EAS Congress 2012
Changwon City
Republic of Korea
EAST ASIAN SEAS CONGRESS

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 2

Unmasking Hidden Costs: Accounting for Natural Resource Depreciation and Environmental Damages

CO-CONVENING AGENCIES:

KMI
Korea Maritime Institute (KMI)

Coastal and Ocean Management Institute (COMI) of Xiamen

Chair:

Dr. Sung-Gwi Kim
Korea Maritime Institute (KMI)
Prof. Xue Xiongzhi
Coastal and Ocean Management Institute (COMI) of Xiamen

gef
Global Environment Facility

United Nations Development Programme

UNOPS
United Nations **Office for Project** Services

Partnerships in Environmental **Management for the** Seas of East Asia

MLTM
Ministry of Land, Transport and Maritime Affairs

City Government **of Changwon,** RO Korea

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

Subtheme 1: Nurturing Coastal and Ocean-based Blue Economies at the Local Level: Opportunities and Challenges
Workshop 2: Unmasking Hidden Costs: Accounting for Natural Resource Depreciation and Environmental Damages

10 July 2012

Co-Convening Agencies:
Korea Maritime Institute (KMI)
and
Coastal and Ocean Management Institute (COMI) of Xiamen

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

Chairs:
Dr. Sung-Gwi Kim, Senior Research Fellow, Korea Maritime Institute (KMI), RO Korea
Prof. Xue Xiongzhi, Executive Director, Coastal and Ocean Management Institute (COMI), Xiamen University, PR China

1. INTRODUCTION

1.1 The 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 the 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 The second workshop under Subtheme 1, "Unmasking Hidden Costs: Accounting for Natural Resource Depreciation and Environmental Damages," was chaired by Dr. Sung-Gwi Kim, Senior Research Fellow at the Korea Maritime Institute (KMI) in RO Korea and Prof. Xue Xiongzhi, Executive Director of the Coastal and Ocean Management Institute (COMI), Xiamen University in PR China. The workshop aimed to draw attention to the value of ecosystem services and the cost of ecosystem losses and environmental damages, as well as the application of such values in policymaking, designing economic instruments, assessing development versus conservation options, project structuring and developing alternative livelihood programs.

1.4 Dr. Hak-So Kim, President of the Korea Maritime Institute (KMI) in RO Korea gave the welcoming remarks for the workshop. He noted the importance of taking into consideration the future generation in our decisionmaking and planning process, thereby allowing them to enjoy the same resources as the present generation. He said in quote, "Ocean is our future. We should go hand in hand to make sustainable use of oceans." He emphasized the need to account for the value of ecosystem services in facilitating its incorporation to the decisionmaking process and influence the way decisionmakers frame and make their decisions on how to spur economic growth and development. He said that in order to account for the economic values of ecosystem services, it needs to be done in monetary terms. This, he continued, warrants a strengthened support on, and conduct of economic valuation studies.

2. SESSION 1: VALUING LOSSES IN COASTAL AND MARINE ECOSYSTEM SERVICES

2.1 Dr. Orapan Nabangchang, Senior Economist from the Economy and Environment Programme for Southeast Asia (EEPSEA) in Thailand, discussed the economic value of mangroves, and the opportunity costs of converting mangroves for alternative economic uses. She also explained the benefits of mangrove conservation in relation to shoreline protection and reducing lives lost and property damages due to storm surges, typhoons/cyclones and tsunamis. Dr. Orapan provided empirical evidence to support the argument that with increasing extreme weather events and higher vulnerability of coastal communities to natural disaster-related damages, there is valid justification for investments in protecting and restoring mangrove forests and degraded coastal ecosystems. Dr. Orapan also assessed the non-use value of endangered species, including marine turtles, dolphins, whale sharks and manta rays, and highlighted people's willingness to pay for their protection and continued existence. Dr. Orapan's presentation emphasized the need to account for the economic values of the resources beyond the numbers provided by market mechanisms. If both the market and non-market value of the resources are incorporated in the way policymakers frame their decisions vis-à-vis development projects and programs, the support for conservation, protection and restoration of habitats and resources will be strengthened.

