



Building a Blue Economy: Strategy, Opportunities and Partnerships in the Seas of East Asia

9-13 July



SUBTHEME 1

Nurturing Coastal and Ocean-based Blue Economies at the Local Level: Opportunities and Challenges

WORKSHOP 1

Our coasts and seas: The engine of the blue economy

CO-CONVENING AGENCY:



Partnerships in Environmental Management for the Seas of East Asia

Chair: **Dr. Cielito Habito**
Ateneo de Manila University



The East Asian Seas Congress 2012
“Building a Blue Economy: Strategy, Opportunities and Partnerships in the Seas of East Asia”
Changwon City, Republic of Korea, 9-13 July 2012

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Partnerships in Environmental Management for the Seas of East Asia (PEMSEA)

Subtheme Chair:

Prof. Chul-Hwan Koh,
Intergovernmental Session Co-chair,
East Asian Seas Partnership Council, PEMSEA

Workshop Chair:

Dr. Cielito Habito,
Professor and Director, Ateneo Center for Economic Research and Development,
Ateneo de Manila University, Philippines

1. INTRODUCTION

- 1.1 The East Asian Seas (EAS) Congress 2012 was held to bring to the fore the critical role of coastal and ocean resources in support of the triple bottom-line targets of enhancing human welfare and environmental sustainability while pursuing economic growth in line with global environmental targets and commitments. The Congress was co-organized by the Government of the Republic of Korea through the Ministry of Land, Transport and Maritime Affairs (MLTM) and the City Government of Changwon and the Partnerships in Environmental Management for the Seas of East Asia (PEMSEA) with support of the Global Environment Facility (GEF), the United Nations Development Programme (UNDP) and the United Nations Office of Project Services (UNOPS).
- 1.2 The 4th EAS Congress with the theme, “Building a Blue Economy: Strategy, Opportunities and Partnerships in the Seas of East Asia,” carried five subthemes on various aspects of sustainable development related to the coastal, marine and ocean resources and industries. Subtheme 1, “Nurturing Coastal and Ocean-based Blue Economies at the Local Level: Opportunities and Challenges,” included two workshops and a plenary discussion focused on the importance of coastal and marine resources as drivers of economic growth as well as the accompanying threats to the ecosystem services they provide. The Subtheme is chaired by Prof. Chul-Hwan Koh, Emeritus Professor at the Marine Ecology Department of Seoul National University and Technical Session Co-Chair of the East Asian Seas Partnership Council.

- 1.3 Prof. Chul-Hwan Koh gave a welcome address focused on the subtheme. He highlighted the important functions and services of the coastal and marine resources and their contribution to the economy. He noted the lack of accounting for these ecosystem services which is needed to optimize their contribution to the blue economy, especially at the local levels.
- 1.4 The first workshop under Subtheme 1, “Our coasts and seas: the engine of the blue economy,” was chaired by Dr. Cielito Habito, Professor and Director of the Ateneo Center for Economic Research and Development at the Ateneo de Manila University, Philippines. The workshop aimed to:
- a. Discuss national and local level initiatives in line with sustainable development principles.
 - b. Examine the contribution of integrated coastal management (ICM) in the efforts to sustain the coasts and oceans of the region.
 - c. Integrate the information to see how they contribute to the development of an ocean-based blue economy in the East Asian Seas region.
- 1.5 Dr. Rokhmin Dahuri, Senior Advisor of the Center for Coastal and Marine Resources Studies in Indonesia, in his keynote, discussed how ICM helps in achieving sustainable development targets at the local level. He noted the importance of ICM as an approach capable of balancing economic growth, distribution of wealth and environmental sustainability. He related this to the rich coastal and marine resources of East Asia and considered the approach appropriate in view of the existing and potential threats to the ecosystem services of the coasts and oceans as well as biodiversity. He said that sustainable coastal and ocean development requires an approach that balances economic growth with environmental sustainability. These requirements can be met and are in line with the principles of ICM and the blue economy. He stressed that ICM and blue economy reinforce and strengthen each other.

