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BIOGRAPHICAL ESSAY

EDGARDO D. GOMEZ:

Vignettes of an Eminent Marine Scientist and Institution Builder

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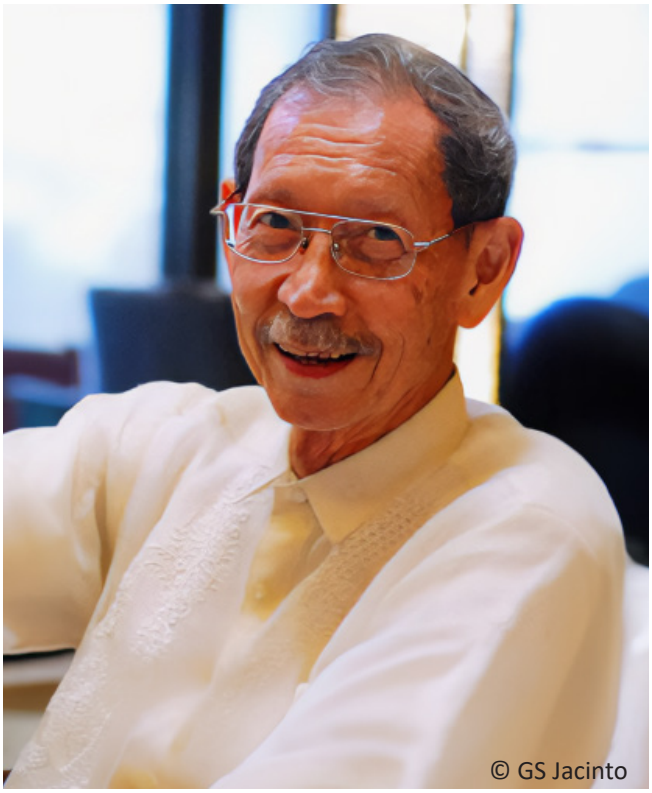
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Dr. Edgardo D. Gomez is recognized for his significant pioneering contributions to invertebrate biology and ecology, giant clam culture and restoration, coral reef assessment and conservation, and in the strengthening of marine science education and research. He established the Marine Science Institute and developed it from a small university center to a world-recognized institution in marine sciences. Dr. Gomez is also known for his advocacy of indigenous trees.

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Transactions NAST PHL Vol. 46: (2024)
doi.org/10.57043/transnastphl.2024.4112

His studies on the reproductive cycles of invertebrates such as oysters, mussels, other bivalves, crustaceans, and two echinoderms—sea urchins and sea cucumbers contributed to the development of the culture technology for edible sea urchin and sea cucumber, and in the breeding of the giant clam (*Tridacna gigas*). Through his research and conservation activities supported by sponsors, the population of the giant clam has been re-established in various parts of the country. His scope of studies expanded to the ecological relationships and interactions of giant clams and corals as living substrates that influence the increase of fish biomass and diversity. Dr. Gomez with co-workers and students undertook an assessment of the status of the coral reefs of the country which was the first in the world. This pioneering work also led to studies on coral reef restoration which have been adopted worldwide.

Even after retirement, Dr. Gomez continued his research with students and collaborators on the transplantation of coral, their survival under different environmental conditions, the adhesives involved in attaching coral transplants, studies on how coral fragments self-attach after transplantation and effects of coral transplantation and giant clam restocking on the fish population in degraded reefs. He was also actively involved in studies on the effects of climate change and ocean acidification on corals and their ecosystem, and the development of proper fisheries and coastal management in the country.

He obtained his Bachelor of Arts and BS Education *summa cum laude* (1962) from De La Salle University, MS Biology (1967) from St. Mary's University Minnesota, and PhD Marine Biology (1973) from the University of California San Diego (Scripps Institution of Oceanography). He started as an assistant professor and worked his way to become a professor, and later was promoted to a university professor, at the Marine Science Institute, College of Science, University of the Philippines Diliman. He was appointed university professor emeritus upon his retirement. Dr. Gomez was the founding director of the Marine Science Institute, which started as the Marine Science Center, led it for 25 years, and made it one of the leading marine science research institutes in the world.

Dr. Gomez held various positions in government and private organizations: coordinator, Philippines/ Southeast Asia Center of Excellence, GEF/World Bank Coral Reef Targeted Research and co-chair, Restoration and Remediation Working Group, GEF/WB CRTR (2005–2010); member, alternate member, Executive Committee International Union Biological Sciences (IUBS) (1982–1987); and many others. He was active as a member of the Regional Advisory Board of the Coral Triangle Center, Bali, Indonesia (2011) and a member of the Philippine National Committee for Long-Term Ecological Research and DIVERSITAS (2011).

His many awards included: The Presidential Lingkod Bayan Award, Civil Service Commission (2000); Global 500 Roll of Honour, United Nations Environment Programme (1989); The Outstanding Filipino (TOFIL) in Science (Marine Biology), Philippine Jaycees Senate (1992); Pew Fellowship (2001), Pew Charitable Trusts; Doctor of Science, *honoris causa*, from the De La Salle University (2016); and Doctor of Science *honoris causa*, from Silliman University (2017).

Dr. Edgardo D. Gomez was elected to the National Academy of Science and Technology Philippines in 1993 and was conferred the Order of National Scientist in 2014.

National Scientist Gomez was married to Ambassador Phoebe Abaya and their union was blessed with a son Jose Edgardo Jr. NS Gomez passed away on December 1, 2019, at the age of 81.

– Evelyn Mae Tecson-Mendoza.

Note: This is a revised short biography of NS ED Gomez. From: Tecson-Mendoza EM. 2017. Biosketches: Filipino Trailblazers in Science and Technology. National Academy of Science and Technology Philippines, Manila PHL. Reprinted with permission.

