cooperation Agency; Australian Agency for International Development; Caucus of Development NGO Networks (CODE-NGO); Center for Disaster

Risk Policy of Florida State University; Commission on Higher Education; Conservation International Foundation; Department of Science and Technology (DOST)-Philippine Council for Industry and Energy Research and Development; DOST-Philippine Council for Health Research and Development; Economic Research Institute for ASEAN and East Asia; Engineering Research and Development for Technology, International Development Research Centre; Metro Manila Health Research and Development Consortium/Philippine Council for Health Research and Development; Nokia; Overseas Development Institute; and, Philippine Institute for Development Studies.

Completed Projects – A total of 77 projects were completed during AY 2011-2012: 57 were internally-funded under URCO; 19 were externally-funded; and, one was a University-commissioned research monitored by URCO. Plotted along the research topics and priorities for this academic year, the 76 completed URCO- and externally funded projects can be classified as follows: Sustainability, the Environment, and Energy - 24; Living Culture and Contemporary Societies - 26; Learners and Learning Innovations – 15;



Food, Nutrition and Health - 7; and, Women, Children and Family – 4.

Continuing and Ongoing Projects.

Apart from the newly-approved and completed projects for the AY, the URCO continued to manage 166 internally-funded, and 42 externally-funded projects. The URCO also managed commissioned researches under the Cleaner and Greener Community Research Program – 3, and under the Youth & Poverty Research Project – 1. The three projects under the Cleaner and Greener Community Research Program, with a grant of P100,000.00 each were: “Plant Culture of DLSU: The Greening of a University Community”; “Social Preparation in Setting-up an MRF in the Campus”; and “A Sustainable Approach to Wind Power: Green SWING (Savonius WIND Generator)”. Meanwhile, the “Youth & Poverty Research Project” received a total grant of P1,993,895.01.

Culminating Activities

To cap its AY 2011-2012 activities, the URCO held the Annual Faculty Research Recognition Program where 131 faculty members with completed research projects for the period March 16, 2011 to March 31, 2012 were honored. In addressing the honorees, Dr. Arnulfo Azcarraga, the vice-chancellor for Research described DLSU as an “intense” and a “slow but sure” research university for the following reasons: it is fast-paced because of its trimestral calendar that is designed to prepare its students for the rigors and exigencies of modern work environments; its four-year Honors program for academic achievers; its Straight Master’s program for the students who manifest potentials to excel in their field; and its cutting-edge research, which in selected disciplines, is at par with the best in the world. In light of these, Dr. Azcarraga concluded with a challenge to the faculty to continue to nurture and institutionalize a Lasallian research culture in the University that can impact on society.

Prospects for 2012-2013

The groundwork for collaborative inter- and multi-disciplinal teams has already been laid down. Greater involvement of graduate students in research activities has already been initiated. What remains to be done is to fully harness the potentials of these initiatives to effectively and fully address the challenges and issues that inevitably and strongly define the present decade. These challenges and the evolving demands of the times, as well as the envisioned imperatives of the future, will require a constant revisiting and redefining of the research topics and priorities in order to adjust or redirect the focus of DLSU research and scholarly activities to make them always socially relevant and responsive to the needs of national, regional, and global communities.

The University will continue to exert effort to encourage its partners in industry, government and non-government entities to increasingly tap University research expertise and help bring about the desired social transformation that the country most urgently needs. DLSU is poised for another major change in the next academic year, when it formally establishes the DLSU Science and Technology Complex (STC). The Complex is envisioned to serve as a key resource for the development of science and technology in the country as it underscores the Lasallian tradition that integrates faith and service through knowledge generation.

Finally, efforts will be made to benchmark DLSU’s research with those of other high performing colleges and universities to raise the bar further in terms of quality and relevance of output. The URCO will endeavor to continue monitoring the usability of DLSU’s researches and their contribution to social transformation, regional development plans and initiatives and the national development agenda.

LIST OF COMPLETED URCO-MANAGED INTERNALLY AND EXTERNALLY FUNDED PROJECTS

INTERNALLY FUNDED PROJECTS, AY 2011-2012

PROPONENT/DEPARTMENT	PROJECT TITLE/NO.
FACULTY RESEARCH PROGRAM	
Jasper Vincent Alontaga <i>Educational Leadership and Management</i>	Technology Acceptance of Philippine Early Childhood Teachers 23 F U 2 10
Rumel Atienza <i>Industrial Engineering</i>	MANAGEN 3 (Chapters 4,5 & 6) 17 M U 2 09
Wilheliza Baraoidan <i>Chemical Engineering</i>	Manganese Removal from Domestic Water Supply via Chemical Treatment 02 F U 1 08
Allan B. I. Bernardo <i>Counseling and Educational Psychology</i>	Applying Linguistic Categories Model to Studying Implicit Theories of Intelligence among Filipino Learners 27 F U 3 09
Edwin Calilung <i>Mechanical Engineering</i>	Research and Development of a 10 KW Microhydropower Turbine Testing Center 46 F U/C 3 06
Drexel Camacho <i>Chemistry</i>	Solid Type Electrolyte System Containing Polysaccharide for Dye-sensitized Solar Cell 06 F U/S 1 09
Jazmin Chong Tangsoc <i>Industrial Engineering</i>	Materials Development Project for Health Care Management Part 1 06 M U 1 11
Alvin Chua <i>Mechanical Engineering</i>	Vision Based Mobile Robot 26 F U/S 2 10
Eppie Clark <i>Industrial Engineering</i>	A Study to Determine the Factors that Contribute to the Secondary School Students' Choice of an Undergraduate Program 19 F U 2 09
Lawrence Dacuycuy <i>Economics</i>	Covariate Contributions to Wage Inequality: Counterfactual Extensions and Nonparametric Inference 01 F U 1 10
Feorillo A. Demeterio III <i>Filipino</i>	Ang mga Ideolohiyang Politikal na Nakapaloob sa mga Piling Dokumentong CBCP mula sa Limang Panahon ng Kontemporaryong Eklesiyastiko-Politikal na Kasaysayan ng Pilipinas 12 F U 1 10
Alicia Estrellado <i>Counseling and Educational Psychology</i>	Factors Associated with Filipino Battered Women's Decision to Stay or Leave an Abusive Relationship 28 F U 3 09