2. SESSION 1: BLUE ECONOMY: CONTINUING EVOLUTION OF INCLUSIVE AND SUSTAINABLE DEVELOPMENT

- 2.1 *Blue economy development in China.* China is promoting green growth in the coastal and marine sectors, and provides a model for a national policy on blue economy, and lessons from piloting in four coastal areas.
- 2.1.1 Mr. Wei Bo, Assistant Professor at Third Institute of Oceanography of the State Oceanic Administration (SOA) in PR China, presented the local pilot cases for the blue economy initiatives of the country. These include the provinces of Shangdong, Guangdong, Zhejiang, and Fujian. The contribution of the marine economy to the GDP of these provinces is limited and not recognized compared with the other economic sectors. The ‘gross ocean product’ (GOP) accounted for 9.7 percent of China’s GDP in 2011. Mr. Wei presented the comparison of various aspects of the management of marine economy and highlighted the importance of integration of land and sea use planning; establishment of a sound regulatory framework; and government investments in technological innovation in building a blue economy. In addition, he emphasized the need to: (1) account for the value of coastal and marine ecosystem services; (2) adopt economic instruments like payments for ecosystem services; (3) develop capacity through trainings; and (4) strengthen governance and cooperation at the local, national, regional and international levels.

2.1.2 Prof. Wen Quan, Chief Scientist of SOA Key Laboratory of Coastal and Environmental Research, National Marine Environmental Monitoring Center, State Oceanic Administration (SOA) in PR China, presented the national policy and initiatives to develop a blue economy in the Shandong Peninsula of China. He emphasized that the process includes land and sea use plans integration, marine functional zoning, interagency coordination and stakeholder cooperation at the regional, national and local levels. These aspects are being developed in the Shandong Peninsula in support of the country's blue economy initiatives in the area. He cited that the project aims to strengthen existing marine economic sectors and industries and develop new industries from coastal and marine resources together with initiatives to strengthen research and development and technological innovation.

2.2 *Blue carbon market.* Dr. Adrian Ward, Technical Director of CarbonLab, University of Queensland in Australia, presented the prospects and opportunities of blue carbon in East Asia through its stock of mangrove resources. He discussed the blue carbon as one of the innovative financing schemes that can support the development of a blue economy in the region. He presented a system for valuing the carbon sequestration service provided by coastal ecosystems, and giving equivalent carbon credits for this carbon sequestration and avoidance of greenhouse gas emissions. He emphasized the importance of carbon offsets in terms of providing funding mechanisms that will in turn create incentives for sustainable practices and use of coastal and marine resources as well as for habitat conservation and protection initiatives among the stakeholders including the private sector. This is through enabling the comparison between the gains from resource extraction and from keeping the coastal ecosystems in place. For the blue carbon market system to work, it would require valuation, monitoring, institutional arrangement, and international cooperation and common understanding.

2.3 **Panel discussion.** The panel discussion on the first session of Workshop 1 revolved on the issue of what a blue economy characterizes.

2.3.1 The discussion highlighted the incorporation of climate change mitigation and adaptation as an additional dimension of the blue economy relative to previous sustainable development concepts and initiatives.

2.3.2 Throughout the exchange of ideas, the body confirmed the importance of preserving coastal ecosystems in ensuring continued provision of food, livelihood and recreational opportunities, and raw materials, among others, as well as non-market values, such as shoreline protection and carbon sequestration. Valuation of coastal and marine resources is an important tool to: (a) make people aware of the importance of these resources and their socioeconomic and environmental benefits; (b) designing more effective policies, regulations and market-based instruments to support conservation plans and programs; and (c) trigger innovation and more sustainable coastal and marine-based industries.

2.3.3 The discussion brought up the following aspects of a blue economy:

- a. It embraces sustainable development tools, such as integrated land and sea use planning, ecosystem-based management, habitat and biodiversity protection, integrated watershed and coastal management, pollution reduction and waste management, sustainable fisheries, etc.

- b. It focuses on lowering the carbon footprint through adoption of green, innovative technologies for more cost-effective production, efficient resource use, and lower energy and water use — not only by big businesses, but also by smaller enterprises and households.
- c. It entails reforms in policies and institutional arrangements, introduction of new supporting financing mechanisms, application of science, and most importantly, behavior change.
- d. It is a green economy in the blue world (coastal and marine area).

3. SESSION 2: CRISES AND OPPORTUNITIES FOR A SUSTAINABLE BLUE ECONOMY

3.1 Three local initiatives demonstrate on-the-ground programs based on sustainable development principles: (a) beach zoning system and ICM in Sihanoukville, Cambodia, discussed by Mr. Prak Visal; (b) lake and river rehabilitation and environmental management in Muntinlupa City, Philippines, presented by Mr. Jet Pabilonia; and (c) wastewater and solid waste management and planned tourism development in Bali, Indonesia, shared by Ms. Ratna Dewi.