Transactions NAST PHL Vol. 46: (2024)
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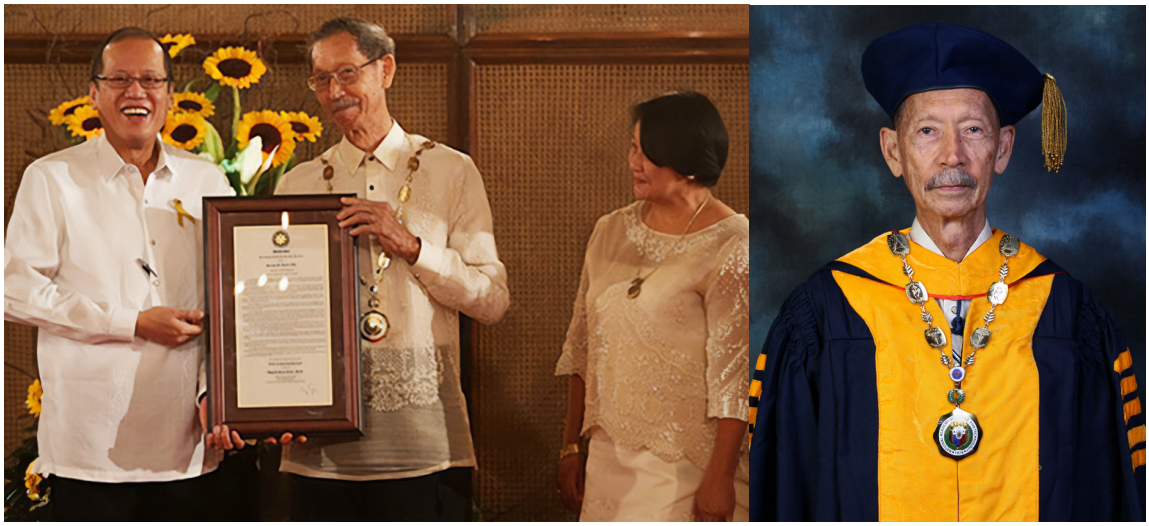

Figure 1. President Benigno S. Aquino III confers the prestigious rank and title of National Scientist to ED Gomez on August 12, 2014, at the Malacañang Palace.

Selected Publications of NS Edgardo D. Gomez

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Juinio MAR, Meñez LAB, Villanoy CL, Gomez ED. (1989). Status of giant clam resources of the Philippines. Journal of Molluscan Studies, 55(4), 431–440. https://academic.oup.com/mollus/article-abstract/55/4/431/971591

Transactions NAST PHL Vol. 46: (2024)
doi.org/10.57043/transnastphl.2024.4112

REMEMBERING NATIONAL SCIENTIST EDGARDO D. GOMEZ:
Mentor, Colleague, and Friend

Mentoring also happens in the work environment. This was my privilege when I started my professional life at the Marine Sciences Center in 1976. It isn't the image of a cigarette-puffing-like-a-chimney Ed Gomez brandishing a mustache and goatee that sticks in my memory, (although admittedly, these images are hard to forget), but several, no, many, exchanges where he would espouse his vision, disposition, and beliefs for the Marine Sciences Center and the young brood that we were then. He lived and dreamed of marine science and being a marine scientist. His was a vision for the field and its contributors, to make it big in and for the country.

Ed Gomez knew what he wanted, anticipated, and was ready to move at the opportune moments. He took advantage of the times that the stars aligned, remained largely undistracted, stayed clear of the crabs and the crab-mentality, and maintained an "open-door" policy. When we were much younger and had to make monthly sampling trips to Bolinao for our research project in Tambac Bay, Pangasinan, Dr. Gomez would occasionally tag along. It wasn't because he was part of our project or was checking up on the science we were doing. I guess it was his way of interacting with us, inspiring and motivating, without trying too hard or being in the way!

I also recall during my first year in grad school in Liverpool as a UNDP scholar that Ed Gomez visited me. He made a side trip to that part of England at his own expense. And I do remember that I could only put him up in my tiny one-bed flat. Obviously, I was embarrassed. While I offered him my bed for the evening, he insisted on sleeping on the floor, despite my protests and to my significant discomfort.

Ed Gomez was used to benchmarking against the best, and this is what prevailed through all the years of his professional life. Under his academic leadership and with a clear and unwavering vision of marine science in the country, **Ed Gomez was the principal force in initiating, pioneering, and developing the then Marine Sciences Center, into the Marine Science Institute today.**

As founding director of the Marine Sciences Center with only a piece of paper as an "asset" and with the status of "informal settler" at the then Natural Science Research Center in the mid-1970s. Ed Gomez set his sights on building a marine science institute comparable to his alma mater, the Scripps Institution of Oceanography of the University of California San Diego– an institution where everybody worked, everything worked, and everybody helped everybody else! He went on to recruit and entice staff and build an institution—an institution where the values of honesty, openness, and collegiality prevail because Ed Gomez lived these values and expected no less of his staff.

Yes, Ed Gomez was the director for 25 years, almost all of his academic life—"easing back" to let the younger generation carry the baton. Those of us who have been administrators for even a fraction of that time will appreciate that this is no mean feat. For Ed, it meant foregoing the life of the typical academic and lucrative job offers at the early stages of MSI's development and keeping the home fires burning, sometimes alone, while many of us were pursuing our PhDs. It was not always smooth sailing for Dr. Gomez and the Institute as there were also detractors and seemingly insurmountable odds. Yet, Ed pursued his vision of putting MSI and the University on the world map and succeeded. His optimism, focus, determination, and self-confidence, and his ability to handle the unexpected with grace and style were all crucial ingredients in institution-building. "Some men see things as they are and ask, "why?" I dream things that never were and ask "why not?" – George Bernard Shaw, yes, but that, too, is Ed Gomez!

In the years following his mandatory retirement, I often urged Ed to write a book about the journey of MSI. "I'll get around to doing that, soon enough," he quipped. The book has yet to be. But in fact, he has written and talked about the journey of MSI in several fora since his retirement. We just need to bring these talks and jottings together — a task that the young and the once young at MSI now commit to doing.

Transactions NAST PHL Vol. 46: (2024)
doi.org/10.57043/transnastphl.2024.4112

During the second half of this year, Ed's health deteriorated further, and even if left unspoken, it was evident that his cancer had metastasized. He was in pain and uncomfortable. Yet, during our visits to the hospital and at home, his thoughts and concerns remained with MSI and helping other institutions in the country. A few days before Ed left us, Annette Juinio-Meñez and I visited him at the hospital. With his voice weak and hardly audible, he still expressed his worries about MSI and urged us to make sure that the Institute "would not slide." Holding his hands, we both assured him that all is well, not to worry, and all will be taken care of. He nodded his head. We left him seemingly less agitated and at peace.

Phoebe, Jed, Lorraine, and Elián, thank you so very much for your patience, understanding, and generosity in giving us, the Marine Science Institute, the University of the Philippines, and the country an unequal and larger share of Ed's life.