PROPONENT/DEPARTMENT	PROJECT TITLE/NO.
Alexis Fillone and Maricel Paringit <i>Civil Engineering</i>	The Use of Remote Sensing and Geographic Information Systems for Parking Inventory Study 29 F U 2 07
Susan Gallardo <i>Chemical Engineering</i>	Novel Natural Water Filters for Nagcarlan, Philippines Phase I: Assessment of Water Quality in Nagcarlan/Preparation and Characterization of ITDI-AC Adsorption of Heavy Metals and Pesticides 07 F U 1 10
Alma Maria Jennifer Gutierrez <i>Industrial Engineering</i>	Overview of Health and Safety 18 M U 1 10
Richard Li <i>Industrial Engineering</i>	Prioritization of Performance Measurement Factors of Quick Service Restaurants in the Philippines Using Analytic Hierarchy Process (AHP) 35 F U 3 09
Rochelle Irene Lucas and Edna Miraflores <i>English and Applied Linguistics</i>	English Language Learning Anxiety Among Foreign Language Learners in the Philippines 30 F U 3 09
Carla Manzano, Enrique Manzano and Susan Fontanilla <i>Physics/Electronics and Communications Engineering</i>	Fundamental Physics Laboratory Manual 54 MD U 3 1999-2000
Teddy Monroy <i>Chemical Engineering</i>	The Performance of Nickel Based Catalysts on Various Support Materials in the Low Temperature Dry Reforming of Methane 26 F U/S 2 06
Ronaldo Polancos <i>Industrial Engineering</i>	A Business Process and Simulation Model for Insurance Claim Operations 18 F U 2 09
Consolacion Ragasa <i>Chemistry</i>	Isolation, Structure Elucidation and Bioassay of Secondary Metabolites from <i>Barringtonia asiatica</i> 15 F S 1 10
Consolacion Ragasa <i>Chemistry</i>	Isolation, Structure Elucidation, and Bioactivities of Secondary Metabolites from Three Philippine Medicinal Plants 08 F U/S 1 11
Nancy Rayos, Fe Nenuca Canlas and Jerome Ouano <i>Counseling and Educational Psychology</i>	Motivations, Expectations and conceptions on Basis Schooling of an Under-Resourced community in Bagac, Bataan. Basis for Proposed Self-sustaining Educational Institution 18 F U/C 2 07
Luis Razon <i>Chemical Engineering</i>	Life Cycle Assessment of the Energy Usage and Greenhouse Gas Emissions Associated with the Production of Anhydrous Ammonia from Photosynthetic Diazotropic 25 F U/C/S 2 10
Andrea Santiago <i>Management and Organization</i>	Local Family Businesses Revisited 33 F U 2 05
Gil Nonato Santos <i>Physics</i>	Synthesis and Characterization of Gold Nanomaterials Grown via Horizontal Vapor Phase Growth Technique for Biosensing Applications 42 F U/S 3 09

PROPONENT/DEPARTMENT	PROJECT TITLE/NO.
Rosemary Seva <i>Industrial Engineering</i>	Learning Materials for Product Design 11 M U 1 10
Anna Bella Siriban-Manalang <i>Industrial Engineering</i>	Material Development LEAN Manufacturing IEN532M 09 M U 1 10
Shirley Tiong-Palisoc <i>Physics</i>	Synthesis and Characterization of Spin Coated Yttria Stabilized Zirconia for Fuel Cell Applications 45 F U/S 3 10
Rhia Trogo <i>Software Technology</i>	Corpus of User's Activities, Physiological Signals and Music Preference 05 F U 1 10 (FRP-external project)
THESIS & DISSERTATION GRANT	
Niño Jose Mateo <i>Counseling and Educational Psychology</i>	Towards Building a Filipino Counselor Development Model 24 D U 2 10
Homer Yabut <i>Psychology</i>	Spiritual Meaning-Making ,Hardiness, and Hope as Mediators of the Effect of Stress on Coping 13 D U 1 10
NEW PH.D. GRANT	
Efren Abueg <i>Filipino</i>	Tandang-Bato: Mga Manunulat sa Aking Panahon [original title: Mga Haligi ng Panitikang Tagalog: Kasaysayang Oral at Riserts sa Buhay ng 15 Pangunahing Yumaong Manunulat] 11 RP (New Ph.D.) 1T SY2001-2002
Charmaine Misalucha <i>International Studies</i>	Language Games Nations Play in Multilateral and Bilateral Platforms: Southeast Asia and the United States 23 N 2 09
SABBATICAL LEAVE PROJECT	
Ermys Bornilla <i>Physics</i>	Minkowski Space Formulation of Modified Newtonian Dynamics (MoND) 37 S U 2 06
Esperanza Cabrera <i>Biology</i>	Incidence of Panton Valentine Leukocidin Gene Among Methicillin Resistant Staphylococcus Aureus from Skin Lesions of Inmates of the National Bilibid Prison and the Manila City Jail 16 S U/SF 3 06
Remedios de Dios Bulos <i>Software Technology</i>	A Data Mining Approach to Adaptive Co-evolution 68 S U 3 06
Susan Gallardo <i>Chemical Engineering</i>	Adsorption Study of Common Volatile Organic Compounds on Pretreated Activated Carbons and Metal Oxide Supported on Activated Carbon 45 S C 3 04
Martin Ilao <i>Chemistry</i>	Gaussian Ab Initio Calculations of Strained Molecules: Molecular Properties Using High Level Theory with Electron Correlations 58 S U 3 06
Alexis Pantola <i>Computer Technology</i>	Ethical Hacking Textbook 03 S U 1 06

PROPONENT/DEPARTMENT	PROJECT TITLE/NO.
Glenn Sipin <i>Information Technology</i>	A Look at the Outsourcing Relationship Between Philippine Software Firms and Their Clients 12 S U 1 08
GENERAL EDUCATION MODULES FOR TRANSFORMATIVE LEARNING	
Warlito Borja and Christian Voltaire Metin <i>Theology and Religious Education</i>	The Christian and the Word 33 GE C 3 05
Ernesto Carandang II, Ramilito Correa and Lakangiting Garcia <i>Filipino</i>	Mga Modyul para sa Wika at Kultura (WIKAKUL) 05 GE C 2 05
Elenita dLR. Garcia <i>Philosophy</i>	Integrative-thematic Social Science Course Module for Globalization and Culture 42 GE C 1 07
Cris Barbra Pe and Anne Frances Sangil <i>Literature</i>	Preparation of Teaching Materials for a Course in HUMAART 36 GE C 1 06
RESEARCH FACULTY GRANT	
Ma. Elena C. Javier <i>Behavioral Sciences</i>	Devolving Resource Management to Forest Users: Emergence and Transformation of Local Organizations in the Philippine Uplands 52 (RFG) 3T SY2004-2005
INTERDISCIPLINARY RESEARCH	
Elmer Dadios, <i>Manufacturing Engineering</i> Project Coordinator Project Team Members: Edwin Sybingco, <i>Electronics and Communications Engineering</i> Laurence Gan Lim, <i>Mechanical Engineering</i>	Color-based Global Vision Algorithm for Dynamic Object Recognition 02 IR 2 09
Susan Gallardo, <i>Chemical Engineering</i> Project Coordinator Project Team Members: Martin Ernesto Kalaw, <i>Mechanical Engineering</i> Jonathan Dungca, <i>Civil Engineering</i> Ronaldo Gallardo, <i>Civil Engineering</i>	Sustainability Issues Due to Coal Ash from Coal Fired Power Plants in the Philippines Phase I: Impact Assessment of Coal Ash Dumping in a Typical Power Generating Facility 07 IR S 2 10
Rachel Editia Roxas, <i>Software Technology</i> Project Coordinator Project Team Members: Charibeth Cheng, <i>Computer Technology</i> Sherwin Ona, <i>Information Technology</i> Allan Borra, <i>Software Technology</i>	Developing Natural Language Processing Application for eLegislation 03 IR 3 09