3.1.1 Mr. Prak Visal, ICM Coordinator of the Sihanoukville ICM Project Management Office in Cambodia, discussed the ICM program and development in the Sihanoukville's Occheauteal Beach. He enumerated the initiatives in the area, such as the integrated land and sea use planning, beach zoning and coastal ecosystem protection. He stressed the benefits of such initiatives under the ICM framework including improved water quality and better tourist facilities for beach users and increased income for vendors and stall owners in the beach area, among others. A revolving fund was set up to support the initiatives fuelled by the user fees being collected for the use of the beach. ICM implementation in Sihanoukville served as a model for ICM replication and scaling up in other areas in Cambodia and in the East Asian Seas region as a whole. Mr. Visal emphasized the importance of ICM in terms of providing a framework for the management of coastal and marine resources incorporating the participation of the relevant stakeholders in the management process.

3.1.2 Mr. John Emmanuel Timothy Pabilonia, Head of the City Environmental Protection and Natural Resources Office of Muntinlupa City in the Philippines, shared the city's experience in lake rehabilitation, river cleanup, wastewater and solid waste management as well as its initiatives in providing alternative livelihood to the community. The city initiatives included the passing of city ordinances and establishment of lake-watcher groups to strengthen law enforcement, governance and management of the city's lakes and rivers. Several programs and projects to rehabilitate the lake and rivers consisted of: lake seeding (100,000 fingerlings of *bangus*, *tilapia* and bighead carp per quarter in cooperation with the Laguna Lake Development Authority and the Bureau of Fisheries and Aquatic Resources), river cleanup and dredging, trash interceptor and garbage collection, and shoreland treeplanting. Wastewater treatment facilities were put in place by the local government in the public market and two schools. User fees are collected to ensure cost-recovery, and the treated wastewater is being reused for cleaning the market, flushing toilets, street washing, etc., resulting in savings in the monthly water bill. A plastic ban is also being enforced to reduce clogging of waterways due to plastic bags and solid wastes. Alternative livelihood projects were undertaken in

support of the rehabilitation and waste management programs, such as water lily processing and charcoal briquette projects, among others.

- 3.1.3 Ms. Anak Agung Ratna Dewi of the Bali Tourism Development Corporation in Indonesia discussed the water supply conservation, wastewater management and recycling efforts in Nusa Dua Resort in Bali. Waste management and water supply and distribution issues coupled with an increasing population are the main concerns that warrant immediate attention in Bali as Ms. Dewi presented. She highlighted the current initiatives to address these concerns which include the provision of an integrated wastewater treatment facility, with a capacity of 10,000 m³ per day and consisting of wastewater stabilization ponds (aeration, sedimentation, filtration). The treated wastewater is recycled for irrigation purposes and watering the gardens in the hotel complex, with a regular water quality monitoring activity undertaken to test its suitability for agriculture uses. The presence of fish (tilapia) and birds is being used as bio-indicators of water quality in the ponds. The wastewater treatment facility is also known as 'eco-lagoon' and used for birdwatching and recreational fishing activities. Biodegradable waste, a part of Nusa Dua's solid waste management, is composted and used as soil conditioner. There is also regular monitoring of sea water quality in areas near Nusa Dua Resort, and a coral reef restoration project.
- 3.4 Ms. Cao Le Quyen, Deputy Director of Vietnam Institute of Fisheries Economics and Planning, talked about the aquaculture industry in Vietnam. She discussed the important contribution of the industry in the country's GDP as well as its major aquaculture products. She enumerated the initiatives to deal with the consequences of the intensive aquaculture industry in the country to make it sustainable. These include innovation in farming technologies for better use of water resources and introduction of certification schemes for product quality monitoring. In terms of a management system, the country employs ICM which covers resources used for aquaculture development. To ensure sustainable aquaculture and fisheries development in Vietnam, a Five-Year Coastal Resources for Sustainable Development Project supported by the Global Environment Facility (GEF) and implemented by the World Bank, has been developed. The plan covers sustainable fisheries in seven coastal provinces and incorporates spatial planning as part of its implementation.
- 3.5 **Panel discussion.** The following issues were discussed and the panelists explained how they are being addressed:
- a. **Sustainability of fisheries and aquaculture in Viet Nam:** use of new technologies to increase productivity; water quality monitoring in Mekong River; measures are being taken to prevent bio-accumulation of pollutants in fish, and fish tissue sampling and monitoring are regularly done to ensure export quality of fish; mangroves will not be destroyed for aquaculture; fish cages are not being put up along Mekong River to ensure navigability of the river; and marine aquaculture is not yet fully developed
 - b. **Strategy in involving local communities:** In Nusa Dua, there is an employment policy to hire local people; hotels are involved in mentoring and supporting schools in the communities, and in raising awareness among the students through school competitions. In Muntinlupa, raising awareness of stakeholders on environment and climate change, organizing community groups, such as lake watchers, river warriors, environmental army, etc., and providing alternative and supplemental livelihood are critical to the implementation of lake and river rehabilitation programs. In Sihanoukville, stakeholder consultation and information campaigns were essential to enforce the beach zoning