I now end by quoting Ed Gomez as he finished a commencement speech he gave not too long ago: "The greatest compensation that I have is not the material benefits that many aspire for. Rather, it is the recognition that I enjoy among peers in this country and all over the world, something that money cannot buy, a respect that buoys up the spirit even in these trying times, a satisfaction of fulfillment that I have served my people well, often at great cost. This is my parting message to you: **Serve others well before you serve yourself, and the Man Upstairs (God, Allah, Yahweh) will look after you!**"

Farewell, dear friend. You are home now, and finally at peace in the loving embrace of the Man Upstairs.

– Gil S. Jacinto. A Tribute to Ed Gomez. 7 December 2019.

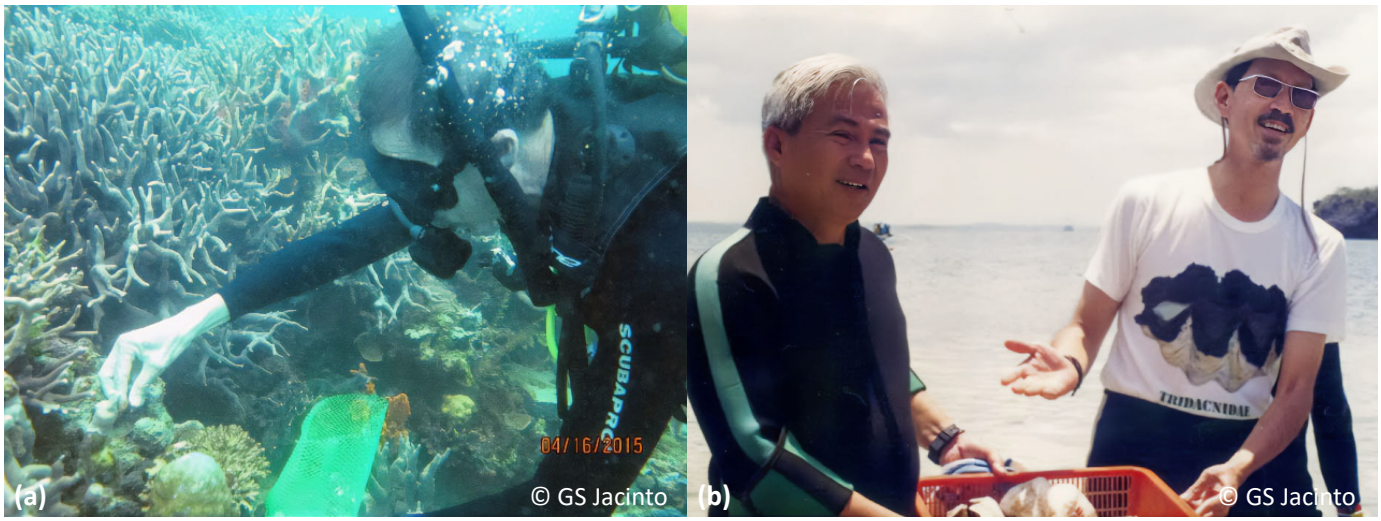

Figure 2. . Ed Gomez (a) scuba diving at the age of 77; (b) with NS Angel Alcala, preparing to deploy giant clams in Alaminos, Pangasinan, 1994.

Transactions NAST PHL Vol. 46: (2024)
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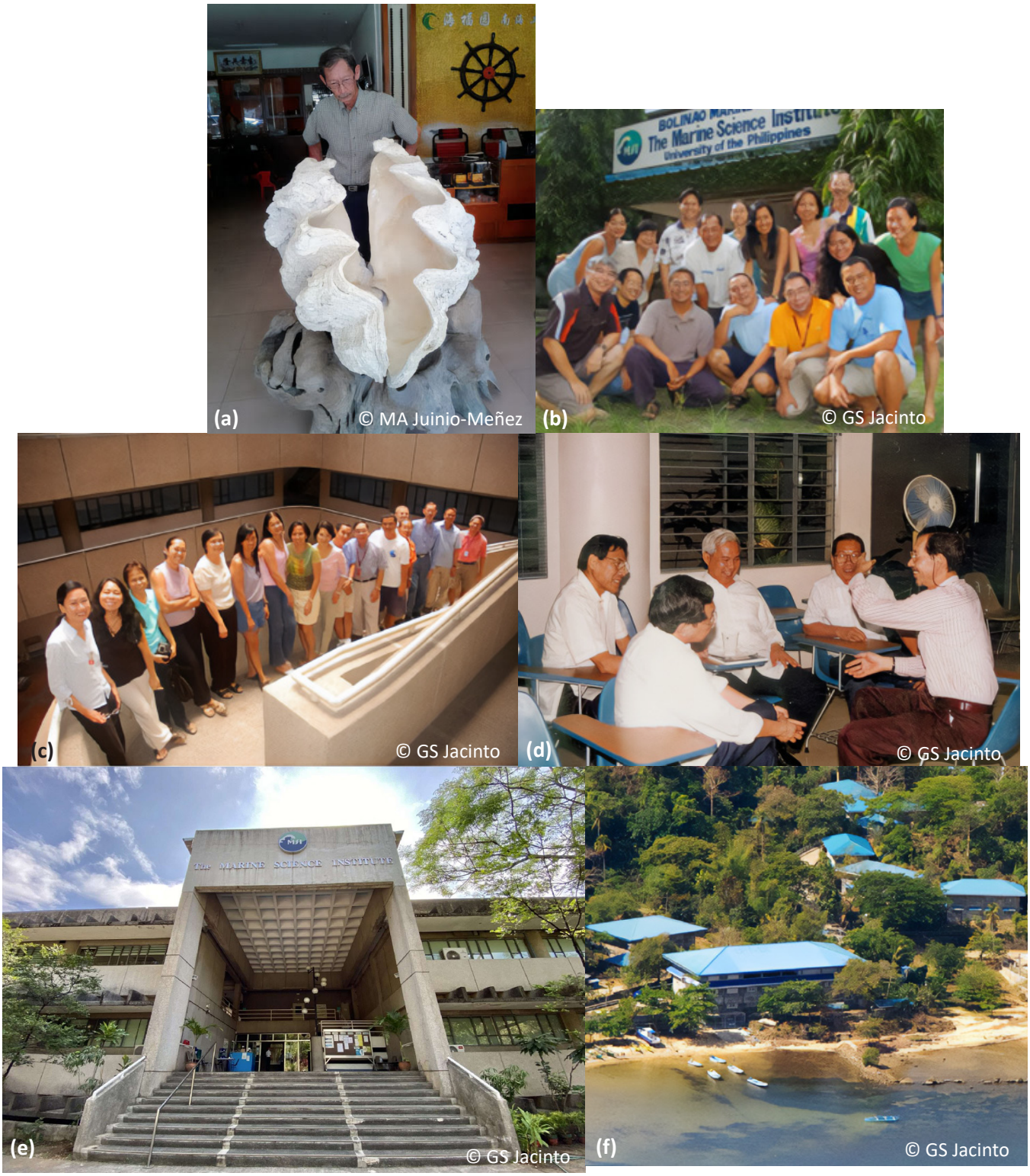