PROPONENT/DEPARTMENT	PROJECT TITLE/NO.
Raymond Girard Tan, <i>Chemical Engineering</i> Project Coordinator Project Team Members: Rachel Reyes, <i>Economics</i> Bryan Gobaco, <i>Industrial Engineering</i>	Development of Model for Optimal Biofuel Trade Using Static Stackelberg Game Framework 04 IR 3 09
RESEARCH PROGRAM WORKSHOPS	
Jose Santos Carandang VI Marissa Noel Rechel Arcilla Gil Nonato Santos <i>College of Science</i>	Creating a Food Research Agenda for the College of Science 07 RPW AY 11-12
Lawrence Dacuycuy Cesar Rufino Kristine Joy Carpio Marvin Castell <i>School of Economics</i>	A Primer on the Formulation and Estimation of Real Business Cycle and Dynamic Stochastic General Equilibrium (DSGE) Models 02 RPW AY 11-12
Jose Manuel Diokno Rosario Olivas – Gallo Auxencia Limjap <i>College of Law</i>	The Various Methods of Legal Education in Philippine Law Schools 08 RPW AY 11-12
Shirley Dita Carlo Magno Elizabeth Mascardo <i>College of Education</i>	Investigating the Philippine Public Educational System 05 RPW AY 11-12
Ma. Divina Gracia Roldan Francisco Magno Sherwin Ona <i>College of Liberal Arts</i>	Contextualizing Disaster Risk Reduction and Management: An Interdisciplinary Approach 06 RPW AY 11-12
Raymond Girard Tan Alvin Culaba Bienvenido Manuel Biona <i>Gokongwei College of Engineering</i>	Modeling Optimal Strategies to Manage Risks Resulting from Climate Change 04 RPW AY 11-12
Arnel Uy Brian Gozun Raymond Habaradas <i>RVR College of Business</i>	Organizational Performance 01 RPW AY 11-12

EXTERNALLY FUNDED PROJECTS,
AY 2011-2012

PROJECT DIRECTOR/ASSOCIATES	PROJECT TITLE	FUNDING AGENCY
DLSU-ANGELO KING INSTITUTE		
Ponciano Intal, Jr., <i>Economics</i> Marissa Garcia, <i>Financial Management</i> Winfred Villamil, <i>Economics</i> Michael Alba, <i>Economics</i> Emily Cabegin, <i>Financial Management</i> Emmanuel Esguerra, <i>Economics</i> Clarence Pascual, <i>Economics</i> Jorge Sibal, <i>Economics</i> Rene Ofreneo, <i>Economics</i> Wilson Tiu, <i>Economics</i>	Globalization, Adjustment, and the Challenge of Inclusive Growth: Furthering Inclusive Growth in Indonesia, the Philippines, and Vietnam	International Development Research Centre (IDRC)
Tereso Tullao, Jr. Paulynne Castillo <i>Economics</i>	Developing AEC into a Global Service Hub	Economic Research Institute for ASEAN and East Asia (ERIA)
Tereso Tullao, Jr. <i>Economics</i>	Dissemination activity for the globalization, adjustment, and the challenge of inclusive growth project	International Development Research Centre (IDRC)
CENTER FOR BUSINESS RESEARCH AND DEVELOPMENT/SCHOOL OF ECONOMICS		
Tereso Tullao, Jr. Mitzie Conchada John Paolo Rivera <i>Economics</i>	Trade and Human Resource Development Policies for Inclusive Growth	ARTNET
Aida Velasco, <i>Business Management</i> Harvey Ong, <i>Business Management</i> Maria Victoria Tibon, <i>Business Management</i> Jhoanna Acosta, <i>Marketing</i> Honorata Dimapilis, <i>Business Management</i>	ASEAN common curriculum for Entrepreneurship in ASEAN	Asia Science and Education for Economics development institute (Asia SEED)
Raymond Vergara <i>Marketing</i>	Microsoft Protégé Program	Microsoft Philippines, Inc.
ADVANCED RESEARCH INSTITUTE FOR INFORMATICS, COMPUTING AND NETWORKING (ADRIC)		
Federico Gonzales <i>Software Technology</i>	Nokia Phase I	NOKIA
Merlin Teodosia Suarez, Gregory Cu, Jocelynn Cu, Rhia Trogo Oblena, Rafael Cabredo and Paul Inventado <i>Software Technology/Computer Technology</i>	Towards the Development of a Self-Improving and Ambient Intelligent Emphatic Space: Data-centric, Multimodal Emphatic Modeling from a Pluridisciplinary Perspective (Year II)	DOST-PCASTRDDOST-PCASTRD

CENTER FOR ENGINEERING AND SUSTAINABLE DEVELOPMENT RESEARCH (CESDR)		
Joseph Auresenia <i>Chemical Engineering</i>	Production of Carbon Nanotubes in the Presence of Magnetic Field and other External Factors by Microwave Enhanced Chemical Vapor Deposition	Philippine Council for Advanced and Science and Technology Research and Development (PCASTARD)
Leonila Abella Pag-asa Gaspillo Joseph Auresenia <i>Chemical Engineering</i>	Removal of Arsenic from Geothermal Water by using Adsorption	Japan International Cooperation Agency (JICA)
Susan Gallardo <i>Chemical Engineering</i>	Photocatalytic Treatment of Colored Wastewater from Textile Industries	DOST-PCIERD
Susan Gallardo, <i>Chemical Engineering</i> Patrick Abulencia	Development of Personal Water Purification in the Philippines	(NU) NCIHA, U. S. A.
Dennis Beng-hui, <i>Industrial Engineering</i> Brayn Gobaco, <i>Industrial Engineering</i> Jose Mutuc, <i>Industrial Engineering</i>	An Evaluation of the current mtg. supply chain for 3 major sources of excise tax collections in the Philippines	WAITO
SOCIAL DEVELOPMENT RESEARCH CENTER (SDRC)		
Ma. Elena Chiong-Javier <i>Behavioral Sciences</i>	Agro forestry and Sustainable Vegetable Production in SEA Watersheds	United States Agency for International Development (through North Carolina Agricultural and Technical State University)
Leah Veneesa Valbuena <i>Behavioral Sciences</i>	Kraft Foods Philippines: 2011 Corporate Reputation Survey	Kraft Foods (Philippines), Inc.
Leah Veneesa Valbuena <i>Behavioral Sciences</i>	Development of Capacity Assessment Tool on Early Childhood Care and Development (ECCD) in Disaster Risk Reduction and Management	Plan International, Inc./ UNICEF
LA SALLE INSTITUTE OF GOVERNANCE (LSIG)		
Francisco Magno, <i>Political Science</i> Sherwin Ona, <i>Political Science</i> Ian Hecita, <i>Political Science</i>	Patrolling The Internet: Mapping Terrain in the Philippines	Canada Corp.
CENTER FOR NATURAL SCIENCES AND ENVIRONMENTAL RESEARCH (CENSER)		
Wilfredo Licuanan <i>Biology</i>	Remote Sensing Information for Living Environments and Nationwide Tools for Sentinel Ecosystems in our Archipelagic Seas (RESILIENTSEAS)	Department of Science and Technology – PCAMRD)
Nikko Quevada <i>Chemistry</i>	Synthesis and characterization of carbon-based nanostructures using horizontal vapor-phase deposition	PCASTRD-DOST