ordinances and user fee system. Stall owners have become partners in beach management, and are willing to pay more for beach infrastructure development.

- c. **Wastewater treatment technologies** used in Nusa Dua (Bali) and Muntinlupa City: Low-cost technologies have been adopted in both places: waste stabilization ponds in Nusa Dua and anaerobic baffled reactor (ABR) in Muntinlupa, indicating that there are technology options that are cost-effective, use less energy, and provide opportunities for reuse, nutrient recovery, and other secondary benefits. In Nusa Dua, the wastewater treatment facility has become a recreational and educational center as well. In Muntinlupa, cocopeat is used as biofilter in the ABR to further reduce operation and maintenance cost, while the treated wastewater is being reused to reduce water supply cost and use of water from deepwells.
- d. **Impacts of plastic ban:** In Muntinlupa, one of the first cities in the Philippines to pass an ordinance banning the use of plastic bags, there is: lower flooding incidence due to less clogged waterways; reduction of plastics and solid waste in the rivers; increase in the use of alternative bags. Instead of plastic bags, baskets, which are made from water lily collected from the lake and rivers, are used as alternative bags. Basket-making has also created livelihood opportunities for the women in the coastal communities.
- e. **Use of feeds in the fish cage project of Muntinlupa and monitoring of water quality:** Only supplemental feeding is being done, and intensive or chemical feeds are not used; water quality parameters that are being monitored include biochemical oxygen demand (BOD), dissolved oxygen, total suspended solids, total dissolved solids, nitrates and phosphates, oil and grease, coliform, etc. Turbidity of lake water depends on the season.
- f. **Beach zoning:** In Sihanoukville, beach zoning has resulted in: less chaos and more secure and clean beaches; improved access to the beach; improved water quality; organization of stall owners to ensure that setback zoning, building design and environmental regulations are followed, and making them pay user fees to raise funds for maintenance and further development; more efficient use of beach space led to increased number of stalls and tourist facilities, and increased income. In Bali, setback zoning has been in place for decades, and beaches are public property, and this ensures access to the beaches by both communities and tourists.

4. CONCLUSION

- 4.1 Dr. Cielito Habito enumerated the key factors that would support the development of a blue economy based on the experiences and cases shared during the two sessions as well as the results of the open forum and discussions. These include the importance of political will, especially at the local level and the vital role of community and stakeholder participation, which facilitates awareness building, behavioral change, and balancing political will with community interests and needs.
- 4.2 The blue carbon market as an innovative financing mechanism that would allow income to be generated while protecting the coastal and marine ecosystems and keeping them *in situ* should be further explored, with clear guidelines and rules for implementation.
- 4.3 Furthermore, blue economy development requires governance and capacity development involving:
 - a. A coordinating mechanism to allow collaboration among different institutions and sectors;
 - b. Institutional arrangements (such as the beach management in Sihanoukville and lake and river rehabilitation in Muntinlupa City);

- c. Financing mechanisms (e.g., user fees for beach use in Sihanoukville, marine area use in Xiamen, and wastewater management in Muntinlupa; proposed Blue Carbon financing)
- d. Applying science and technologies (such as in wastewater management in Bali and Muntinlupa City, and in fisheries and aquaculture in Viet Nam).