Figure 3. Ed Gomez (a) inspecting a giant clam shell display in Hainan, China, 2014; (b) with MSI faculty at the Bolinao Marine Laboratory, Pangasinan, 2007; (c) with MSI faculty at the Marine Science Institute, UP Diliman, 2006; (d) with (L-R) Ricardo Biña, Flor Lacanilao, NS Angel Alcala and NS Gavino Trono, Jr., early 1990s (e) Steps leading to the main entrance of the Marine Science Institute, UP Diliman. (f) Aerial view of the Bolinao Marine Laboratory (Pangasinan) showing the research building, administration building, housing, and dorm facilities.

Transactions NAST PHL Vol. 46: (2024)
doi.org/10.57043/transnastphl.2024.4112

DR. EDGARDO D. GOMEZ, THE CONSUMMATE NATIVE TREE ENTHUSIAST

If you check the Internet, the name Edgardo Gomez will probably yield hundreds of entries related to Marine Biology, from his long career as founding Director of the Marine Science Institute (MSI) of UP Diliman. We both had formal training and an early research career in Zoology, the study of animals— he with giant clams and corals, and I with marine shrimp. But it was for native plants where we both shared a profound reverence and unrelenting passion. His busy schedule (as MSI Director and later, Professor Emeritus) left Ed with very little disposable time. He was notoriously oblivious to time-consuming emails unless they were about plants. I only had to mention a species or two and … zoom, we would go about our exchange like a brisk game of ping pong. One of his bright ideas was finding new beach species in the older literature on Philippine flora. Indeed, I have discovered *Rothmania merrillii*, *Bikkia philippinensis*, *Lypsiphyllum binatum,* and other obscure species in the beach forests of Guimaras and protected Siargao.

I first met Ed when he led a 1980s roundtable discussion on the R&D program of the SEAFDEC Aquaculture Department where I worked as a researcher. Over the years, our paths would cross during scientific conferences and especially when I pursued my PhD at UP-MSI in the mid-1990s. But it was only in 2005 when I was awarded a Pew Fellowship in Marine Conservation (like him, earlier) that our friendship deepened and we discovered a shared passion for native plants. This soon led to an active botanical trade starting with seeds of *Dracontomelon dao* and the native duldul *Bombax ceiba* which Ed sent me. After germination, I outplanted them in my Iloilo City churchyard, among other native species, e.g., *molave*, *bitaog*. In exchange, I would bring native saplings from my Iloilo city nursery during my Manila trips, load them in an airport taxi straight to Quezon City where Ed would be waiting at the MSI foyer. He specifically requested beach flora for the MSI garden, as mangrove seedlings would obviously not survive away from the sea.

Sadly, consummate field scientists that we were, Ed and I had no chance to survey together native plants in their wild habitat. Instead, he would take me on annotated tours of the planted natives around MSI and in the UP College of Science complex. (With ~20 beach forest species, dozens of dipterocarps and other native flora, this area is now a favorite site for tree walks by students and enthusiasts alike.) In 2017, a break in a NAST PHL science lecture series for high school students in Kalibo allowed me to take Ed on a visit to my favorite *Katunggan It Ibajay* Mangrove Ecopark in Aklan. By then his health had started to fail and he could only manage a portion of the kilometer-long footwalk.

Two years later, another close friend and I treated him to lunch in a resto near his home. The food was excellent and the company even much better, that we needed no excuse to linger a bit more. Ed then invited us to see the first flowering of his *Ardisia pyramidalis* bush, locally called *aunasin* (planted from a twig he surreptitiously broke off in a public garden, years back —Ed could be mischievous in a delightful way, at times). He was so proud of his plants and happy that I wanted to keep this memory of a smiling Ed. And, thus, I silently said Goodbye that time. My next and last visit to Ed two weeks before he passed away was too painful for him and for me. Yet I will find joy in the adult trees of *dao*, *dita*, and *duldul* that his seeds have grown into—with their lush foliage and brilliant blooms.

– Jurgenne H. Primavera. February 16, 2024.

Transactions NAST PHL Vol. 46: (2024)
doi.org/10.57043/transnastphl.2024.4112

Figure 4. (a) Beach forest saplings from the Iloilo City nursery of J.H. Primavera for planting on MSI grounds by Ed Gomez, 2010; (b) Adult dao *Dracontomelon dao* (2020), and (c) native duldul or malabulak *Bombax ceiba* (2021) in the Iloilo City UCCP churchyard from seeds provided by Dr. Gomez, then germinated by J.H. Primavera.

Transactions NAST PHL Vol. 46: (2024)
doi.org/10.57043/transnastphl.2024.4112

Marine Science Institute on its 50th Anniversary: Beyond Borders

On March 28, 2024, the UP Marine Science Institute celebrated its 50th anniversary with the theme "Beyond Borders" in the service of the Filipino people.

Throughout its 50 years, MSI has continued to fulfill its vision of being a " global center of excellence in marine science research, education, and development" by (a) providing the highest quality graduate programs providing advanced scientific training and an excellent learning experience in interdisciplinary research and development; (b) serving as an Institutionalized hub for national or global interdisciplinary scientific research and forms on coastal and marine concerns; and (c) having recognized expertise in applications of science-based knowledge in technology development, resources and environmental management, and manpower development.

An event on April 4, 2024 was marked by the renaming of the Marine Science Building to Edgardo D. Gomez Hall (Gomez Hall), the blessing of a new building to house MSI's valuable specimen collections "Marine Biodiversity Resources and Information System", and the awarding of retired faculty, scientists, staff, and organizations that helped build the Institute.

Among the honorees were National Scientist Lourdes Cruz, National Scientist Gavino Trono Jr., Academician Porfirio Aliño, Academician Rhodora Azanza, Academician Gisela Concepcion, Academician Gil Jacinto, Academician Marco Nemesio Montaño, Dr. Edna Ganzon-Fortes, Dr. Flor Lacanilao, Dr. Suzanne Mingoa-Licuanan, Dr. Maria Lourdes San Diego-McGlone, and Dr. Helena Yap. These UP MSI faculty pioneered in various aspects of oceanography, taxonomy, conservation, and molecular biology and mentored many more students from all over the country, all of which have contributed to knowledge and development in the country and beyond.

