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MARITIME TALKS ON ENVIRONMENT, SCIENCE AND SECURITY [MARITESS]

Science, Policy, and Diplomacy in a Hot Zone

A Focus on the West Philippine Sea

22 August 2024 | 1:00–5:00 PM
Audiovisual Room of the National Engineering Center
University of the Philippines Diliman

Prepared by Charles Raymund Jose Mijares

upcids Conservation and Biodiversity

UNIVERSITY OF THE PHILIPPINES
CENTER FOR INTEGRATIVE AND DEVELOPMENT STUDIES

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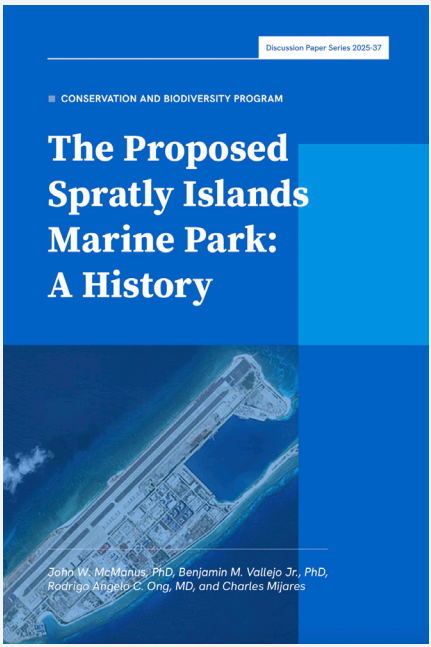

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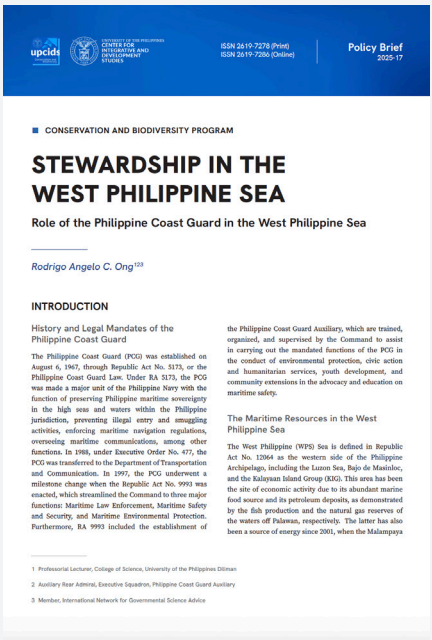

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About the Event

Held on 22 August 2024, 1 to 5 p.m., at the Audiovisual Room of the National Engineering Center in the University of the Philippines Diliman Campus. Dubbed MariTESS, under the direction and guidance of the Conservation and Biodiversity Program Convenor, Professor Benjamin M. Vallejo Jr., the public forum was organized and conducted by Charles Raymund Jose Mijares (Senior Research Associate) and Dr. Rodrigo Angelo Ong (Forum Moderator).

This forum looked into the nexus of marine science and fisheries with maritime and national security, where we could begin identifying possible policy and organizational gaps. It considers the strengthening of evidence synthesis with the available information to provide a closer look at science policy and diplomacy options for hot zones. In particular, the forum looks to uncover gaps with existing national policy for inter-agency cooperation in areas of research, monitoring, enforcement, and securing the Philippine Seas.

In light of regional agreements and multilateral nation-state dynamics in the West Philippine Sea (WPS) as part of the continental basin known by many as the South China Sea, the forum also looks to identify policy options based on science cooperation to ease rising tensions in maritime “hot” zones. We led with the data in the WPS as this has proven to be the area of greatest international concern and strong national interest.

Background

Figure 1. The East China, South China, and Yellow seas.
Source: Source: https://www.britannica.com/place/South-China-Sea#/media/1/556146/3073

The early beginnings of the Conservation and Biodiversity Program (CBP) of the University of the Philippines' Center for Integrative and Development Studies (UP CIDS) previously looked deeply into aspects of biodiversity in the Philippines. Over the decades, the development of Philippine laws concerning biodiversity conservation has been shown to be some of the most progressive in the world. However, there comes a need to assess the policy impact on biodiversity and whether these biodiversity policies meet principles of ecological integrity and sustainability, and whether desired outcomes can be realized.

Through its reinstatement, the CBP has looked into aligning with the United Nations' Sustainable Development Goals (SDGs) in the assessment and review of policies and their implementation. This informs the country to take on its international obligations in biodiversity conservation to meet UN SDG 13 on Climate Action, 14 for Life Below Water, and 15 with Life on Land.

Biodiversity and its conservation are essential in providing a sustainable base for agriculture and fisheries. As part of the study in its strategic dimensions, three focal areas of policy research in this program include assessing (a) the nexus between fisheries, aquaculture, and environmental sustainability, (b) the effectivity of protected areas governance and ecological outcomes in the context of resiliency in global anthropogenic climate change and, (c) policy and strategic dimensions in marine science research (MSR). Each of these focal areas contributes to conserving biodiversity and bears a strong relevance to the environment, food, and national security.

The program framework under the postnormal science paradigm approached the forum using the concepts promoted by the International Science Council (ISC) and the International Network for Governmental Science Advice (INGSA).

Since the mid-1990s, the South China Sea has become a central focus of maritime activity, be it economic, ecological, or geopolitical. Amid developments with growing independent states, we also saw the growth of membership in the Association of Southeast Asian Nations (ASEAN) from six member states in 1984 to ten by the year 2000. ASEAN goals include[1] promoting regional peace and stability through abiding respect for justice and the rule of law, as well as active collaboration and mutual assistance on matters of common interest. One ASEAN guiding principle contained in the 1976 Treaty of Amity and Cooperation in Southeast Asia (TAC)[2] specifically states the renunciation of the threat or use of force.

Having these in mind, the MariTESS forum was developed to explore viable solutions using consultation of key resources with the goal of promoting

1 Association of Southeast Asian Nations, "What We Do," 2025, https://asean.org/what-we-do/.

2 Association of Southeast Asian Nations.

regional peace and stability among neighboring nations within the South China Sea, more commonly known as the region of Southeast Asia.

These proceedings revisit the speakers' presentations in the MariTESS forum, capturing the gist of their discussion points, a summary of the reactor speeches, as well as questions fielded from live and virtual audience members. The wealth of information captured in these proceedings about the speakers, reactor panelists, and audience members' thoughts and insights can become a valuable resource for researchers and communicators alike.

Speakers and Panelists

FORUM MODERATOR

Rodrigo Angelo C. Ong, MD, DipBMgt, MBA

Dr. Rodrigo Angelo Ong, or Doc Butch, is a former Chief Science Research Specialist of the Philippine Institute for Traditional and Alternative Health Care's Research and Development Division. As a medical practitioner, he specializes in rehabilitation medicine, medical acupuncture, and humanitarian assistance and disaster response.

A humanitarian and teacher by vocation, he is a Professorial Lecturer for the University of the Philippines College of Science on Science, Technology and Society (STS 1) and actively provides medical assistance to the Philippine Coast Guard's Medical Service and various socio-civic organizations in medical missions and community medicine.

SPEAKERS

Benjamin M. Vallejo Jr., PhD

Dr. Benjamin Vallejo Jr. is a professor at the University of the Philippines-Diliman, where he teaches Biogeography; Environmental Science; and Science, Technology, and Society. His research work deals with the biogeography of the Philippines and Wallacea, coastal and intertidal ecology, urban environments, invasive species biology, ballast water management, and antifouling program for the Philippine maritime industry. He is Convenor for the Conservation and Biodiversity Program under the Center for Integrative and Development Studies.