2.2 Ms. Marilou Mendoza, a freelance livelihood specialist from the Philippines, focused on the importance of alternative or supplemental livelihoods in coastal resource management initiatives. The pressure on coasts and oceans comes from the dependence of the community on the resources as a source of income and livelihood. Ms. Mendoza's presentation showed how alternative sources of income help in the efforts to decrease pressures on the coastal and marine resources. She emphasized that providing the coastal communities with other sources of income enables the reduction of fishing effort and other coastal resource extraction, and enhances income diversification, employment generation, and microenterprise development, facilitated by community-based

organizations and supported by training programs. She, however, noted the difficulty of sustaining these efforts because of many challenges, such as: activities being project-driven and not continued as the project ends; resistance of the community in adopting new technologies; lack of post-harvest facilities; and other economic constraints, like lack of economies of scale, among others. She also noted that the capacity-building component of livelihood programs need to be strengthened, as well as the need to empower communities to support and sustain the projects on their own. To be successful, viable and sustainable, the livelihood components of the coastal resource management programs have to be community-based, participatory and technology-aided, with support and active involvement of local governments, nongovernmental organizations, development agencies, and other stakeholders. Ownership, self-determination, organizational and management capacity and access to sustainable financing mechanisms and markets are also essential.

2.3 Dr. Tridoyo Kusumastanto, Team Leader at the Indonesia Ocean Council, and member of the Board of Trustees of the Bogor Agricultural University in Indonesia, measured the value of fisheries, sea farming, mariculture (seaweeds), coral reef (tourism), and the value of restoration benefits. He presented the fisheries trend and status in Indonesia, and highlighted the huge cost of fisheries degradation in addition to ecosystem degradation. He said that an integrated and innovative framework could contribute to the development of a blue economy, and could serve as a way to ensure sustainable development. In connection, he emphasized the need for new approaches to achieve sustainable use of resources to support socioeconomic activities while maintaining the environment, and reducing the threats to the sustainability of the coastal ecosystems in Seribu Islands (Indonesia). He shared the initiatives to enable sustainable development in Indonesia, including policies, plans and programs, training, and livelihood activities. Some activities that were conducted to reverse the degradation at the local level included: (a) capacity building of small island communities in managing the ecosystem and resources; (b) ecosystem rehabilitation; and (c) alternative income generation.

2.4 Ms. Rao Huanhuan from Xiamen University explained the concept of Marine Ecological Damage Compensation (MEDC) to make the responsible party pay for their damage to the marine ecosystem. The rapid growth of population and economic in costal zones brings intense sea area use, which have caused ecological damage and resulted in the diminishing productive capacity of the marine ecosystem. Although there is an Environmental Impact Assessment (EIA) in China, EIAs are more concerned about the feasibility and capacity of environment and how to reduce the damage, while paying less attention on the compensation after ecological damage. Ms. Rao showed estimates of different MEDC values for various areas of Xiamen Bay, reflecting the various ecosystems and their respective uses and services. Such a system will further enhance the marine zoning and sea-use scheme and user fee system in Xiamen.

3. SESSION 2: RESTORING AND SUSTAINING NATURAL CAPITAL THROUGH ICM

3.1 Dr. Chul-Oh Shin, Senior Researcher from the Korea Maritime Institute, showed how the potential tourism value from whale watching can be used in weighing policy options related to the marine tourism industry and regional economy and addressing issues, such as whale hunting. He presented a framework where the potential benefits of the whale watching industry are identified relative to other types of whale-related industries. This is useful in policy evaluation and in decisionmaking to protect whales while promoting marine tourism.

3.2 Dr. Peng Benrong, Associate Professor at the Coastal Management Institute (COMI) of Xiamen University, discussed the watershed ecological compensation system, wherein communities in the downstream and more economically developed areas provide financial support to communities in the upstream for their environmental protection activities. It offers an effective solution to motivate people in the upstream to undertake environmental protection activities without sacrificing their welfare. However, the system needs to be improved by applying the optimal abatement cost as the eco-compensation value, clarifying responsibilities, having a common understanding between the upstream and downstream communities, and putting in place a monitoring system. Human dependence on ecosystem services and particularly their role as a lifeline for many poor households needs to be emphasized and integrated into policy and development plans.

3.3 Dr. Chou Loke Ming, Professor from the Department of Biological Science of the National University of Singapore (NUS), presented the economic value of coral reefs, in particular the benefits from tourism and fisheries, and pointed out that the benefits to be gained from restoration are greater than the cost of restoration. However, the benefits from coral reef protection and management would even be greater than restoring exploited and degraded reefs since some types of damages are irreversible. Dr. Chou likewise showed a comparison of revenues from logging and damages due to logging (e.g., siltation and damages to coral reefs, and loss of fisheries and tourism revenues). Some innovative restoration techniques and management approaches, and contribution of coastal ecosystem protection towards a sustainable Blue Economy were also imparted.