ACADEMIC PUBLICATION OFFICE (APO)

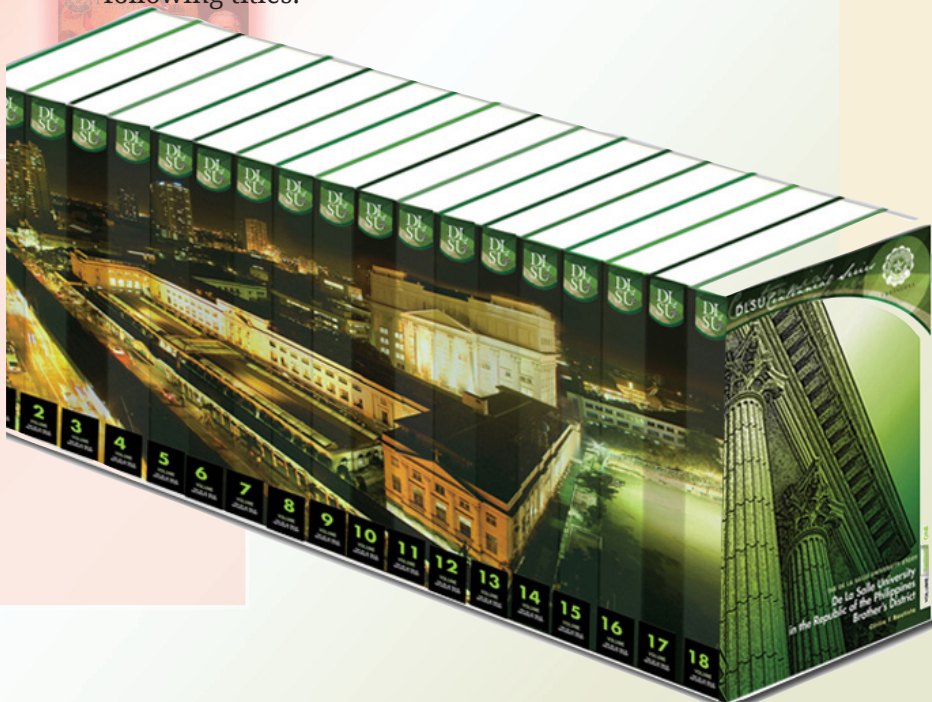
Academic Year (AY) 2011-2012 focused on culminating events of DLSU's year-long celebration of its first 100 years in the Philippines. It highlighted the production and launching of books (in print and electronic form) that showcase significant Lasallian contributions to Philippine society. It also paved the way toward the streamlining of academic publishing activities on campus by laying the groundwork for the creation of the DLSU Publishing House scheduled to be operational in AY 2012-2013.

The DLSU Centennial Set

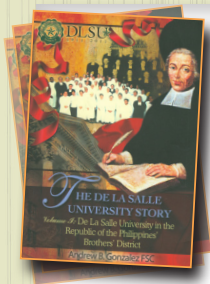
The series, which is a collection of 17 books that captures and presents the scholarly output of the University's faculty and students, was launched on June 17, 2011 at the Manila Metropolitan Museum, Bangko Sentral ng Pilipinas Complex. The books are part of a series of publications celebrating one hundred years of DLSU and showcasing the University's invaluable contributions to national and international development in the 20th century. Consisting primarily of books recounting the history of DLSU and books summarizing, in non-specialist language, some of the research projects funded by DLSU's URCO, the Centennial Series features the following titles:

Academic Publications Office.

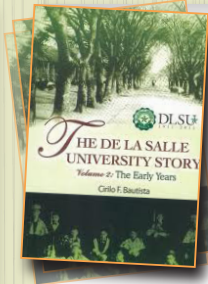
Established during the first term of AY 2006-2007, the DLSU Academic Publications Office (APO) is headed by an executive publisher. Since its creation, APO has embarked on paradigm-setting cooperative arrangements which cover the outsourcing of the editing, designing, printing, marketing, and selling of DLSU's scholarly books with today's leading commercial publishers, namely, Anvil Publishing, C&E Publishing, Central Books, Phoenix Publishing, and Vibal Publishing. Setting the directions, priorities, and targets of the APO is the Academic Publications Board, as guided by a duly approved charter. APO has been steadfastly committed to preserve and promote the country's rich culture and heritage through the publication—in print and electronic form—of world-class scholarly research output, prize-winning creative writing, and ISI-listed journals and textbooks, the product of research and creative initiatives of faculty of academic institutions, particularly DLSU.



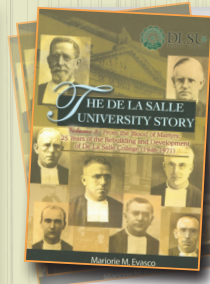
DLSU Academic Publications Office



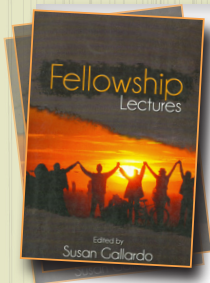
De La Salle University in the Republic of the Philippines' Brothers' District, the late Brother Andrew Gonzalez FSC (C&E Publishing).



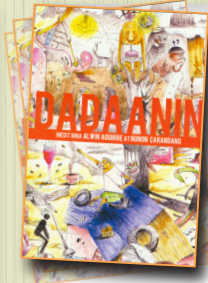
De La Salle University: The Early Years, Cirilo F. Bautista (C&E Publishing).



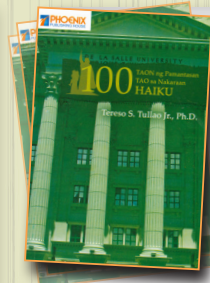
From the Blood of Martyrs: 25 Years of the Rebuilding and Development of De La Salle College (1946-1971), Marjorie M. Evasco (C&E Publishing).



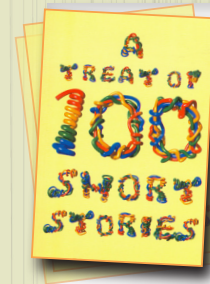
The Fellowship Lectures, ed. Susan M. Gallardo (Central Book Supply).



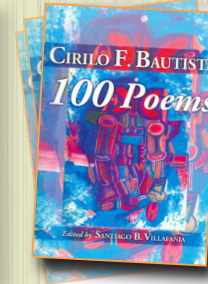
Dadaanin, ed. Alwin C. Aguirre and Ernesto V. Carandang II (Anvil Publishing).