Upon receiving his master's degree in 1993, he worked on setting up the ReefBase global coral reef databases at ICLARM (now WorldFish). He received his PhD in 2004 from James Cook University in Australia, where he did a thesis on the biogeography of coral reef shore gastropods. He has taught at the Ateneo de Manila University before assuming his appointment at the University of the Philippines.

John H. McManus, PhD

John W. McManus, PhD is a professor of marine biology and ecology at the Rosenstiel School of the University of Miami, and PI of the Coral Reef Simulation Lab. He has a PhD in Biological Oceanography from the University of Rhode Island. He was the Director of the National Center for Coral Reef Research (NCORE) from 2000 to 2015. From 1993 to 2000, he was a Senior Scientist and ultimately Leader of the Aquatic Environments Program at WorldFish (previously ICLARM), a CGIAR center with a circumtropical focus, based in the Philippines and Malaysia. He was previously an On-Site Scientist in the Philippines for USAID Program aimed at developing a new paradigm for fisheries analysis. With this, and three prior years in the US Peace Corps plus more than a year as a scientific programmer, he spent nearly 20 years living in Southeast Asia. He lived in a small fishing village while leading a detailed study of the large Bolinao coral reef system (1986-1993). He organized and led ReefBase—the Global Coral Reef Database (1993–2000), and the MacArthur-funded project "Population Interdependencies in the South China Sea" (PISCES) (1996–99), which was based on his 1992 suggestion for a Spratly Islands Peace Park, supported by the first broad-area particle-tracking reef connectivity study. PISCES involved Taiwan, the Philippines, Vietnam, Malaysia, and Indonesia, and helped to strengthen ties among regional scientists.

He has done fieldwork on more than 100 coral reefs globally, including eight disputed reefs in the South China Sea. He organized the International Coral Reef Action Network (ICRAN) and helped set up the International Coral Reef Initiative (ICRI) and Global Coral Reef Monitoring Program (GCRMN). He has chaired more than 20 international workshops and has been sponsored to give plenary conference talks in nine countries. He was a member of the "CSIS Expert Working Group on the South China Sea" (2016–18), aimed at defusing tensions in that region.

Mudjekeewis D. Santos, PhD

Dr. Mudjekeewis Dalisay Santos, or Doc Mudjie, is a fishery scientist and marine biologist widely recognized for his work on utilizing genetics, resource assessment, and policy studies to support fisheries management and aquaculture for food security, biodiversity conservation, and climate change adaptation in the country.

He is a conferred Scientist V at the National Fisheries Research and Development Institute (the 1st ever in the Philippines), an Academician of the National Academy of Science and Technology (NAST) Philippines, a faculty (part-time) at the Graduate School of the University of Santo Tomas, and an adjunct professor at the Central Luzon State University (CLSU). He obtained his BS in Biology from UP Baguio, and MS in Aquatic Biosciences and Ph.D. in Applied Marine Biosciences from the Tokyo University of Marine Science and Technology, Japan.

He has authored and co-authored over 100 scientific articles, book chapters, and books, is currently the Editor-in-Chief of *The Philippine Journal of Fisheries,* Section Editor of the *Philippine Agricultural Scientist,* and an Editor of *Fisheries Science,* the official journal of the Japan Society for Fisheries Science. He is a recipient of the Award of Excellence in Socio-Economic Applications of DNA Barcoding by the International Development Research Centre (IDRC), Canada, and the prestigious Presidential Lingkod Bayan award given by the Civil Service Commission and the Office of the President of the Philippines.

Hon. Jesus "Gary" S. Domingo, PhD

Undersecretary Domingo holds a Master's Degree in Philippine External Relations, a Master's Degree in National Security Administration, and a PhD in Criminology. He also holds a Bachelor of Science in Foreign Service from the Georgetown University School of Foreign Service and a Master of Laws in International Law of Armed Conflict from the Geneva Academy of International Humanitarian Law and Human Rights.

In the practice of his profession, Domingo holds experience as the former Philippine Ambassador to New Zealand, with concurrent accreditation in the Cook Islands, Fiji, Samoa, Tonga, and the Pacific Island Forum. He is also

the former DFA Assistant Secretary for UN Affairs and other International Organizations, representing the Philippines in the UN Security Council, the UN General Assembly, the Conference on Disarmament (CD), and UN Disarmament, Non-proliferation and Humanitarian Conventions, among others. Finally, Domingo is the former head of Assistance to Nationals (ATN) at the Philippine Embassy in Riyadh, Saudi Arabia.

He is a reservist with the Philippine Marine Corps and Coast Guard Auxiliary. He also founded the Diplomatic League, the DFA's Youth Engagement Platform.

CG Capt. Noriel P. Ramos, MSc

Coast Guard Captain Noriel P. Ramos, Msc, invited during his capacity as Acting Deputy Director of the Coast Guard Strategic Studies and International Affairs Center (CGSSIAC). He was a graduate of the London Protocol in Engineering, obtained his Master of Science degree at the Korea Institute of Ocean Sciences and Technology in Busan, South Korea, and an alumnus of the International Visitor Leadership Program of the US State Department in Washington, DC. He also served in different PCG Units as a public servant who inspired transformational advancement within the Philippine Coast Guard (PCG). Under his leadership in 2022, Coast Guard Station La Union received the Station of the Year Award during the 38th Founding Anniversary celebration of the Coast Guard District Northwestern Luzon (CGDNWL).

PANEL OF REACTORS

Our competent panel of experts was chosen for their insights and extensive knowledge of our subject matter and prior collaboration with selected plenary speakers.

Jay Batongbacal, JSD

A scholar with degrees in Political Science and Law from the University of the Philippines, as well as a Master of Marine Management and a Doctor in the Science of Law, both from Dalhousie University (Canada). He has worked extensively on maritime affairs since 1997, including as legal advisor to the Philippine government before the Commission on the Limits

of the Continental Shelf and the International Maritime Organization. He is presently a full professor of the University of the Philippines College of Law, serving concurrently as Executive Director of its Graduate Studies Committee and Director of the U.P. Law Center–Institute for Maritime Affairs & Law of the Sea.

Herman Joseph Kraft, MA

Professor at the Department of Political Science at the University of the Philippines at Diliman, Quezon City. He is concurrently a Convenor of the Strategic Studies Program of the Center for Integrative and Development Studies at the University of the Philippines. He has been working on and published articles and book chapters on International Relations and International Security, especially issues concerning ASEAN, regional security in Southeast Asia, security sector reform, and intra-state conflict in the Philippines. He has given talks at the Foreign Service Institute, the National Defense College of the Philippines, the different services of the Armed Forces of the Philippines, in different fora organized by the Department of Foreign Affairs and the Department of National Defense, and various educational institutions in and outside the Philippines. His latest publications include: "ASEAN and the Protection of Migrant Rights" (2019); and "Korea's New Southern Policy, ASEAN, and the Philippines: Middle Power Dynamics in Southeast Asia" (2020); "ASEAN–ROK Cooperation on Regional Security in a Changing Strategic Environment" (2021); and Teaching International Relations in the Philippines: Opening Spaces while Maintaining Traditional Approaches (2022).

Maria Regina Sevilla Sibal, MPA, PhD cand.

A licensed professional teacher and an experienced Senior School Administrator with a history of working in instructional development and school management. She works actively towards her advocacies on education, peace, women and gender issues, safe mobility, literacy through storytelling, teacher training, and transformative leadership in schools and organizations. At the time of this writing, she was Advisor for Capacity-Building Measures and Digital Evidence of the Support to the Philippine Coast Guard, a project of Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ).