Annex 1.
LIST OF RESOURCE PERSONS

Dr. Chul-Hwan Koh
Emeritus Professor, Marine Ecology
Department, Seoul National University, RO
Korea, and
Intergovernmental Session Co-chair, East
Asian Seas Partnership Council, PEMSEA

Dr. Cielito Habito
Professor and Director,
Ateneo Center for Economic Research and
Development, Ateneo de Manila University
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Dr. Rokhmin Dahuri
Professor
Bogor Agricultural University, Indonesia

Prof. Wen Quan
Chief Scientist
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Center, State Oceanic Administration (SOA),
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Dr. Wei Bo
Assistant Professor
APEC Marine Sustainable Development
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Dr. Adrian Ward

Technical Director
CarbonLab, University of Queensland,
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Mr. Prak Visal,
ICM Coordinator
Sihanoukville, Cambodia

Mr. John Emmanuel Timothy D. Pabilonia
Head
City Environmental Protection and Natural
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Ms. Anak Agung Ratna Dewi
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Vietnam Institute of Fisheries Economics and
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Annex 2. WORKSHOP PROGRAMME

Workshop 1: Our Coasts and Seas: The Engine of a Blue Economy

Workshop 1 Chair: Dr. Cielito Habito, Professor and Director, Ateneo Center for Economic Research and Development, Ateneo de Manila University, Philippines

1400 - 1410	Introduction	Chair: Dr. Cielito Habito
1410 - 1430	Keynote: Achieving Sustainable Development Targets at the Local Level through ICM	Dr. Rokhmin Dahuri
	<i>This keynote will identify coastal ecosystem services, and illustrate how ICM implementation facilitates social, economic and environmental benefits at the local level, while addressing such challenges as habitat conversion, pollution, poverty alleviation, climate change adaptation and mitigation, and food security.</i>	
	SESSION 1: Blue Economy: Continuing Evolution of Inclusive and Sustainable Development	
1430 – 1445	Blue economy development in China <ul style="list-style-type: none"> o National policy on the blue economy 	Prof. Wen Quan APEC Marine Sustainable Development Center, PR China
1445 - 1500	<ul style="list-style-type: none"> o Keeping the Marine Economy Blue - Blue Economy Development in the pilot coastal areas of China 	Dr. Wei Bo APEC Marine Sustainable Development Center, Xiamen, PR China
1500 – 1515	Blue Carbon In Mangrove Forests - Principles, Markets and Economics	Dr. Adrian Ward Technical Director CarbonLab, University of Queensland, Australia
1515 – 1555	Open Forum: Q&A/panel	Moderator: Dr. Cielito Habito Panelists: above presenters
1555 – 1600	Session wrap up	Dr. Cielito Habito
1600 – 1630	<i>Coffee/tea break</i>	
	SESSION 2: Crisis and Opportunities for Sustainable Blue Economy	
1630 – 1645	Zoning and beach protection for sustainable tourism in Sihanoukville, Cambodia <i>(Focus: integrated land and sea use planning, beach zoning and coastal ecosystem protection)</i>	Mr. Prak Visal , ICM Coordinator Sihanoukville, Cambodia
1645 – 1700	Lake and River Rehabilitation and Environmental Management in Muntinlupa City, Philippines <i>(Focus: lake rehabilitation, river cleanup, wastewater and solid waste management, alternative livelihood)</i>	Mr. John Emmanuel Timothy D. Pabilonia Head City Environmental Protection and Natural Resources Office/ Lake Management Office/City Disaster Risk Reduction Management Office Muntinlupa City, Philippines

1700 – 1715	Sustainable Water Supply and Waste Management in Bali, Indonesia: Case of Nusa Dua <i>(Focus: water supply conservation, wastewater management and recycling, sustainable tourism)</i>	Ms. Anak Agung Ratna Dewi Head Department of Water Treatment Plant and Environment, Bali Tourism Development Corporation
1715– 1730	Sustainable aquaculture/polyculture development in Viet Nam <i>(Focus: sustainable aquaculture/polyculture experience in a local setting, including conservation and sustainability of coastal ecosystems)</i>	Ms. Cao Le Quyen, Deputy Director, Vietnam Institute of Fisheries Economics and Planning
1730 – 1820	Moderated panel discussion	Moderator: Dr. Cielito Habito
1820 – 1830	Chair's wrap-up	Dr. Cielito Habito