Isandaang Taon ng Pamantasan, Isandaang Taon ng Nakaraan, Isandaang Haiku, Tereso S. Tullao Jr. (Phoenix Publishing House).



A Treat of 100 Short Stories, ed. Gerardo Z. Torres (Anvil Publishing).



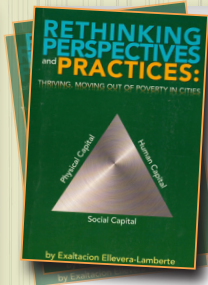
100 Poems, Cirilo F. Bautista (selected by Santiago B. Villafania) (Central Book Supply).



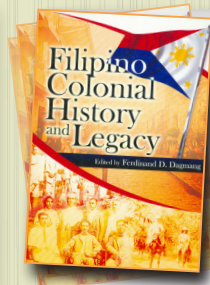
Sagurong: 100 na Kontemporaryong Rawitdawit sa Manlailain na Tataramon Bikol, ed. Paz Verdades M. Santos and Kristian Sendon Cordero (Vibal Foundation).



Selected Studies in Environment and Health, ed. Exaltacion E. Lamberte, (Central Book Supply).



Rethinking Perspectives and Practices: Moving Out of Poverty in Cities, Exaltacion E. Lamberte (Central Book Supply).



Filipino Colonial History and Legacy, ed. Ferdinand D. Dagmang (Central Book Supply).



The Centennial Set is the latest product of the innovative business model earlier adapted by DLSU in book publication. Other centennial publications were also launched; these were not part of the series because of their size:

- *Names and Faces of People: Collected Stories*, Vic H. Groyon, Jr. (C&C Publishing, Inc.). *
- *Lasang Lasallian*, ed. Nonon Villaluz Carandang and Rakki E. Sison-Buban (Central Book Supply).
- *Ang Pantas*, a translation of Kahlil Gibran's *The Prophet* by Ruth Elynia Mabanglo. (C&E Publishing, Inc.). (This translation contains 27 chapters of poetic essays that narrate Almustafa's farewell to the people of Orphalese with whom he lived for 12 years. Gibran's profound philosophy is

echoed in Almutafas's revelations that touch on everything about life: love, crime and punishment, time, religion, and death, among others.)

32nd Manila International Book Fair

During the 32nd Manila International Book Fair at the SMX Convention Center on September 14, 2011, APO Executive Publisher Dr. Isagani Cruz led the public launching of the soft cover editions of the following titles:

1. The De La Salle University in the Republic of the Philippines' Brothers' District by Br. Andrew Gonzalez FSC
2. The Early Years by Cirilo F. Bautista
3. The Blood of Martyrs by Marjorie M. Evasco
4. Promoting Philippine Enterprise Development edited by Andrea L. Santiago

5. The Names and Faces of People:
Collected Stories by Vic H. Groyon, JR.
6. Ang Pantas (The Prophet), a fine
Filipino translation by Ruth Elynia
Mabanglo of Khalil Gibran's "The
Prophet"

From APO to DLSU PH

This year, Dr. Cruz was also busy refining the blueprint for the eventual transformation of APO into the DLSU Publishing House to be headed by Executive Publisher designate Dr. David Jonathan Bayot. As earlier mentioned, initial groundwork had been undertaken to adopt an innovative business model for DLSU in book publication. Through DLSUPH, the University eagerly looks forward to the vigorous promotion of the University's mission of excellence in research and education by publishing academic and trade books, textbooks, and scholarly journals in both print and electronic editions.

Beyond 100!

Toward the end of the year the APO which had began its transition into the DLSU Publishing House with Dr. Bayot at the helm, bustled with preparations for the hosting of the event dubbed ***Beyond 100!*** scheduled on June 11, 2012 at the Angelo King International Center. ***Beyond 100!*** is intended to serve as a fitting conclusion to the year-long centennial celebration of DLSU. The event, where 103 electronic books and 29 print books will be launched, is being organized in partnership with five prominent publishers in the country.

With the 29 print books, all new titles, APO recognizes and honors the strong tradition of intellectual culture of DLSU. The 103 ebooks are electronic versions of titles previously published by the De La Salle University Press, Inc. With the conversion

of these books into electronic copies, DLSU highlights: (1) its initiative to employ the latest technology in the preservation of the intellectual legacy that took the university one hundred years to build; and (2) its readiness to take up the challenge of the digital age, so as to rethink its institutional roles, position itself strategically, and eventually, come up with the best configuration of intellectual production, dissemination, and consumption, as DLSU begins its journey to its next 100 years.

Journals Published

Several scholarly journals that served as fertile venues for discussing contemporary issues affecting the various sectors of society, and the region and surfacing new ideas and topics for research and creative writing were also published within the academic year:

The Asia-Pacific Social Science Review (APSSR),
Volume 11 No. 1 – June
2011, and Volume 11 No.
2 – December 2011 (Dr.
Julio Teehankee, Editor).
APSSR is an international
refereed journal published
biannually by the University.

It serves as a venue for the discussion of contemporary issues related to economics, politics, development, society, and international relations, particularly topics that concern the Asia-Pacific region, or that which provides a perspective from within the region. The journal encourages theoretical and methodological papers with an emphasis on comparative study and empirical research addressing development problems in Asia and Pacific contexts. It seeks to publish research arising from a broad variety of methodological traditions and those with multi- and inter-disciplinary focus. The APSSR



is officially endorsed by the Asian Political and International Studies Association (APISA).



DLSU Business & Economics Review (DLSU B&E Review), Volume 21 No. 1 – July 2011 and Volume 21 No. 2 - Jan 2012 (Dr. Tereso Tullao, Jr., Editor) – This journal publishes high quality theoretical, empirical, and methodological research

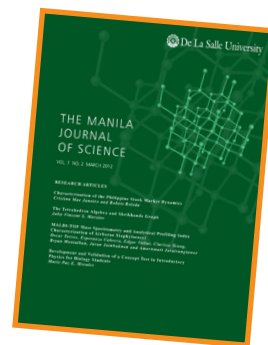
in the fields of accounting, business management, commercial law, economics, finance, and marketing. Published twice a year, it aims to reach an audience in the aforementioned fields. ***DLSU B&E Review*** is listed in SciVerse Scopus, Abstracted and Indexed in EBSCO, and Accredited by the Commission on Higher Education as one of the most distinguished Philippine journals classified in Category A level.



Malay, Volume 24 No. 1 – September 2011 and Volume 24 No. 2 – April 2012 (Dr. Florentino Timbreza, Editor) – This is an international refereed and abstracted multidisciplinary journal in Filipino, published bi-annually by the

APO. As a multidisciplinary journal, *Malay* features papers, researchers and articles that convey the thoughts and knowledge from the different disciplines in the fields of Philippine Studies.