The Forum Overview

The MariTESS Forum was a public information-sharing forum on thoughts and insights about alternative ways of looking into the dynamics and interaction of nations and states around the South China Sea. The CBP team uncovered discussion topics through initial interviews that would set the tone of MariTESS. Veering away from the emotionally charged discussion of sovereign rights and territorial disputes, MariTESS looked into informing the public about science cooperation and the guidance of policy actors.

The half-day forum topics were grouped into two parts:

1. Coming from Science: Postnormal paradigms, maritime knowledge base, and Indo-Pacific cooperation

2. The Nation's Interests and Desire for Cooperation: Department of Foreign Affairs, and the Philippine Coast Guard's strategic studies center

OPENING AND WELCOME REMARKS

The forum began with a brief introduction by our forum moderator, who called to begin the information-packed session of MariTESS. Given the number of speakers and panelists, a simple welcome of the audience and panelists began the program.

The Presentations

COMING FROM SCIENCE

Postnormal Intelligence: A Thematic Background

Benjamin M. Vallejo Jr., PhD

Dr. Vallejo's presentation places the perspectives of postnormal science in managing uncertainty and gathering intelligence.

The paradigm of postnormal science was introduced as a framework for creating policy, urgent decision-making, and application. It was first proposed by Professor Sylvia Funkovich and Jerome Ravets in 1993. The framework brought about the concept of postnormal intelligence that aided analyses under postnormal science. In this informative discussion, Professor Vallejo analyzed the importance of scientific data as the knowledge base that formed the basis of intelligence as a source of critical, decision-making information. We appreciated the need to apply scientific information in crafting public policy.

The talk described areas, or operational spaces, where intelligence may be gathered from or applied. The operational spaces were:

1. science space
2. intelligence space
3. science-intelligence space, e.g., environmental intelligence
4. resource space, e.g., fisheries resource intelligence
5. battle space, referring to military areas of conflict

The different operational spaces were related to the manner in which information can be drawn. The science space used normal science, which was

the science we do in the laboratory. This followed basic research methods,[3] which remained important in creating knowledge. The other operational space, the science-intelligence space, dealt with more complex situations. This space fell in postnormal science, requiring sources of information to be varied and multisectoral. Using the example of environmental intelligence, postnormal intelligence could have aided in predicting the possibility of an oil spill or the three ships that floundered in Manila Bay. Another one dealing with the resource space could prove useful in dealing with resource management issues, like what was being done for fisheries in the West Philippine Sea.

Information gathered, among the sources of intelligence by operational space, had differing levels of uncertainty. Uncertainty is categorized in three levels by Serra and Sardar[4] in 2017, in context as (a) surface uncertainty, (b) shallow uncertainty, and (c) deep uncertainty as a union of contradictions, chaos, and complexity.

The necessary intelligence, with respect to science policy, was categorized based on the available data or information. With many sources of intelligence information and several levels of uncertainty, an essential strategy was needed to facilitate complex problem-solving. To illustrate the importance of managing uncertainty, Professor Vallejo made use of a Johari–Rumsfeld matrix for categorizing themes or events:

I. Known unknowns—categorized as themes or events that we know exist but not their occurrence.

II. Known knowns—categorized as themes or events we know that we know.

III. Unknown unknowns—categorized as themes or events that are yet to be discovered.

IV. Unknown knowns—categorized as themes or events we don't know but others may know.

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3 The "scientific method": Identify a problem, propose a hypothesis, do the necessary methods and experimentations, validate the hypothesis, and come up with a conclusion.

4 Jordi Serra and Ziauddin Sardar. "Intelligence in Postnormal Times." *World Futures Review* 9, no. 3, (2017): 159–79.

In his discussion, the thought process revolved around identifying which quadrants described the information and how an assessment could help in science-based policy formation. The source of intelligence as information lies in quadrant IV. There was a call for research institutions "to recognize that science is really strategic intelligence." This thought can lead to scientists strengthening the importance of intelligence. When taken in the context of doctrine and perspectives of national security, as demonstrated in the case of the United States Navy, experts "need superior science information gathering capacity, technology, data curation, and analyses" to advantageously use science in defense-related objectives.

An interesting and important example that Professor Vallejo provided was about a natural biological occurrence in jellyfish that brought crises on several occasions. It was noteworthy that possible aversion to those incidents may have been assessed using postnormal intelligence. The incidents cited were:

1. a Philippine power plant was shut down due to a jellyfish swarm, disrupting airport operations in 1999;

2. a US Navy vessel could not depart from Australia after a goodwill visit in 2006 due to a jellyfish swarm; and

3. in 2010 the presence of jellyfish swarms threatened disruptions to naval operations and commercial shipping in the Persian Gulf.

Given those incidents, could jellyfish be considered by science agencies as a national security problem? This was brought up since the *South China Morning Post*[5] mentioned in an article in the diplomacy section that jellyfish also affected the deployment of aircraft carriers near Taiwan. Taking a deeper dive into the steps for analysis, Professor Vallejo looked back at operational spaces and his Johari–Rumsfeld matrix:

5 Stephen Chen, "Why the Humble Jellyfish Could Stop China's Aircraft Carriers in Their Tracks," *South China Morning Post*, 28 November 2017, https://www.scmp.com/news/china/diplomacy-defence/article/2121812/why-humble-jellyfish-could-stop-chinas-aircraft.

1. Normal science: gives information on the jellyfish life cycle, the biology and reproductive cycles; those were known knowns.

2. Science intelligence: gives information on possible interactions with the environment and infrastructure; those were known unknowns.

3. Resource intelligence: asks whether overfishing resulted in jellyfish population explosions; that fell into unknown unknowns, requiring more research.

4. Military intelligence: Russian scientists knew about the impact of jellyfish on naval operations since the Cold War 1960s, only translated recently; those studies were unknown knowns.

Professor Vallejo emphasized the importance of intelligence in science policy, as such requires attention for better guidance. He stated, "We can relate science, marine science, [and] marine biology with some national security issues. Now, if we're dealing with that, we have to communicate it to the public, though also our security agencies, and [that] this is about science information." Intelligence in the science space, if used for some defense-related objectives, needed to have a more coordinated agency role:

> We can't be fragmented if we're going to go this way. We need that superior information gathering capacity, and be able to immediately assess risk, and also be able to immediately make the decisions based on the risk assessments that we have now. If we're going to translate that, it's just how to deal with what we don't know, or ignorance and uncertainty, so we can make a decision that is applicable, given all the risks and opportunities of a particular time.

In the age of information and technology, where unmanned and autonomous vehicles gather data for use in science and intelligence, the need for applying postnormal science and intelligence toward making science-informed and timely decisions for policy was evident.

> ". . . research institutions will have to recognize that science is really strategic intelligence."

"You need superior science information gathering capacity, technology, data curation and analysis."

". . . it's just how to deal with what we don't know, or ignorance and uncertainty, so we can make a decision that is applicable, given all the risks and opportunities of a particular time."

History of the Proposed South China Sea Peace Parks

John W. McManus, PhD

Professor McManus's presentation shared the thoughts and observations about the Spratly Islands and maritime features in the West Philippine Sea.

The presentation by Professor McManus recounted the scientific information about areas in the South China Sea from as early as the late 1980s. His photographic revisiting of the developments in the disputed South China Sea reefs and features sets the tone for his further discussion. The curated photographs from his research and professional involvement with a number of nongovernmental organizations (NGOs) focusing on marine conservation and fisheries captured the changes in the maritime features spanning over 30 years.

The professor was engaged in numerous projects around the West Philippine Sea, particularly around Scarborough Shoal and the Spratly Islands. His recollection and experience of the abundant biodiversity in those areas made up most of this presentation. Particular attention was placed on the pulses of fish observed over a period of many years.