The MSI 50th Anniversary activities include the MSI@50 Lecture Series, Arribada 2024, a Sportsfest, and All MSI Homecoming in October 2024.

NS Edgardo D. Gomez' legacy is alive! On to the next 50 years of UP-MSI!

Source: https://msi.upd.edu.ph/up-msi-celebrates-50th-anniversary-with-a-bang/

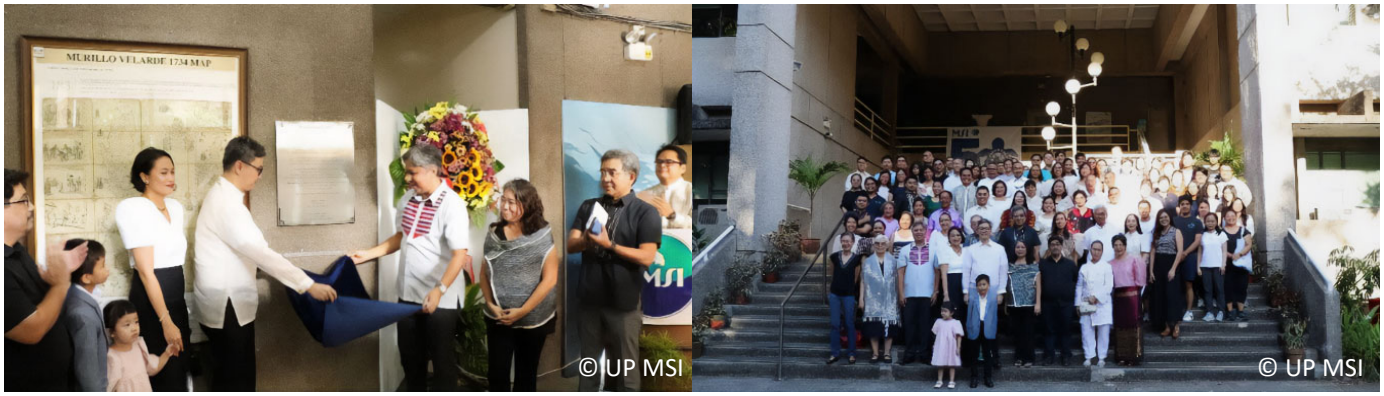

Figure 5. (Left) Installation of marker naming the MSI Building as Edgardo D. Gomez Hall with Dr. Jose Edgardo A. Gomez, Jr. and family and UPD Chancellor Edgardo Carlo Vistan II as guest of honor. (Right) Attendees of the event in front of Edgardo D. Gomez Hall.

Transactions NAST PHL Vol. 46: (2024)
doi.org/10.57043/transnastphl.2024.4112

The Marine Science Institute's Garden of Indigenous and Flowering Trees (The MSI GIFT)

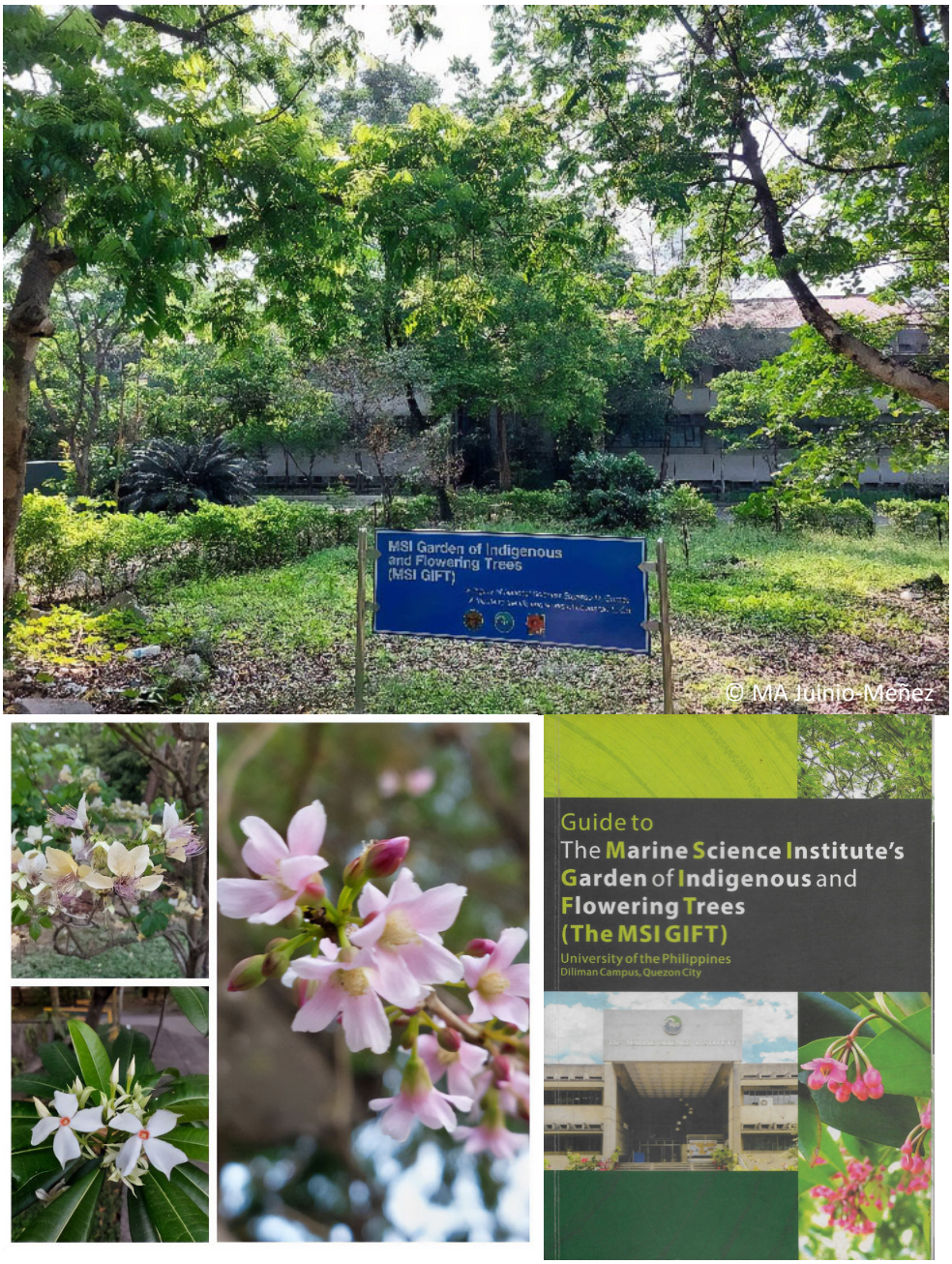

Figure 6. (Top). MSI Garden of Indigenous and Flowering Trees – *A legacy of NS Edgardo D. Gomez, A tribute to the life and work of Leonard Co*. There are over 200 native trees and wildings; including 17 dipterocarp at MSI GIFT, Apri; 2024. (Bottom). Flowers of some of the GIFT native trees: *salimbobog* (top left), *baraibai* (bottom left with white flowers) and *salingogon* (with pink flowers), March 2022. (right) Cover of the guidebook of the MSI GIFT, April 2024.