Manila Journal of Science, Volume 7 No. 1 – September 2011 and Volume 7 No. 2, March 2012 (Dr. Eric Punzalan, Editor) – This is a semi-annual peer-reviewed publication of the College of Science. It aims to disseminate results of original scientific research, scientific issues analyses and commentaries, educational aids, innovative laboratory or teaching techniques and any other relevant materials.



The Asia-Pacific Education Researcher (TAPER), Volume 20, No. 2 – July 2011, Volume 20 No. 3 - November 2011, and Volume 21 No. 1 – March 2012 (Dr. Allan Bernardo, Editor) - TAPER

is an international refereed journal of original research in education, published biannually by the APO. It serves as a venue for the publication of empirical and theoretical studies in education, with emphasis on the experiences of successful educational systems in the Asia-Pacific Region and of the national educational systems therein that are presently underrepresented in the research literature. It is listed in Thomson Reuters ISI Scientific Database, SciVerse Scopus, indexed and abstracted in the Social Sciences Citation Index, Social Scisearch, and Journal Citation Reports/Social Sciences Edition, and EBSCO. It is also accredited by the Philippines' Commission on Higher Education as one of the most distinguished Philippine journals, and is classified in Category A of scholarly journals in the Philippines.



DLSU INTELLECTUAL PROPERTY OFFICE (DIPO)

In 2008, DLSU was among the first private universities in the Philippines to establish an Intellectual Property (IP) Office, and to draft and implement a set of comprehensive policies on Intellectual property (IP). DLSU has also set the record for being the first university to set up the Intellectual Property Advocates (IPA), a student organization, that promotes within its ranks greater awareness of and respect for IP. These achievements were noted by IPO Philippines Director General Atty. Ricardo Blancaflor during a visit of the DLSU IPO Office Director and IPA members to his new office in Taguig City early in 2012. Atty. Blancaflor expressed hope that other schools, colleges and universities would replicate DLSU's IP initiatives.

The need to formalize DLSU's intellectual property (IP) practices in a document was felt way back in 2004. That year the first IP Policy for DLSU came into being. In 2006, the Office of the Associate Director for Intellectual Property (AIPO) was established, with the mandate to "develop an intellectual property strategy for La Salle", and "assist faculty and students in filing for protection of intellectual property." The AIPO was envisioned, among others, "to educate the academic community on the important role of IP protection

in securing inventions, facilitating technology transfer, and encouraging inventors to disclose their work."

Two years later, in 2008, AIPO was reorganized into the DLSU Intellectual Property Office (DIPO), and was placed under the Office of the Associate Vice Chancellor for Research and Learning. The move further strengthened DIPO's capability to fulfill its mandate. It was tasked to review and refine the initial set of policies to make it more comprehensive and enable the university to better promote and encourage creativity, excellence and innovation in research and other scholarly endeavors. To better reflect the interests of the members of the academic community, especially among faculty and students, the policies underwent another round of revision in 2009. In 2010, DIPO also formulated the corresponding set of implementing rules and regulations (IRR) on IP and made another round of revisions on the previous IP Policies. Both the revised set of policies and the IRR were approved by the Vice Chancellor for Academics and Research (VCAR) Council that year. The policies include, among others, a definition of key IP terms, coverage and ownership of IP, functions of the DIPO and IP offenses. Meanwhile, the IRR explain in detail the operationalization of the IP Policies.

DLSU's IP Policies cover two basic categories of IP: (1) industrial property (i.e. patents for invention, utility models, industrial design and trademarks); and, (2) copyright and related rights. They are intended to be interpreted in terms of two major concerns of the University: first, that as a resource of Church and State, DLSU is committed to the use of invention and intellectual creation for the common good; and second, DLSU is committed to scholarship and to the academic freedom of its faculty to write and publish. It is noteworthy that the primary consideration for the protection and commercialization of the university's intellectual property is not profit but the benefit to society as a whole.

In 2010, DLSU achieved another milestone in the history of its IP with the inclusion of IP Policies in the Student Handbook 2009-2012. These continue to be part of the 2012-2015 Student Handbook. Moreover, DIPO Director Atty. Christopher Cruz shares the good news that faculty now have an alternative to publishing for purposes of career advancement. They can now file for a patent on their research, invention, etc. and earn their promotion once the patent is granted. While it is true that the grant of a patent takes around five to seven years from the date of application, Atty. Cruz reiterates that planting the "IP seeds" today will enable the researcher/inventor to reap the "patent fruits" in the future.

In AY 2011-2012, DIPO continued to be at the helm of the University's efforts to create and nurture a culture of awareness of and respect for IP through its director, Atty. Cruz who is concurrently vice dean of the Ramon V. del Rosario – College of Business, and manager of the DLSU Innovation and Technology Office (DITO), a service unit under the Office of the Vice Chancellor for Research. Toward the end of AY 2011-2012, the DITO laid down the groundwork for the first "DLSU Innovation and Technology Fair" scheduled to be held in

November 2012 at the Henry Sy Sr. Hall. The fair will to showcase the different projects and inventions across the colleges with the objective of creating greater awareness on the importance of IP protection and innovation.

DITO serves as a "one-stop shop" for inventors, scientists, artists, academics, and entrepreneurs who may want to turn their innovative ideas into products and services for IP protection and eventual commercialization. It aims to help link DLSU's research and development activities to industry by assisting prospective start-up companies to become successful business ventures, a service that is hoped to redound to the economic development of the country. The DITO team, composed of members from the different colleges, namely Dr. Julita Robles, Dr. Nilo Bugtai, Mr. Federico Gonzales, and Mr. Nestor Nisperos, Jr., regularly attends IP training sessions and seminars sponsored by the IPO Philippines under the Innovation and Technology Support Office (ITSO) program, and the World Intellectual Property Organization (WIPO). It cooperates with IP-related initiatives of the ASEAN, the Intellectual Property Alumni Association (IPAA), the Japan Patent Office (JPO), European Patent Office (EPA), the United States Patent and Trademark Office (US PTO) and the Licensing Executives Society (LES), among others, to equip its members with the necessary tools, expose them to relevant experiences in handling IP applications and advocacies, and update them on IP developments so as to enable them to better fulfill their mandate. Recently, Atty. Cruz passed the Patent Agents Qualifying Examinations (PAQE), making him a registered patent agent of the IPO Philippines.

As a member of the ASEAN University Network Intellectual Property (AUN-IP), DLSU acknowledges and supports the undertakings of the ASEAN Project on the Protection of Intellectual Property Rights

(ECAP III). ECAP III aims to create an effective national and regional university IP network that will support IP education as well as policy research and formulation in the region. DLSU is committed to implement IP concepts and practices, share experiences on its implementation of its IP policy in order to formulate a common IP policy before embarking on educational cooperation activities, and collect international best practices concerning IP management. Also part of the ECAP III project is the offering of courses on IP education to law students and other students toward the development of an “ASEAN IP brand.” Relative to this, as part of DLSU’s commitment to ECAP III, the RVR-COB offers the following IP-related courses:

- Intellectual Property Law – a 3-unit course that introduces undergraduate students to the concept of IP; terms such as copyright, trademark, trade name, patent and invention; and the benefits of registration in and protection under IP;
- Legal Aspects of Advertising and Promotions – a 3-unit course that includes discussions on various kinds of IPs, particularly on trademarks and designs, as well as on legal rights and protection given to their owners.