Within the discussion, satellite images and ocean current mapping were used to appreciate the flow around the semi-enclosed South China Basin. The ocean current mapping model was performed using decades of information about ship drift data until around 1950. The model produced had approximated the well-mixed ocean currents in the area. The ocean current model[6] considered the "reversing monsoons, that run across, back and forth across this (sea)." He likens ocean currents to a vertical washing machine, with "all kinds of whorls going in many directions." Therefore, Professor McManus considers

6 Model by Jonathan Cool (citation required and requested)

the South China Sea basin "one of the most well-mixed semi-enclosed basins in the world", with the currents going about in many directions. The analysis used a one-month period for particle tracking connectivity. They have used that period as a standard ever since, which was based on an average 24-day larval fish cycle.

The connectivity showed ocean currents moving from the Spratlys that moved up as far north as Southern Taiwan, with some months where it moved to the Paracels. One might say that the Spratly Islands may be the source of pulses of [marine life] larvae throughout the South China Sea, or the Southeast Asia region. What made a compelling idea of marine conservation of the area desirable was "the point is that it showed that the Spratly Islands may be the source of pulses of larvae through the whole region, and keeping the stocks of coral reef fish from suffering local extinction." Professor McManus proposed a marine park or reserve in the Spratly Islands. The reefs and features were home to very rare coral species and giant clams with uniquely sought-after shells.

Further discussions among scientists, researchers, and conservationists uncovered the term "Peace Park." This idea was proposed separately to different outlets by Prof. McManus in 1992 and 1994, including then-President Fidel V. Ramos, but may not have gotten popular support from other claimants of the area. Having many states claim the Spratlys as "traditional fishing grounds" has continued to blur lines of conservation, biodiversity, and geopolitical tensions. He acknowledged the fact that many interested parties would like to keep war away.

Professor McManus's eye-opening presentation noted that a research visit in 2016 showed that although fish came in great abundance, each about 7 cm long, that was an indication of overfishing since those fish had very few predators. The delicate ecosystem also reflected massive damage from organic pollution and giant clam cutter boats. He recalled his experience:

> I swam three kilometers across this (referring to an image of a barren reef), and for the first kilometer, there was nothing alive except a few of these annoying little fish. Those fish eat microorganisms. They're called bristletooth fish, and they can survive anywhere. But there [were] no sea cucumbers, no sea urchins. You know, only a little bit of seaweed here and there, [which] should be thousands of species there.

Artificial island building activities showed irreversible and permanent reef and biodiversity damage. Those massive militarized bases on the converted reefs posed a grave threat to the marine ecology in the South China Sea. Massive dredging of reef lagoons, as seen in online satellite imagery, only tells part of the environmental damage. Once such activities were brought to public attention, along with destructive giant clam harvesting, China claimed to have stopped the illegal activity of giant clam harvesting. The world knows they still continue this within the illegal reef bases they control.

Beyond the geopolitics and the biodiversity conservation or lack thereof, Professor McManus ended his presentation with this thought: "I don't think going alone is a good thing, and going alone is what you get when you start claiming what most people think is other people's property."

> "You've got reversing monsoons (and) that runs across, back and forth; like looking down into a vertical (upright) clothes washing machine."
>
> "The point is that it showed that the Spratly Islands may be the source of pulses of larvae through the whole region, and keeping the stocks of coral reef fish from suffering local extinction."
>
> "I don't think going alone is a good thing, and going alone is what you get when you start claiming what most people think is other people's property."

Scientific Cooperation: West Philippine Sea Fisheries

Mudjekeewis D. Santos, PhD

For Dr. Santos, peaceful cooperation coming from science is possible through multinational cooperation for food security.

Dr. Mudjie Santos began his presentation by discussing the mandate and the beginnings of his current home, the National Fisheries Research and Development Institute (NFRDI). NFRDI's existence and separation from the enforcement agency Bureau of Fisheries and Aquatic Resources (BFAR) was inked in 1998, which came into practice as a separate research and development division in 2021. The NFRDI maintains the knowledge products on fisheries, including the *Philippine Journal of Fisheries*, which began publishing in the 1950s.

The brief history of NFRDI was followed by the framing question: Why the West Philippine Sea? The area enclosed in the South China Sea, with legal sovereign rights by way of the United Nations Convention on the Law of the Sea (UNCLOS), was hinted at by Presidential Administrative Order No. 29 (2012), which declared the extent of the archipelagic nation's rights to an exclusive economic zone (EEZ), claimed as the West Philippine Sea.[7] As of the conduct of this forum, there remains confusion as the navigation points have not been defined.

In the backdrop of international law and fora, there was also no clarity for foreign scientists or most of the international community regarding this concept of the West Philippine Sea. To date, the world still recognizes that body of water as a portion of the South China Sea. However, the economic

7 Office of the President, Naming the West Philippine Sea of the Republic of the Philippines, and for Other Purposes, Admin. Ord. No. 29 (5 September 2012).

contribution to global trade passing through the South China Sea was something to be considered. In a study published in 2016 by Teh et al.,[8] the economic activity in the area was estimated to be as much as US$22 billion every year, which might even be a conservative estimate. Around three million jobs were reportedly created, relying on the trade activities in the area.

The great importance of this basin in the Southeast Asian region was punctuated by these economic statistics. The presentation continued with the rising economic activity, pertaining specifically to fishing activity. The illustration of the rising frequency of reported fishing in the area from the 1950s until early 2000s showed that although South China Sea fishing could be seen as highly productive, the fact was that fish populations had declined to only 30 percent by estimates.

These points and factors led to the investigation of biodiversity and possible habitat loss, including altered ecosystems, resulting in the observed "fished down" state in the region. This gave the Center for Humanitarian Dialogue (HD)[9] the desire to initiate a study among nations that benefit from the area. The study acknowledged that fish, by nature, did not (and may never) recognize geopolitical boundaries and ownership of nation-states. The fish did as their natural instinct dictated and swam with the ocean currents or stayed in their conditioned habitats.

The multinational study consortium was then funded by HD, started in 2017 where scientists from a number of ASEAN state institutions (Malaysia, the Philippines, and Vietnam), research universities (based in Indonesia and the People's Republic of China), and Australia came together to develop the Common Fisheries Resource Analysis (CFRA)[10] of *Katsowanus pelamis* or skipjack tuna (whose economic value for canning).

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8 Louise S. L. Teh et al., "What Is at Stake? Status and Threats to South China Sea Marine Fisheries," *Ambio* 46 (2017): 57–72, https://doi.org/10.1007/s13280-016-0819-0.

9 Centre for Humanitarian Dialogue, 2025, https://hdcentre.org/.

10 Jeremy Prince et al., "The CFRA: A Joint Assessment of South China Sea Skipjack Tuna Stocks," Centre for Humanitarian Dialogue, September 2022, https://hdcentre.org/wp-content/uploads/2022/09/CFRA-Scientific-Paper.pdf.

In their research, they found that fish catch in the South China Sea for this species has been steadily declining since 2003. Their joint study looked into a "Cooperative South China Sea Fisheries Management Initiative" using science, diplomacy, and facilitating dialogue through mediation.

Being a participant in the study team, Dr. Santos shared his experience, expertise, and knowledge from his early research for this study. The connectivity of larval dispersion, as previously mentioned by Professor McManus, was evident in their CFRA study as well. Fish mitochondrial DNA analyses and genotyping showed that fish populations mixed and swam around the South China Sea. The intention of HD was the prevention of fishing conflicts and disputes, each nation wanting food security and economic development, keeping in check sustainability and habitat protection.