Transactions NAST PHL Vol. 46: (2024)
doi.org/10.57043/transnastphl.2024.4112

The construction of the first building of the Marine Science Institute in what was the relatively new UP Science Complex provided the opportunity to plant trees. Being the fourth new structure in the late 1980s, the MSI needed some landscaping in the compound which comprised some two dozen hectares, with the institute being assigned 10% of it. The initial planting of trees was dominated by the then popular, tall India *Lanutan*, *Polyalthia longifolia*, after a few common acacias, *Samanea saman*. Thus, nonindigenous species made up a significant number of the first trees planted.

In adding species, it occurred to me to try to plant trees that would be related to the marine environment. The obvious trees would be the mangroves, but the Diliman environment is not suitable for them. Whereupon, I decided to start planting beach or strand trees, such as the pantropical *Talisay* (*Terminalia catappa*) and the exotic sea grape (*Cocoloba uvifera*). This initiative soon received a big boost from Dr. Jurgenne Primavera, an alumna of the UPMSI, who was then writing a book on beach forest trees and who donated seeds or seedlings of about two dozen native species, including the flowering *tagpo*, *Ardisia squamulosa*. However, many were personally collected, such as the *pantog-lubo* (*Hernandia nymphaeifolia*) from Casiguran, Aurora.

But thanks to fellow native tree enthusiasts*, I was able to plant more attractive indigenous species such as *kasopangil* (*Clerodendrum intermedium*), *bagawak morado* (*C. quadriloculare*) and *baraibai* (*Cerbera manghas*). One of the last additions was the native *Kleinhovia* hospital or tan-ag, planted by none other than the PNPCSI President Dr. Antonio Manila, on the occasion of the donation and turnover of the tree signages of native trees three years ago.

*the late Leonard Co, Daniel Lagunzad, Prescillano Zamora, Edwino Fernando.

From: Gomez ED. 2017. An Introduction to the Marine Science Institute's Garden of Indigenous and Flowering Trees. The MSI GIFT. In: Guide to The Marine Science Institute's Garden of Indigenous and Flowering Trees (The MSI GIFT). Philippine Native Plants Conservation Society, Inc.

Postscript. From the accounts of the members of the Philippine Native Plant Conservation Society Incorporated (PNPCSI), NS ED Gomez told them that he wanted to give MSI a living gift. Since he cannot give MSI the ocean in UP Diliman, the trees are the second best he can leave behind for MSI. Thus, he named it MSI GIFT with bias also for trees that had beautiful flowers. He tended the garden personally until a few months before he was seriously ill.

Aside from students who visit the MSI GIFT for their botany classes, it is popular for native tree walks and bird watching particularly in the summer when many of the trees are in bloom and fruiting. In 2024, before the 50th founding Anniversary of MSI, the PNPCSI raised funds to replace the tree signages and some saplings that had died. They did this to honor the legacy of NS Edgardo D. Gomez. Based on their recent inventory, there are over 200 native trees and wildings; including 17 dipterocarps. The latter represent almost a third of the 53 Philippine dipterocarp species! Those trees are particularly the pride and joy of NS ED Gomez because he was told by forest ecologists that there is no way that these trees can grow in UP Diliman since they do not grow in lowlands in open vegetation. He proved them wrong!

– Marie Antonette Juinio-Meñez. June 27, 2024.

Transactions NAST PHL Vol. 46: (2024)
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EXCERPTS FROM SPEECHES AND OPINION ARTICLES OF NS EDGARDO D. GOMEZ

Acceptance speech of National Scientist Edgardo D. GOMEZ on receiving the degree, D.Sc. *honoris causa* – from Silliman University

On more than one occasion, I have been interviewed by professionals and writers who asked me how I was able to initiate and steer the Marine Science Institute of the University of the Philippines from literally a few sheets of paper to a world-class academic institution that it is today. I point out that there are two facets that needed to be established and emphasized: values and talent.

Although underpinned by two different faiths, when it comes to basics, Catholic De La Salle University and Protestant Silliman University converge when it comes to principles and values. No doubt, children here on campus start by learning the most important lessons in life: to love God and one's neighbor, to be kind and generous, to share with those in need, and to reward good and punish evil, while striving to excel. So it went from 1974 when I was asked to start the Marine Sciences Center, (which was transformed after 3 a little over a decade into the Marine Science Institute), till I stood down as Director at the turn of the century, having served for nearly 25 years. With the underpinning of the correct principles and proper values learned early in life, the work went on for a quarter of a century. After turning over the helm to younger scientists, I continued to lecture for another five years and conduct field research for ten years, providing some guidance to the younger generation of marine scientists when needed….

First, Filipino scientists can and should be world class. We can be trailblazers, although we sometimes have to go through the Khabarovsk experience. Next, success in institution building in a society which is also undergoing the "trials and tribulations" of nation-building, is underpinned by collaboration (rather than competition), by cooperation and by recognizing the existence of and developing the positive aspects of symbiotic relationships: SUML and UPMSC, read Alcala and Gomez. Success in academic endeavors, institution-building and in life in general is underpinned by two important facets: values and talent. However, it also helps, if "the planets and the stars are aligned properly"!

Transactions NAST PHL Vol. 46: (2024)
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Are There Enough Fish for the People?

Time was when fish was truly the poor man's affordable protein. This situation has changed drastically in the recent past and there are clear indications that the situation is worsening rather than improving. This is the consequence of a vigorous population growth, the continued deterioration of natural aquatic environments, and over-fishing in many parts of the world, especially in the Philippines. And it is not natural disasters like tsunamis and typhoons that are the principal causes of the degradation of our natural ecosystems but man, who has evolved from just one of many species on this planet to become a technological, "geological agent," capable of altering the natural characteristics of our planet….