The DLSU College of Law also offers both basic and advanced IP courses.

DIPO is also an active member of the ITSO Network established by IPO Philippines. Composed of over 50 universities and colleges throughout the country, this network aims to strengthen local and institutional capacity to access patent information and use of the patent system. The program aims to fulfill the mandate of IPO Philippines relative to its 3D IP 2020 Vision, which is “to demystify and

democratize the patent system and use it as a tool for national development.”

Today, the need to increase awareness of IP rights and its effects on society and business, in DLSU among its faculty and students remains DIPO’s toughest challenges, given that IP awareness is relatively low not only in the University but in the country as a whole. DIPO hopes to achieve an increased awareness of IP. With greater IP awareness, DIPO encourages the faculty to “Patent, Publish, and Profit.” The phrase emphasizes that publication is complementary, not in conflict, with patent protection. Atty. Cruz constantly reminds them that “Daig ng maagap ang masipag” (promptness beats hard work), to underscore that when one makes his work public (through print or oral means) before registering with IPO Philippines, this can work against him/her, as somebody can easily pick up the idea or concept and beat him/her in its IP application. Atty. Cruz, therefore, urges faculty and students to be more aware of their IP rights and responsibilities. He enjoins them to focus more on how their research projects and inventions can best benefit society.

The process of actively promoting IP awareness, of instilling respect for and upholding it in campus, and of encouraging faculty and students to exercise their rights to apply for “exclusivity” over their creations, is definitely long and tedious. This may be partly due to lack of information, and the habit of “copying” that appears to be deeply entrenched in Filipino culture. Recognizing these ‘blocks’, DIPO has devised mechanisms and designed forms to spare them from personally having to go through these tedious procedures. They simply need to provide DIPO with a duly accomplished Disclosure Form, which can be downloaded from the DIPO website. Upon receipt of all the required information, DIPO, upon evaluation, translates the information form

into a Patent Application. The inventor is expected to cooperate with the DIPO in the application process all the way to its eventual commercialization. DIPO notifies the owner of every step in the patent process up to the grant of the patent. Atty. Cruz is optimistic that the faculty and students will gradually learn to appreciate the personal and social benefits and advantages of applying for IP protection, whenever appropriate, over their creations.

On the strategy to make students aware of their IP rights relative to their theses or dissertations, Atty. Cruz reiterates that before a student works on his/her thesis or dissertation, the question of who will own the IP to the student's creation should be discussed. At present, the mentor determines if there is a potential patentable creation that can emanate from a student's work; he then reports it to the IP Auditor appointed in each college. Atty. Cruz has been coordinating with administrators and IP auditors concerned in the different colleges to create mechanisms for the efficient flow of information on patentable creations from their respective colleges to DIPO. The IP auditors actively help monitor IP activities in their respective colleges.

For AY 2011-2012, there are four pending applications for patent with IPO Philippines for the following inventions, with several others in the application pipeline:

- “Automated Hospital Bed”;
- “Design and Fabrication of Polymer-based Photovoltaic Cells/Storage Devices”;

- “A Biodegradable Filter Using Coconut Derived Activated Carbon and Citricidal”; and,
- “Gas Phase Tin-Oxide Nanoparticle Synthesis”.

Atty. Cruz admits that there is a lot of work ahead, given the following issues and challenges: lack of IP awareness and appreciation among faculty, students, and staff; difficulty in encouraging disclosure of inventions and creative works; lack of a mechanism for IP audit and IP valuation; and, challenges in networking for commercialization. He is confident that DLSU, with cooperation of the various stakeholders, will be able to hurdle these “growing pains” and achieve the vision of developing the arts, science, technology and business through strengthening research capabilities, providing incentives to IP owners, and nurturing a culture of respect for IP among the University's faculty, students, and other stakeholders toward achieving DLSU's first “success story.”

Financial Report

DE LA SALLE UNIVERSITY

Research Expenditure

AY 2011-2012

	BUDGET	EXPENSE	RATE OF UTILIZATION
INTERNALLY FUNDED RESEARCH			
<u>DLSU-MANILA</u>			
<i>Sourced from DLSU Budget:</i>			
Research Centers and Offices	43,982,729	35,068,347	80%
Research Deloading	6,892,271	6,892,271	100%
Research Honorarium	424,591	424,591	100%
Sabbatical	12,666,763	12,666,763	100%
Research Incentive I (Longevity)	30,292,770	30,292,770	100%
Research Incentive II	20,596,036	20,596,036	100%
Sub-total	114,855,159	105,940,778	92%
<i>Sourced from Depository Funds:</i>			
College Research Funds	1,052,385	905,754	86%
Research Fellows Fund	0	0.0	0%
New PhDs Research Fund	1,012,641	623,570	62%
Research Faculty Grants	287,427	0	0%
Other Internally Funded Research	1,489,236	907,535	61%
Sub-total	3,841,689	2,436,860	63%
<u>SCIENCE FOUNDATION</u>			
Scientific Research & Development Grant	1,500,000	2,963,373	198%
Grants for professorial chair	6,000,000	7,642,414	127%
Publication Incentive Grants	2,300,000	1,880,513	82%
Faculty Travel Grants	1,000,000	557,874	56%
Other Grants	1,000,000	1,069,506	107%
Sub total	11,800,000	14,113,680	120%
<i>Research Overhead Costs:</i>			
Office Space, Electricity and Water	59,485,182	59,485,182	100%
Total Internally Funded Research (IFR)	189,982,030	181,976,499	96%

	BUDGET	EXPENSE	RATE OF UTILIZATION
INTERNALLY FUNDED RESEARCH			
<i>Research Centers / Units</i>			
AKIEBS	72,690,121	60,565,780	83%
LIDER	2,927,460	1,765,358	60%
SDRC	11,511,020	3,105,468	27%
AdRIC	16,724,838	9,372,119	56%
CESDR	1,480,340	793,645	54%
ARRPET	615,386	103,909	17%
AUN SEED/net	10,805,938	4,099,387	38%
CENSER	6,628,582	3,459,464	52%
LSIG	9,542,799	7,028,950	74%
ECE Research Fund	59,692	541	1%
Subtotal	132,986,175	90,294,622	68%
Administrative Research Funds	20,041,434	2,662,702	13%
<i>Grants</i>			
CHED Centers of Excellence / Developments	513,767	24,460	5%
CHED-ZRC 2008-2011	609,922	663,079	109%
RESEARCH CULTURE Ched-ZRC- (GIA)	483,880	611,640	126%
Subtotal	1,607,569	1,299,179	81%
	154,635,178	94,256,503	61%
Total Externally Funded Research (EFR)	344,617,209	276,233,002	80%
TOTAL RESEARCH EXPENDITURE (TRE)	22%	18%	
TOTAL RESEARCH EXPENDITURE AS % OF OPEX			