3.4 Dr. Choong-Ki Kim from Stanford University focused on seagrass and oyster reef restoration efforts in Mobile Bay, USA. In most estuarine systems, more than 85 percent of oyster reef habitat has been lost due to overharvesting, diseases, and deteriorated water quality. The decline has lowered filtration capacity, degraded water quality, decreased stable habitats, and increased coastal vulnerability to extreme events. In consequence, it requires urgent efforts to restore the strong, resilient natural communities that for centuries have protected people and wildlife from storms and provided the backbone of the regional economy. Restoring oyster reefs provides additional services, including habitat value, shoreline protection, water filtration, job creation and other socioeconomic benefits, which when combined together, generate more benefits to the local communities than harvest value alone. These findings can be used to create opportunities for new funding sources for restoration/conservation projects that may reverse ecosystem degradation and facilitate growth of the Blue Economy.

4. Panel Discussions

4.1 The panel discussion during the first session of the workshop delved on the importance of and need to account for the economic values of ecosystem services from coastal and marine resources. The presentations demonstrated that by having information on economic value of the ecosystem services, cost of damages, and comparison of cost of restoration and benefits to be gained, decisionmakers could have a more realistic assessment of the opportunity costs — measured in terms of economic losses or benefits forgone — when choosing between conservation and development objectives.

4.2 Through valuation, it can be shown that preserving ecosystems and protecting the environment make economic sense, rather than sacrificing them for short-term gains. There is also an urgent need to reflect more correctly the social and environmental

interactions of economic development, given the unsustainable path being taken to pursue economic growth and meet increasing demands from a growing population and rapid urbanization.

4.3 In relation to the confirmation of the importance of economic valuation studies, the body also agreed on the need to have innovative financing schemes to support the on-the-ground application of the results and conclusions as well as relevant information from these valuation studies. The body acknowledged this challenge of using the results of valuation studies to design economic instruments to 'capture' the economic values, and translate them into monetary benefits, which can be shared by poor communities.

4.4 The panel discussion during the second session discussed the significance of implementing valuation of ecosystem services in improving ICM and effective assessment of its activities. ICM can be enhanced by using the coastal ecosystem service valuation. In this way, we can encourage local governments to invest in the protection and restoration of ecosystems and the environment.

5. Conclusion

5.1 The workshop concluded with the observation that we need more robust valuation studies, and to go beyond demonstrating and creating recognition of the tangible economic benefits of protecting coastal ecosystems. The valuation of ecosystem services is not meant merely to show the importance of ecosystems to society, but rather to: (a) enable decisionmakers to evaluate alternative courses of action and clarify the tradeoffs and dilemmas that arise from being faced with conflicting choices, and thus, formulate appropriate policies and actions; and (b) provide signals (e.g., monetary value, price) to change behavior (towards more resource-efficient and low carbon consumption and production), advance coastal ecosystem protection, and incentivize development and adoption of innovative, cost-effective, and environmentally sound (green) technologies and ecosystem-based adaptation measures to ensure a sustainable Blue Economy.

5.2 Missing values have resulted in wrong price signals, which in turn resulted in destruction of habitats, overexploitation of resources (fisheries, endangered species), and degradation of water quality. Systems for carbon trading and markets, compensation for damages, user fees, and payment for ecosystem services are some examples of how markets can internalize so-called negative externalities and provide better price signals — but economic valuation is an important foundation for such systems.

Annex 1. List of Resource Persons

Dr. Sung-Gwi Kim
Korea Maritime Institute (KMI)

Prof. Xue Xiongzhi
Coastal and Ocean Management Institute (COMI),
Xiamen University

Dr. **Kim Hak-So**
President, Korea Maritime Institute

Dr. Orapan Nabangchang
Senior Economist
Economy and Environment Program for Southeast Asia (EEPSEA),
Singapore

Dr. Tridoyo Kusumastanto
Professor of Ocean Economics Policy and the Director of Center for Coastal and Marine Resources Studies, Institute for Tropical Coastal and Ocean
Indonesia

Ms. Marilou Mendoza
Freelance Livelihood Specialist,
Philippines

Ms. Rao Huanhuan
Coastal and Ocean Management Institute (COMI),
Xiamen University

Dr. Chul-Oh Shin
Senior Researcher,
Marine Policy Research Division,
Korea Maritime Institute

Dr. Peng Benrong
Associate Professor
Coastal and Ocean Management Institute (COMI),
Xiamen University