The important data contribution of the Philippine team and every study participant was fish catch data. NFRDI presented relevant information from their National Stock Assessment Program's (NSAP) *The Philippine Capture Fisheries Atlas*,[11] which documents nationwide landed catch and effort monitoring. The atlas detailed fishing activity in the Philippines, including those efforts in the West Philippine Sea. The NSAP Atlas was incidentally a resource for fisheries closures throughout the Philippines, and though triggers were varied, the data supported those closures that maintained the fish stocks.

Directing the presentation back to the CFRA study, Dr. Santos also related the team's meetings, the consensus-building that was needed, and the common goal of resource analysis. The parameters for their study were: (a) a consensus need for cooperation, with a (b) focus on shared fish stocks for a species that was (c) economically important among the five (5) participant states and (d) categorized in UNCLOS as "highly migratory,"[12] thus "imposing a duty of States to cooperate."

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11 Mudjekeewis D. Santos et al., eds., *The Philippine Capture Fisheries Atlas* (Bureau of Fisheries and Aquatic Resources–National Fisheries Research and Development Institute, 2017), https://www.nfrdi.da.gov.ph/tpjf/etc/NSAP%20Capture%20Fisheries%20Atlas%20NOV%2028%202017.pdf.

12 United Nations Convention on the Law of the Sea, art. 64. (10 December 1982), https://www.un.org/depts/los/convention_agreements/texts/unclos/unclos_e.pdf.

The result was a commendable effort by the five countries involved, from which they produced a joint paper in the Common Fisheries Resource Analysis. From that study, HD also developed a policy brief and readily consumed dissemination with an infographic[13] as part of their mission. "From this paper, *binanggit na*, fish, meron common issues, common governance, common biological, ecological aspects, [*pero*] even their aspirations, *parang magkakamukha din dahil gusto* [*ng*] *lahat magkaroon ng* food security, economic development, sustainability, protection."

The challenge Dr. Santos posed to the scientists and audience members alike was how we can move forward. After all the effort of scientists from five interested countries, their research has remained a study. He says, "In the meantime, fish stocks are continuously under threat. Nangyayari pa rin ito, of course, overfishing, and climate change pang binabanggit, and honestly (we are) not sure what to do next."

With those insights, Dr. Santos encouraged the "next generation" to place importance on intelligence in the form of scientific information and consider the path of research as a career. What he began as the question of "why the West Philippine Sea" seemed to be the legacy question for our new scientists in the Philippines.

> *"Ang importante dito, yung isda hindi sya nagre recognize ng . . . boundaries.*
>
> [What is important (or noteworthy) is that fish do not recognize . . . boundaries]"
>
> *"From this paper, binanggit na, fish, meron common issues, common governance, common biological, ecological aspects, [pero] even their aspirations, parang magkakamukha din, dahil gusto [ng] lahat magkaroon ng food security, economic development, sustainability, protection.*
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> [From this paper, it was stated that (with) fish there are common issues, common governance, common biological, ecological aspects, (yet) even their

13 "South China Sea Fish Stocks At Risk Without Regional Cooperation, Five-Country Scientific Report Warns," Centre for Humanitarian Dialogue, 2 September 2022, https://hdcentre.org/news/south-china-sea-fish-stocks-at-risk-without-regional-cooperation-five-country-scientific-report-warns/.

aspirations, seemingly look alike, because (of) the desire of each nation, to have food security, economic development, sustainability, protection]."

"*In the meantime, fish stocks are continuously under threat. Nangyayari pa rin ito, of course, overfishing, and climate change pang binabanggit, and honestly [we are] not sure what to do next.*

[In the meantime, fish stocks are continuously under threat. This is still happening, of course, overfishing, and climate change is also mentioned. And, honestly (we are) not sure what to do next]."

THE NATION'S INTERESTS
AND DESIRE FOR COOPERATION

Civilian Security and Ocean Diplomacy

Honorable Jesus "Gary" S. Domingo, PhD

Undersecretary Domingo's presentation discusses the functional perspective of the Department of Foreign Affairs (DFA) in geopolitical relations and securing our interests.

The presentation of Undersecretary Domingo began with the nominal information of functions within the DFA, which merged in 2014 through Department Order No. 12-2014, in order to establish a more coherent and comprehensive approach to maritime issues that concern the Philippines. What were previously known as the Ocean Concerns Office and the West Philippine Sea Center were merged into the Maritime and Ocean Affairs Office (MOAO). The MOAO was tasked to:

1. advise and assist the Secretary of Foreign Affairs regarding:
    a. maritime, ocean and archipelagic issues and concerns
    b. identify and develop policies, plans, programs and projects in implementing international agreements which the Philippines is party or signatory to, primarily on territorial issues such as exclusive economic zones and territorial sea baselines.
2. identify and prioritize Philippine interests and objectives in the West Philippine Sea
3. formulate and recommend policies, plans, programs and projects to enhance the integrated and coordinated management of maritime, ocean, archipelagic and regional strategic and security interests

Following the description of MOAO and its functions, Undersecretary Domingo proceeded to look into his office, the Office of the Undersecretary for Civilian Security and Consular Affairs. He broadly described civilian security as protecting our citizens and civilians from natural and man-made threats. The undersecretary's office comprises the Office of Civilian Security, the Overseas Voting Secretariat, and the Office of Consular Affairs. Their activities revolved around coordination within the DFA and among other agencies and stakeholders regarding counterterrorism, civil aviation, humanitarian assistance, and disaster risk reduction and management.

Because the Philippines is a maritime archipelagic nation of over 7,000 islands, Undersecretary Domingo stated that

> we have championed the archipelagic principle, an important concept that unites land, water, and people into a single entity under the United Nations (Convention) on the Law of the Sea (UNCLOS). The eventual recognition and incorporation of the UNCLOS is a milestone in advancing the Philippines' vital interests as an archipelagic state, in asserting our identity and territory as indelibly imprinted in our Constitution.

In addition to the ongoing incorporation of UNCLOS statutes into Philippine guidance in diplomacy, the DFA also stands by the Arbitral Award of 2016 by the Permanent Court of Arbitration in The Hague. The award has been cited in international fora for its clarity and legal definition of features in the South China Sea. These two documents were called the "twin anchors of Philippine foreign policy" and our country's action on the West Philippine Sea and South China Sea.

Regarding the outcomes of the Philippines' diplomatic actions, Undersecretary Domingo said, "We do recognize that diplomacy does not always produce quick results, but coupled with the right policies on the domestic front, it remains to be our most effective tool in the pursuit of our national interest in the global community. Our actions are based on and promote to protect the gains we received in the arbitral award." The DFA has continued to file diplomatic protests and undertake appropriate action on the WPS incidents, which usually refer to:

1. the illegal presence or swarming of foreign vessels in various Philippine maritime zones;

2. illegal fishing (in context: illegal, unreported, and unregulated fishing);

3. unauthorized conduct of marine scientific research in the maritime zones;

4. interference in Ayungin Shoal; and

5. China's annual fishing ban (supposedly for "their" territory) that includes part of the West Philippine Sea.

The Philippines' diplomatic protests serve political, as well as legal purposes. According to Undersecretary Domingo, "They express a State's official position, assert its rights and prevent acquiescence to positions asserted by other States. As they are official positions, they have legal value as evidence of State practice on a practical level." Further to that, protests informed external parties that their actions, whether lawful or unlawful, were noticed by the State.

Through the President of the Philippines, the DFA has drawn strength during the Inaugural State of the Nation Address in 2022. President Marcos Jr. said that he "will not preside over any process that will abandon even one square inch of territory of the Republic of the Philippines to any foreign power."[14] Further to this, in a keynote address at the 21st IISS[15] Shangri-La Dialogue in May 2024, the President reaffirmed that the country will continue to build upon its significant footprint in enriching UNCLOS and the Convention on Biological Diversity and the High Seas Treaty, or the BBNJ[16] agreement.