Note: The basis for computing the Percentage of Research was derived from the following budget:

	Budget	Actual
Total DLSU OPEX Budget AY 2011-2012	1,589,337,243	1,561,818,534
Basis *	1,589,337,243	1,561,818,534

List of Funding Agencies

1. Academy for Educational Development (AED)
2. American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE)
3. Andrew Mellon Foundation-New York, USA
4. Affiliated Network for Social Accountability in East Asia and the Pacific (ANSA-EAP)
5. Angelo King Institute-Community Based Monitoring System (CBMS)
6. Asia Pacific Research and Training Network for Trade (ARTNet)
7. Asia Pacific Economic Cooperation (APEC)
8. Asian Political and International Studies Association
9. Asia Science and Education for Economics development institute (Asia SEED)
10. Association of Southeast Asian Nations (ASEAN)
11. ASEAN University Network/Southeast Asia Engineering Education Development Network (AUN/SEED-Net)
12. ASEAN Secretariat under the ASEAN+3 Research Group
13. Australian National University
14. Australian Agency for International Development (AusAID)
15. ARCI Cultura E Sviluppo-Southeast Asia
16. Asian Institute of Development & Asian Development Bank
17. Bangko Sentral ng Pilipinas
18. Biohitech Corporation Biohitech Co., Ltd.
19. Biology Department of Science and Technology – PCAMRD)
20. British Council, Philippines
21. Bureau of Agricultural Research (BAR)
22. Canada Corp.
23. Canadian International Development Agency (CIDA)
24. Canada fund for Local initiatives
25. Caucus of Development NGO Networks (CODE-NGO)
26. Center for Budget and Policy Priorities CBCP
27. Center for Disaster Risk Policy of Florida State University
28. Commission on Higher Education (CHED)
29. Conservation International Foundation
30. Consumer Vibe Asia
31. Council for the Welfare of Children
32. Countrywide Development Fund of Former Senator Edgardo J. Angara through the Department of Social Welfare and Development)
33. Datacraft
34. Department of Education, Culture and Sports Third Elementary Education Project (DECS-TEEP)
35. De La Salle University Science Foundation Inc.
36. Department of Environment, Food and Rural Affairs (DEFRA), UK
37. Department of Health, Philippines
38. Department of Labor and Employment (DOLE)
39. Department of Science and Technology, Philippine Council for Advanced Science and Technology Research and Development (DOST-PCASTRD)
40. Department of Science and Technology, Philippine Council for Industry and Energy Development (DOST-PCIERD)
41. East Asian Development Network (EADN)
42. Economy and Environment Program for South East Asia (EEPSEA)
43. Economic Research Institute for ASEAN and East Asia (ERIA)
44. Essential National Health Research (ENHR)
45. European Commission
46. European Union (Asia link program)
47. Family Health International
48. Food and Agriculture Organization (FAO)
49. Global Environment Facility/World Bank
50. Global Integrity, Inc.
51. Haribon Foundation
52. Hewlett-Packard
53. Hitachi Global Storage Philippines
54. Hitachi Global Storage Technologies, Inc. (HGST)
55. ICRAF SEA Regional Research
56. Innovations for Poverty Action (IPA)
57. Institute for Social and Environmental Transition (ISET)
58. Institute of International Education (IIE)-Manila
59. International Development Research Centre (IDRC-Canada)
60. International Federation of Catholic Universities (IFCU)
61. International Foundation for Science (IFS)
62. International Maritime Training Trust Fund Philippine Maritime Education & Training Foundation Inc.
63. Japan Foundation (through Local Government Academy)

64. Japan International Cooperation Agency (JICA)
65. Johns Hopkins University-Population/Communication Services
66. John D. and Catherine T. MacArthur Foundation
67. Kraft Foods (Philippines), Inc.
68. Korea Institute of Finance
69. Macro
70. Management Sciences for Health (MSH)
71. Management Systems International (MSI)
72. Metro Manila Health Research and Development Consortium(MMHRDC/PCHRD)
73. Microsoft Philippines
74. MicroUsability Pte Ltd
75. Missio Munich
76. National Commission for Culture and the Arts (NCCA)
77. National Coordinating Council for Education
78. National Geographic
79. National Institutes of Health, U.S.A.
80. National Research Council of the Philippines(NRCP)
81. National Central University, Taiwan
82. National Economic and Development Authority, Trade Related Technical Assistance Programme (NEDA-TRTAP)
83. National University NCIIA, U.S.A.
84. National Statistics Office and ADB
85. Nokia
86. Overseas Development Institute (ODI)
87. Peace Corps Philippines
88. Philippine Exporters Confederation, Inc.
89. Philippine Institute for Development Studies (PIDS)
90. Philippine Pacific Economic Cooperation Committee (PPECC)
91. Samahan sa Pilipinas ng mga Industriyang Kimeka (SPEIK)
92. Security Exchange Commission(SEC), Philippines
93. Senbel Corporation
94. Southeast Center for Training and Development
95. Standard Chartered Bank
96. Sumitomo Foundation Fiscal 2000 Grant for Japan Related Research Projects
97. Swedish ICT for Developing Regions (SPIDER)
98. Swedish International Development Agency(SIDA)
99. Roslino Villamil (a private organizational development consultant)
100. Tanggol Kalikasan
101. The Asia Foundation
102. The Ford Foundation
103. The Philippine-Australia Short-Term Training (PASTT) Program]
104. Tokyo Electric Power Corporation
105. Tokyo Institute of Technology
106. United Nations Population Fund (UNFPA-Department of Health)
107. UN Economic and Social Commission for Asia and the Pacific (UNESCAP) - Asia-Pacific Research and Training Network on Trade (ARTNet)
108. United Nations Educational, Scientific and Cultural Organization (UNESCO)
109. The United Nations Children's Fund (UNICEF Bangkok)
110. The University of the Philippines National Institute for Science and Mathematics Education Development- Science Education Institute Department of Science and Technology (EDRENET-UP-NISMED-DOS-SEI and DLSU-CED)
111. United Nations Industrial Development Organization (UNIDO)
112. Unit for Social and Environmental Research, Chiang Mai University, Thailand
113. United Nations Children's Fund
114. United Nations Development Programme (UNDP)
115. United States Agency for International Development (USAID)
116. Universite de Sherbrooke
117. UP Marine Science Institute, Marine Environment and Resources Foundation, Inc.
118. Upland NGO Assistance Committee (UNAC)
119. US National Science Foundation-Partnerships for International Relations and Education (PIRE) Program
120. USAID Economic Modernization Through Efficient Reforms and Governance Enhancement (USAID-EMERGE)
121. World Anti Illicit Traffic Organisation (WAITO)
122. World Bank through Global Forum for Health Research
123. WorldFish
124. World Health Organization
125. World Wildlife Fund (WWF-Indonesia)

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RESEARCH @ De La Salle University

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