Since my work is related to coral reefs, one may ask: what is the connection between reefs and fish? In many of our coastal areas, the relation is direct. Healthy reefs can support 15 to 30 metric tons of fish per square kilometer, while bombed reefs would support only two to five metric tons. Who bombs the reefs? The greedy and the desperate. What is the relation to the population? Since there is a growing demand for fish, the greedy fishers often use illegal and destructive methods for fishing, thus degrading the coral reef ecosystem. The desperate fishers become guilty of what Dr. Pauly refers to as Malthusian over-fishing. With so many people to feed, many coastal fishers become desperate to have fish for the next meal that they often bomb or dynamite the reefs they have access to since traditional methods are often inadequate for catching enough fish for a family for the day.

Others may say that we can solve the problem with aquaculture. While it is true that aquaculture is showing a strong growth, it is also certain that it is slowly degrading natural ecosystems, thus aggravating the plight of poor coastal fishers. The public has been made aware many times about spectacular mass fish kills in coastal towns like Bolinao and Binmaley in Pangasinan. But one has to witness a municipal beach carpeted with rotting *bangus* to truly appreciate what can happen with aquaculture. Culturing fish is not a quick fix to a serious problem that is on the rise. It should contribute to the solution but too often it adds to the problem.

It is high time that government officials and church leaders alike acknowledge the fact that this planet has a limited carrying capacity, not just individual ecosystems. Even with the best social systems, the problem of reaching the limits of the natural carrying capacity is not going to go away unless we take serious and immediate steps to curb our runaway population growth.

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An Odyssey to Excellence: Building the Marine Science Institute

(Commencement Speech, University of the Philippines Diliman, April 23, 2006)

Part 1

Resulting from a turf controversy between two campuses, a committee was formed under then President S. P. Lopez to resolve the issue of where and under whose jurisdiction should a marine science unit be established. The committee had just completed a two-page charter for a "Marine Sciences Center" for approval by the Board of Regents when, fortuitously, I came looking for a job. As a naive Ph.D. fresh from the Scripps Institution of Oceanography in California, I got the job to make those two sheets of paper into a reality.

The early years (1974-1980). No room, much less a building, came with those two sheets, not even a stick of furniture. Initially working from my desk as a new Assistant Professor in Marine Biology at the then College of Arts and Sciences, I set about the task of looking for available space. Because there was none at Palma Hall or in any of its pavilions, I was directed to the then Natural Sciences Research Center, which also turned out to be full, but where I was told I could wait for a social science project to be completed so that the vacated room could house the administrative office of the new MSC, as the Marine Science Institute was then known. Securing that room was no piece of cake, as it involved a skirmish with the incumbent social scientist who reluctantly vacated the natural science facility. It then took months to obtain furniture for an empty room because all that the UP could provide after an appeal to the president were one desk and one chair.

But what good was an office for a research center if there was no laboratory space? I had to yield my laboratory room as a faculty member of the CAS to the first recruits, two young ladies who started research on seaweed chemistry. But that gesture was well rewarded because within a few years, the two researchers managed to obtain a grant from the Ministry of Natural Resources that included the construction of what is now the Seaweed Chemistry Building. The next mode was to convince regular faculty members of university units to do research with us, by providing them with small research grants but requiring them to use their own laboratories since I had none to offer. This was a slow process but it allowed for their recruitment into the future Marine Science Institute. Desperate for more laboratory space, particularly for my own research, I combed the campus and consulted many people. My desperation must have been so obvious that the chairperson of the Zoology Department pointed me to an abandoned greenhouse. That out-of-the-way structure soon became the nerve center for coral reef research. From activities initiated there, the first national inventory of the coral reef resources of any country in the world emerged, a project funded by the Ministry of Natural Resources that included the construction of a small "Coral Building" (which now houses the Office of the Campus Architect). We tried to get support from the Office of the President, but the focus at that time was the creation of a new UP campus in the Visayas anchored on a flagship unit, the College of Fisheries.

From benign neglect to development focus (1981-1993). The struggling research center with a minuscule budget saw a window of opportunity when a proposal for a $20-million World Bank loan was being prepared for the development of fisheries and the new campus. With encouragement from the World Bank consultants, I approached the dean of the College of Fisheries if we could be part of the proposed development and share some of the resources. To my shock and surprise, I was told in no uncertain terms that the whole $20 million (today worth some $48 million or P2.5 billion) was only for the College of Fisheries. Hearing that message, I took my hat off and waved goodbye.

With our small budget we plodded on, never losing sight of our goal and mission. Within a few years, to our great surprise, we were being wooed with some force, to move with the rich but hapless unit. My few researchers and I sent the clear message to the president that under no circumstances would we move to the Visayas for a number of reasons that I do not have time to elaborate

Transactions NAST PHL Vol. 46: (2024)
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here. As a consequence, our reward was to be treated with benign neglect for the rest of the incumbency of the president at that time.

But the stars and the planets were in alignment for us. Come 1981, the fledgling MSC had the daunting task of hosting the Fourth International Coral Reef Symposium, a challenge that had fallen on our lap when I attended the third symposium in Miami in 1977. For within a few years of our existence, the earnest research that had started in the abandoned greenhouse had begun to be noticed by the international scientific community. By a fortunate occurrence, we planned for the conferment of a Doctor of Science degree, *honoris causa*, on the late Professor Francisco Nemenzo, father of our former president, an unsung Filipino hero but well-known for his pioneering studies on corals. And as chance would have it, that academic exercise happened to be the first official function of the newly appointed university president, now Sen. Edgardo Angara. After the conferment, he graciously hosted a reception at the Executive House for the international coral reef scientists who had come. What was both fortuitous and fortunate for the occasion was the lavish praise from the foreign guests for the extraordinarily well-organized symposium, something that they did not expect in a developing country.

Subsequent to that event, I had the privilege to call on the new president. When he asked me how he might help us, I told him that we needed a marine laboratory by the sea. We already had a five-hectare piece of land in Bolinao, Pangasinan but no budget to construct a laboratory. He apologized that he could not give us the money immediately but promised to put us in the infrastructure development program for the following year.

Nineteen-eighty three (1983) saw a P2-million appropriation for a marine laboratory, but with the Aquino assassination that year and the consequent political upheaval, the proposed building shrank into a two-story box with a dozen unfurnished rooms. But again, the gods were with us. By the mid-80s, after having waited a full decade, we qualified on our second attempt for a UNDP institution development grant worth $1.3 million. This grant was more than matched by the Philippine government counterpart that allowed us to complete not just the unfinished laboratory building, but an additional eight, yes, eight other buildings, from administration to dormitories to diving locker. Even as these were being put up with extra-budgetary resources, UP president Angara instructed then College of Science Dean Roger Posadas to make the construction of our headquarters in Diliman a priority. This was a welcome surprise because in the first master plan of the College of Science Complex, there was no Marine Science Building.