Covering the Philippines' and the DFA's strategy and direction, the country's continued participation in international and legislative fora such as, to

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14 Nestor Corrales, "PH Won't Give Up Even a Square Inch of Territory—Bongbong Marcos," *Philippine Daily Inquirer*, 26 July 2022, https://newsinfo.inquirer.net/1634524/marcos-not-even-a-square-inch.

15 International Institute for Strategic Studies, Singapore Office.

16 United Nations, Intergovernmental Conference on Marine Biodiversity of Areas Beyond National Jurisdiction, adopted 19 June 2023, https://www.un.org/bbnjagreement/en.

name some, the State Parties to the Law of the Sea (SPLOS), the BBNJ, the International Maritime Organization (IMO), the Commission on the Limits of the Continental Shelf (CLCS), the International Seabed Authority (ISA), the International Hydrographic Organization (IHO), and the Intergovernmental Oceanographic Commission (IOC) of UNESCO.[17] The government has been working at the domestic level as well. Undersecretary Domingo stated, "We have also strengthened our domestic legal framework to put our archipelagic house in order, so to speak," with the baselines law, maritime zones bills, and the recent archipelagic sea lanes bills in the effort to bring our nation's laws into resonance with that of international law.

The DFA continuously engaged in bilateral, regional, and multilateral opportunities to strengthen engagement and enhance cooperation with like-minded States. These cover areas such as security, diplomacy, and defense. The Philippines commits to a rules-based international order, adherence to its treaty obligations, and the promotion of peace through peaceful mechanisms for the settlement of disputes. Undersecretary Domingo emphasized the importance of a new approach to the Philippines' claims to the West Philippine Sea:

> A whole-of-nation approach should be undertaken to ensure that the lessons and legal strength of the 2016 Arbitral Award are properly appreciated from the grassroots all the way to the national level. We must ensure that every Filipino understands the situation in the WPS. The strength of our claims is based on international law and the unwavering commitment of our government to protect our national interests. Domestic support is the fuel that propels our actions forward.

The positive reception of the 2016 Arbitral Award, as referenced by small island states, and the maintenance of rules-based international order revealed the Arbitral Award as an international public good. The nation's translation of the award into positive gains and outcomes for our people and maritime domain, as well as promoting peace, security, and prosperity in our region, must be continued.

17 United Nations Educational, Scientific and Cultural Organization.

"we have championed the archipelagic principle, an important concept that unites land, water, and people into a single entity under the United Nations (Convention) on the Law of the Sea (UNCLOS)."

"We do recognize that diplomacy does not always produce quick results, but coupled with the right policies on the domestic front, it remains to be our most effective tool in the pursuit of our national interest in the global community."

"We have also strengthened our domestic legal framework to put our archipelagic house in order."

"A whole-of-nation approach should be undertaken to ensure that the lessons and legal strength of the 2016 Arbitral Award are properly appreciated from the grassroots all the way to the national level."

The Philippine Coast Guard's Synergistic Approach in the West Philippine Sea (WPS) towards a Whole-of-Nation and Regional Cooperation

Coast Guard Captain Noriel M. Ramos, MSc

Captain Ramos's discussion focuses on a uniformed service's strategic goals and aspirations in promoting national and maritime security.

The presented overview of the Philippine Coast Guard (PCG), its mandated functions, and purpose gave a better glimpse of the spirit in which the Republic Act 9993, or the Philippine Coast Guard Law of 2009, has put into legislation. Being an armed and uniformed service, its commitment to serve others focuses on ensuring maritime security, promoting the safe and swift movement of people and cargo, and protecting the marine environment. With its given primary existence for humanitarian purposes that was aimed at supporting the achievement of "a free, united, secure, resilient, and prosperous archipelagic and maritime nation." At its core, the PCG has five functions in the maritime space:

1. maritime safety;
2. maritime law enforcement;
3. maritime search and rescue;
4. maritime security; and
5. maritime environmental protection.

The PCG, being the foremost maritime service that aids any person and vessels in distress and marine accidents, has also partnered with other uniformed services. The service was deputized as well by many government agencies for the performance of maritime law enforcement functions directed towards

the suppression of various maritime threats. Through these partnerships, the PCG may also enlist the services of other government agencies and the merchant marine fleet. For Ramos, "[t]he PCG has long been a paragon of the whole of government (whole-of-nation) and interagency approach capable of contributing to national development and sustaining the country's security" in the maritime zone.

With the strategic operational positioning of the Coast Guard, activities could be linked to the attainment of national policy goals and objectives. The PCG has moved toward modernization guided by two documents, the PCG Maritime Strategy Plan and the Strategic Development Plan, as the foundation for capability and capacity building, technology and organizational development, and a restructured force and support system. The modernization was developed through the guidance and consultations with the United States Department of Defense Institute for Security Governance and CG-15[18] or the Office of Modernization.

Alongside the PCG Modernization Plan, the Coast Guard also established a System of Management (SOM) that was designed to support the decision-making needs of senior civil society and Coast Guard leaders for an aligned capability development strategy with resource management. This SOM became the objective as the future-end state system for mission-critical decision-making processes.

To uphold the Philippines' EEZ in cooperation with the DFA, the PCG employed the transparency initiative that published the actions of humanitarian resupply missions to outposts in the West Philippine Sea, which were often met with dangerous maneuvers performed by a foreign power. The transparency initiative informed like-minded states on these incidents, which gained support for reiterating the common desire for rules-based efforts to maintain international order. The PCG continuously promotes and protects the WPS and devises ways to effect the arbitral award for the benefit of our country.

18 Deputy Chief of Coast Guard Staff for Strategic Studies and Modernization, CG-15.

Supporting the developments and the changing international and diplomatic environment also required changing strategies to address economic activities at sea. The adoption of a "blue diplomacy" approach can be used for advancing economic growth among littoral and coastal states. According to Captain Ramos, "If employed within the context of strategic maritime environment in the Philippines, blue diplomacy can be a means to projecting the country's soft power through concerted actions that are anchored upon humanitarian approaches in maritime cooperation among like-minded partners and other modes of diplomacy."

In 2018, the Partnership and Environmental Management of the Seas of Southeast Asia (PEMSEA) reported "the value of the Philippine ecosystem services by section with an estimated US$17 billion contribution from the maritime and coastal environments." The PCG, through its Coast Guard Strategic Studies and International Affairs Center, looked to support the following recommendations:

1. Foster community empowerment and engagement
2. Continue bilateral and multilateral agreements
3. Strengthen strategic communication and media relations
4. Sustain interagency cooperation

Using the recommended strategies, the PCG looked towards improving the awareness of the important role of littoral and coastal communities in sustainable use of marine resources and enhanced economic growth of their own communities. Engaging with and empowering fisherfolk, strengthening the role of women, and incorporating indigenous knowledge in overall policy development are proposed under a "synergistic approach." For Ramos, these actions "have been proven to contribute to the sustainability and productivity of marine ecosystems on the grounds that a synergistic approach is being proposed."

The PCG, as an agent of national and maritime security, looked towards working with external partners using bilateral and multilateral agreements, greater strategic communications with intelligent use of modern media technologies, and sustained interagency cooperation as a whole-of-nation approach. Taking all these steps for the blue diplomacy, the synergistic

approach suggests great potential for contributing to sustainable use, management, and conservation of the country's marine resources, which supports the common goal of Philippine nation-building and development. According to Captain Ramos, "[t]his presents a more concrete action and synergistic approach to national security issues." This way, efforts toward pursuing transparency within the PCG and establishing the whole-of-nation approach entail the use of a synergistic approach. This approach includes fisherfolk and local communities, enabling them to participate in how the PCG envisions the "blue economy."