Why was this happening to us? Was it because we were the first and only academic unit in the university and the country that had an all PhD faculty? In 1986, when the former research unit, the MSC, was transformed into the degree-granting unit that is now the MSI, we decided that a doctoral degree was a conditio sine qua non to be a faculty member of the new institute. This was possible because virtually all those faculty members from the former Departments of Botany and Zoology who wanted to transfer to the new institute held doctoral degrees, and the young research assistants of the MSC who had gone abroad for their graduate studies began to return with their doctorates. This combination was ideal because the experienced faculty was complemented by bright young PhDs eager to do research. Indeed, from day one of the institute, virtually all the faculty, old and new, had publication credits. This was and is the distinction of the MSI. The entire faculty without exception is published and publishing, giving us an international recognition unmatched by any other unit until very recently.

The time had come to inquire about being designated a National Center of Excellence under a scheme established under President Marcos a decade earlier to recognize and promote scientific achievement in the university. Hands down, the MSI qualified to be the first new scientific center of excellence in 1994.

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Part 2

The past decade with the changing of the guard (1997-2006). 1998 brought about the recognition of the MSI as the first and only Center of Excellence in Marine Science under the Commission on Higher Education (CHED) COE/COD scheme of promoting and rewarding scientific excellence. The MSI continued its march forward as a vibrant, productive, graduate department of the College of Science. For this period, we produced about 20 ISI-indexed publications per year, an average of 1.2 per senior staff, which is world-class. Its ability to draw research funding from national and international sources remains its strength, each year drawing in twice the amount of the total budget that it receives from Quezon Hall.

I stood down as director at the beginning of the new millennium after leading it for a quarter of a century. The institute's present vigor is manifested in its being designated in 2004 as one of four international Centers of Excellence by the Global Environment Facility/World Bank Project on Coral Reef Targeted Research and Capacity Building for Management. Under this program, the once threatened Bolinao Marine Laboratory has become a greater nexus for international coral reef research. The benefits include the upgrading of facilities, including broadband complemented with wireless Internet connection, a new PABX telephone system that allows researchers to reach international contacts, plus a number of other vital equipment. Equally important, more than half a dozen graduate students are being supported under this program. Three senior staffers of the institute serve as members of international working groups in coral reef research, with additional research funding.

Conclusion. How have we been able to achieve this triple designation as "Center of Excellence"? We, in the Marine Science Institute, are ordinary Filipinos coming from all over the Philippines, born in this beautiful and blessed land, raised and educated in this society with its particular history, collective memory, political institutions, and economic status. Many have written volumes on how these aspects of our life have held us back from realizing our true heritage: an excellent nation at par with the best in the world.

I have recounted to you this afternoon the "Odyssey to Excellence" of the Marine Science Institute. What made the difference? In desperate times as we find ourselves today, we continually seek models which may serve to inspire us to improve our personal condition and the environment around us. I believe that it was in consideration of this that I stand before you this afternoon to share some experiences and some trials that may be of value to you as you venture forth in a very competitive and challenging world, armed with a new degree. To conclude my speech, I shall provide you some of the guideposts that we followed in our odyssey, which may be useful for your continuing journey in life. The first four are concerned with institution-building, which you may not be doing till later in your lives, but which you should know about. The rest are more personally relevant to the younger graduates.

First, there must be a vision, as lofty as possible, that must be pursued relentlessly. Ours was a three-stage goal: first, to be the best marine science institution in the country, then in Southeast Asia, and finally, in the tropical developing world.

Second, we created a nurturing, supportive environment where all could do their research. Early on, we decided in our recruitment policy, that the only crabs that would be allowed in the center would be crustaceans. Respect, collaboration, and unity are essential.

Third, dedication to work is essential to productivity. Our work ethic was the 40-hour week at one's place of work, which did not normally include one's home. Deliver what you promise to establish your credibility, especially if you are going back to the sponsor for continued support.

Fourth, recruit only the qualified to be your collaborators, preferably honor graduates. Thus, at one point, the MSI included one summa cum laude, one magna cum laude, and half a dozen cum laude graduates in its senior staff. Multiply this brain power with the extra time dedicated to work, and the resultant "IQ hours" of the institute as I call them, are unmatched by any department.

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Fifth, basic virtues like honesty, fortitude, and humility are not to be compromised. One should make a personal commitment to cultivate these in one's youth, and to interact with people who espouse these virtues. It was painful to let go of several Ph.D.'s that scored low in this regard, but it was necessary for the health of the unit in the long run. We must have the moral strength and great faith to withstand political and corporate pressures if we are to be truly successful in life.

Sixth, a positive attitude toward life is an important ingredient to success. Too much time is spent bellyaching in a typical Filipino work setting, when one's attention and energies should be focused on opportunities, opportunities to remove obstacles and move ahead, or really genuine opportunities to race forward in pursuing one's goals.

Seventh and finally, especially for young people in an age when we are bombarded by contradictory ideas, trust in Divine Providence and follow the Golden Rule. This exhortation may seem a bit strange in this secular campus, but my past religious training has left its influence. Examples are too numerous to list but let me just mention two. I have spent the better part of my life serving others, principally my students, my colleagues in the institute, and our nation at large. Going into retirement last year after 31 years of service, I was awarded two international research grants that have brought me more funding than I ever had in the years past. And, in recognition of my key role as the coordinator of the Philippines/Southeast Asia Center of Excellence in Coral Reef Targeted Research and realizing that the UP would cease to pay my salary upon my retirement, the sponsors of that GEF/WB program saw to it that I was fully compensated for my time.

But the greatest compensation that I have is not the material benefits that many aspire for. Rather, it is the recognition that I enjoy among peers in this country and all over the world, something that money cannot buy, a respect that buoys up the spirit even in these trying times, a satisfaction of fulfillment that I have served my people well, often at great cost.

This, my dear graduates, is my parting message to you: Serve others well before you serve yourself, and the Man Upstairs (God, Allah, Yahweh) will look after you! Congratulations and Godspeed!

Commencement speech of National Scientist Edgardo D. Gomez, Ph.D., University Professor Emeritus, at the 95th General Commencement Exercises, University of the Philippines-Diliman April 23, 2006.

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