> "The Philippine Coast Guard exists for these humanitarian purposes, and in support of achieving a free, united, secure, resilient, and prosperous, archipelagic, and maritime nation."
>
> "The PCG has long been a paragon of the whole of government (whole-of-nation) and interagency approach capable of contributing to national development and sustaining the country's security."
>
> ". . . blue diplomacy can be a means to projecting the country's soft power through concerted actions that are anchored upon humanitarian approaches in maritime cooperation . . ."

Synthesis and Discussion

Following the speakers' presentations, our moderator began introductions for the following portion of the program with the sharing of insights from the panel of reactors.

Maritime Law, Science, and Managing the West Philippine Sea

Jay L. Batongbacal, JSD

Leading with the strong discussion points from our five speakers, Professor Batongbacal summed up his appreciation of the perspectives shared in this forum. He captured the essence of postnormal intelligence and the uncertainty that it can uncover in dealing with our now complex world. He said, "Postnormal intelligence really can be seen as a way to try to cope with the increasingly complex world. Given the uncertainty that it produces, it causes us, perhaps, even to doubt ourselves."

The uncertainty and postnormal intelligence, for this forum, was found in the seas, especially with regard to marine resources and how governments attempt to manage these. He offered the wealth of scientific and photographic data that our following speakers presented, "the focus of our two scientists on the fisheries and in the West Philippine Sea is [in a way] very much emblematic of this major challenge to us." The highlights of the need for cooperation in environmental management in the South China Sea were evident in both presentations.

Professor Batongbacal identified the most significant challenge affecting the Philippines, as an archipelago, having marine resources that "have been largely ignored historically" due to the early focus on the management of land-based resources. The decline in resources from the seas has heightened efforts to manage them. This problem was not only for us (the Philippines) to manage them unilaterally, but also for other nations that also exploit common areas in the South China Sea.

The apparent challenge of multinational concern provided a good segue to Ambassador Domingo's presentation pertaining to UNCLOS and the South China Sea arbitration. Professor Batongbacal said, "This is actually also a manifestation of our attempt to try to handle uncertainty and complexity by trying to establish certain rules and frameworks (shall we say) for definitely directing our management efforts. First, is to establish the basis of these efforts, the why, and how [we are] supposed to have the right and authority to manage these resources. And it is through law."

Laws were more than enacting rules to govern behavior. For Professor Batongbacal, laws set up frameworks, perspectives, and actions in addressing the problem involving managing the West Philippine Sea and the South China Sea. This is linked together with the presentation of the Philippine Coast Guard, which was also exerting efforts to manage these resources and "try to bring order from the chaos we're now faced with in the South China Sea and the West Philippine Sea."

The speakers from our government agencies provided a very good idea on ways that the Philippine government has tried to address this challenge for the archipelago. This was Professor Batongbacal's synthesis of our afternoon, which recapped the Philippines' desires for management of issues in the West Philippine Sea.

Not A (Purely) Geopolitical Discussion

Professor Herman Joseph Kraft, MA

Professor Kraft led with the thought that the MariTESS forum was a refreshing take on the issues surrounding the West Philippine Sea. Science diplomacy is intended to apply postnormal paradigms for providing alternative solutions towards peaceful cooperation. Then came the reality of going "back to normal," where the legal issues and the security side of things needed to be tackled.

"It's compartmentalized, right? We talked about the science, the scientific issues. And then we talked about the legal issues, and then we talked about the security side of things. Which, if you take a look at it in its entirety, all these were actually discussed without any overlapping," Professor Kraft said. As a revelation about paradigm shifts, there were no attempts to validate how they contributed to one another from this perspective.

He cited how Professor McManus saw firsthand the environmental issues around Pagasa (Island) and Scarborough Shoal even prior to 2012. However, these issues were eventually diverted when geopolitics set in. "Right? So, *sa madaling sabi*, reality struck. And that reality has to do with our concerns about the science (or) scientific side of things being interfered [with] by geopolitical conditions."

Professor Kraft noted that the attempts to understand the scientific situation have been supplanted by questions that concern geopolitics. He recalls Dr. Santos's note about the presence of an "entire program of collaboration" which was stopped after their results had been published. The question that can be pursued, if we had the potential for scientific cooperation, would there be a way to translate that into something that actually helps to de-emphasize the geopolitical issues?

Professor Kraft's reflection then proceeded with Ambassador Domingo's points on cooperation, particularly on the importance of multilateral and bilateral

approaches. Applying these approaches requires consideration of the legal situation involving national and international laws. He says, "True, but I think before we go into that abstract noise, or even the operational side of things, we need to hear about what we want to happen. Pangalawa, *paano tayo aabot doon? Paano natin uumpisahan iyon? Hindi natin puwedeng simulan iyan na ang* direct *usapan* is the West Philippine Sea."

The compelling synthesis of our afternoon's presentations for Professor Kraft showed scientific diplomacy as a "potential approach" to everything, yet fades after the publication of studies. Creating bridges in the context of scientific cooperation is important to contribute significantly to geopolitical cooperation involving states communicating with each other to focus on taking care of the environment instead of arguing about the ownership of natural resources in contested areas.

In the end, can we actually use science and the scientific community as a way of edging the cooperation, the scientific level, with the prevailing geopolitical conditions? Referring to the multilateral cooperation on the CFRA with Dr. Santos, cooperation within the scientific community still begs the question, how can scientists and academics contribute to solving issues and the realities in the West Philippine Sea? "It's a holistic problem, and I think we all have some sort of contribution to make to do all of this."

Determining What Is Ours

Maria Regina Corazon Sevilla Sibal, MPA

The approach towards addressing the audience on the grassroots level, as an educator, kicked off with Sibal speaking in the vernacular: "*Ang Pilipino ay sumisigaw ng 'Atin 'to.' Unang dapat natin sagutin, alam ba natin kung ano 'yong ating inaangkin at sinasabi nating atin?*" The reality that the subjects of science and law were traditionally discussed in English, as well as addressing a transnational audience, brought that back in focus.

Mainstream society, to this point, has emphasized the data-driven character of policymaking and decision-making. Sibal compared it to the process of entering a romantic relationship, in which people make considerations first. As such, she pointed out the importance of understanding the unknowns, especially when artificial intelligence tools would not provide adequate answers. While AI can be used to seek answers, without the appropriate data and information, stakeholders would end up with wrong decisions and wrong policies.

Sibal noted Dr. McManus's observation that interconnectivity, or more appropriately connectivity, happened over a long period of time. In the same thought, changes in one domain or area affected the bigger picture, and the use of technology and information as an anchor would be beneficial for strengthening future interests in political and economic concerns. Looking into sustainability, adaptability, and the institutionalization of policies or governance is also important, as Dr. Santos's presentation clarified the character of the West Philippine Sea.

There were typical calls for more extreme measures coming from public sentiment in reactions to run-ins between Philippine and Chinese vessels. Sibal then reflected on Ambassador Domingo's talk about the UNCLOS, the identification of boundaries, and the impact of international law and diplomacy. She pointed out a particular challenge on the diplomacy side—China's permanent membership in the United Nations Security Council. How then could that affect the Philippine Coast Guard's (PCG) operational space?

As a resource in a foreign-funded capacity-building project, Sibal understood the importance of technology and information. She said, "In this day and age, battles are no longer won by manpower. They are won by how much information and how you can tap into this information. How can we use this information if we are left behind in terms of understanding, gathering information, and processing this information?" She notes that the PCG's concern does not end with the West Philippine Sea. The PCG also managed concerns within our internal waters, engaged with local communities, and maritime law enforcement and security.

Sibal then gave attention to the word security and its connection to translating policy into action. She took the cue from Professor Kraft's discussion on translating security knowledge-sharing into policy. As such, PCG operationalized security at a particular level. Sibal also noted the multifaceted character of security, covering issues such as food, economy, and politics. She asked, "But (with) this awareness, how do we make sure these messages are translated, not just in laws or policies, but how do we effectively implement them?"

That alluded to the mission, or sphere, of the forum's panelists, resources, and UP CIDS. The capacity to convene thought leaders, correlate the gathered information, and advise on policy that can be put into better practice. In closing, the challenge to the audience when we state "*Atin 'to!*" involves knowing what is ours and what we can do to get what is ours. This appeal was not only for policymakers, but also for ordinary Filipinos. Efforts to educate ourselves and others on issues surrounding the West Philippine Sea would be the best next step.

Questions from the Audience

Following the insights and summaries by our panel of reactors, our moderator fielded questions from participants in the audience, both online and on-site. The questions focus on how countries balance pursuing security (in its multifaceted sense) with desiring peaceful resolution, the management of resources should NGOs distance themselves from funding cooperative efforts, and perspectives on cooperation and bridging strategies in the West Philippine Sea and the South China Sea.

In response to the question on balancing the pursuit of security and the desire for peaceful resolution regarding the West Philippine Sea, Dr. Santos first drew from the context of food security, with every country supplying food continuously and without hunger. Regarding geopolitical security, Dr. Santos pointed out the lack of clarity in this concept, relating it to the Filipino adjective astig (from tigas "toughness") to refer to the strength of countries. The discussions on the West Philippine Sea and the South China Sea strongly point toward food security, as made evident by how China patrols fishing grounds and bars access by other countries. With respect to complexity, uncertainty, and food security, sustaining the food supply was the primary concern for all parties with claims in the South China Sea. The bottom line was the scientists' desire to find ways to de-escalate tensions. Fiction may have the answer, reducing the population may be the answer to restore an abundance of resources.

Regarding concerns regarding resource management should NGOs cease from leading and funding cooperation efforts, Dr. Santos recounts his experience in the CFRA cooperative effort. It stemmed from actual discussions that looked into how science can move the cooperation forward. Coming from perspectives offered in the forum on law as a framework for cooperation and political science, questions about pursuing and sustaining future actions arose. The research team meetings in Thailand included discussions on how to sustain the cooperation and move towards an institutionalized form of

cooperation. Among the many questions is: would it be a regional accord, under ASEAN or PEMSEA? The team's brainstorming looked at many opinions on ways for the fisheries' scientific cooperation to continue beyond the funding from HD. Regarding future actions, Dr. Santos emphasized continuity in communication and scientific cooperation in fisheries through institutional governance and legal support. A legal model considered the manner of the Coral Triangle Initiative (CTI), where an executive order was the key to our country's participation in supporting that initiative.

The question on perspectives on cooperation and bridging strategies came from Dr. Rosalie Arcala-Hall, Executive Director of UP CIDS. Her question noted CFRA's efforts for multinational cooperation, which involved skipjack tuna but did not transition into policymaking. Her question also came from the perspective that cooperation might not be initiated by governments and might not come from regional partnerships. As such, the private sector would have to be included in the conversation, which should not be limited to scientists, governments, and government entities. Dr. Vallejo responded to this question by explaining two approaches to strategy. The first strategy is known as the formal "UN system," which involves the creation of frameworks and committees within the United Nations, as well as marine science cooperation in the International Oceanographic Commission. Citing the cases of the Western and Northern Pacific regions, Dr. Vallejo pointed out that funding would depend on how UN member-states adopt workable agreements and programs. The second strategy involves civil society through NGOs. This strategy has demonstrated promising opportunities while dealing with limitations in funding and policy-making. Dr. Vallejo noted that without NGOs, science diplomacy might face problems. Should civil society establish initiatives, states might not consider them because they have their own agendas. Meanwhile, the involvement of the private sector might contribute to conflicts between the conservation of resources and the pursuit of more resources. Given the presence of contradictions and tensions within existing structures in the Philippines, Dr. Vallejo recommended sticking with the UN system. This is exemplified by how scientists provide advice on environmental conventions set by the International Maritime Organization (IMO), particularly on biofouling, ballast water management, and greenhouse gas emissions to pursue a green shipping industry. He noted, however, that the government should initiate a "strong push" for policies within the UN system. He also took note of conversations with Undersecretary Domingo regarding how scientists

relay ideas to the DFA regarding commitment to international conventions. Fragmentation could not happen, and UP CIDS might even serve as a "front personality" to policymaking, in collaboration with universities, civil society, and international organizations such as the UN and the Association of Southeast Asian Nations (ASEAN).

As a recap of the perspectives of both the question and answer, one of our reactor panelists offered some insights. The "blue economy" concept could be studied in two ways. One is the local perspective, though local communities fall into the trap of "habits" and often come out as violators of a particular policy. An example cited was about fishing periods or within certain locations. Although the creation of the National Maritime Center looked to address multiagency coordination on sustainability, or the blue economy. Still, challenges exist in the form of vested interests, varied language and terminology, which necessitate information bridging with the scientific community.

The question could also pertain to a question of governance, with desires to de-escalate matters, bilateral or multilateral agreements may not consider other sectors. Maybe an approach that takes each level as a consideration, looking at local, regional, and international perspectives, with a possible greater chance of working out an acceptable and maybe peaceful solution to the apparent tensions.

Closing Remarks

As the forum wound down with the presentation of tokens to our speakers and panelists, the program convenor formally wrapped up the forum discussions, offering a bit of trivia about the activity.

“Maraming nagtatanong, bakit daw MariTESS?” The program convenor has been asked about what the activity theme stood for. Taken in the context of current Philippine society, MariTESS moved in the space of intelligence. In mass communications, research communications, “Marites” are factoids which may prove to be factual, though many times also opinions. So, the forum was about the speakers’ and panelists’ opinions on how to approach the West Philippine Sea issues.

This forum would be the first of many MariTESS, which would be sent out as event notices on the UPCIDS social media and email lists. In closing, there were more topics to discuss and opportunities for MariTESS.

CENTER FOR INTEGRATIVE AND DEVELOPMENT STUDIES

Established in 1985 by University of the Philippines (UP) President Edgardo J. Angara, the UP Center for Integrative and Development Studies (UP CIDS) is the policy research unit of the University that connects disciplines and scholars across the several units of the UP System. It is mandated to encourage collaborative and rigorous research addressing issues of national significance by supporting scholars and securing funding, enabling them to produce outputs and recommendations for public policy.

The UP CIDS currently has twelve research programs that are clustered under the areas of education and capacity building, development, and social, political, and cultural studies. It publishes policy briefs, monographs, webinar/conference/forum proceedings, and the Philippine Journal for Public Policy, all of which can be downloaded free from the UP CIDS website.

THE PROGRAM

As biodiversity is essential in providing the sustainable base for agriculture and fisheries and its strategic dimensions, three foci of policy research in this program include assessing 1) the nexus between fisheries, aquaculture, and environmental sustainability, 2) the effectivity of protected areas governance and ecological outcomes in the context of resiliency in global anthropogenic climate change and, 3) Policy and strategic dimensions in marine science research (MSR). These areas have all relevance to food, environment, and national security

The program framework is under the postnormal science paradigm which is what the International Science Council (ISC) and the International Network for Governmental Science Advice (INGSA) promote.

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