Dr. Chou Loke Ming
Professor
Department of Biological Sciences,
National University of Singapore (NUS)

Dr. Choong-Ki "CK" Kim
Research Professor
Ocean Science & Technology Institute,
Inha University

Annex 2. Workshop Programme

Workshop 2: Unmasking Hidden Costs: Accounting for Natural Resource Depreciation and Environmental Damages

Co-Chairs:
Dr. Sung-Gwi Kim, Korea Maritime Institute (KMI)
Prof. Xue Xiongzhi, Coastal and Ocean Management Institute (COMI), Xiamen University

Time	Proposed Topic	Proposed Speaker
10:00 – 10:05	Welcoming Remarks : Dr. Kim Hak-So, President, KMI	
10:05 – 10:10	Introduction to the workshop: Co-Chairs	Co-Chairs (KMI, COMI)
	Session 1 : Valuing Losses in Coastal and Marine Ecosystem Services	**Chair: Dr. Sung-Gwi Kim, Korea Maritime Institute (KMI)**
10:10 – 10:30	Mangrove and coastal ecosystem losses and disaster-related damages (Thailand) *(focus: (a) demonstrating the economic value of coastal ecosystems, such as mangroves, and selected marine endangered species such as marine turtles, dolphins, whale sharks and manta rays; (b) opportunity costs of converting mangroves for alternative economic uses and the benefits of mangrove conservation from storm protection in terms of reducing lives lost and property damages; (c) challenges for using the valuation results as inputs into decisionmaking processes)*	**Dr. Orapan Nabangchang** (EEPSEA)
10:30 – 10:50	**Economic value of coastal resources degradation in Seribu Islands: Is blue economy a solution for reversing the degradation?** *(focus: Coastal resources degradation in Seribu Islands caused by natural factors and human-induced factors such as, pollution, unsustainable resource exploitation (destructive fishing) and overfishing; applicable methods and policy for achieving sustainable use of resource for socio-economic activities while maintaining environmental quality, reducing the threat of the sustainability of Seribu Islands coastal ecosystems and resources, and improving quality of life of communities.*	**Tridoyo Kusumastanto**
10:50 – 11:10	Alternative/Supplemental Livelihood Programs in the Philippines *(focus: addressing coastal resource degradation and sustaining coastal and marine ecosystem services through livelihood programs; importance of institutional arrangements and capacity development)*	**Ms. Marilou Mendoza** Freelance Livelihood Specialist, Philippines
11:10 – 11:30	Compensation for the Marine Ecosystem Damage due to Sea Area Use *(focus: Implementation of Marine Ecological Damage Compensation (MEDC) on different sea areas, making the responsible party pay for their damage to the various marine ecosystems to internalize the externalities due to human activities)*	**Ms. Rao Huanhuan** COMI, Xiamen University

Time	Proposed Topic	Proposed Speaker
11:30 – 12:25	Moderated panel discussion	Moderator: **Dr. Sung-Gwi Kim (KMI)** Panelists: Above presenters
12:25 – 12:30	Session wrap up	Chair: **Dr. Sung-Gwi Kim (KMI)**
12:30 – 14:00	*Lunch Break*	
	Session 2: Restoring and Sustaining Natural Capital through ICM	Chair: **Prof. Xue Xiongzhi** (COMI, Xiamen University)
14:00 – 14:15	Investigating the Possibility of Whale Watching Tourism in Korea: Economic Valuation Perspective *(focus: economic value of whale watching tourism in Korea to provide information for the decisionmaking process related to the policy of marine tourism industry and regional economy)*	**Dr. Chul-Oh Shin** (KMI)
14:15 – 14:30	Eco-compensation Policy in Fujian Province *(focus: Watershed ecological compensation (WEC) system wherein communities in downstream areas or the economically developed areas provide financial support to communities in the upstream for their environmental protection activities)*	**Dr. Peng Benrong** (COMI, Xiamen University)
14:30 – 14:45	Coral reef degradation: Can restoration reverse the loss? *(focus: impacts of coral reef degradation on economies and coastal communities; cost of management and protection vs. cost of restoration vs. cost of damage; cost-effective management options)*	**Chou Loke Ming** (NUS)
14:45 – 15:00	Nature's Benefits: Getting more for restoration dollars *(focus: oyster reef restoration projects in the Gulf of Mexico; decision-support tools; valuation of ecosystem services generated from restoration and conservation)*	**Dr. Choong-Ki "CK" Kim** (Inha University)
15:00 – 15:50	Moderated panel discussion	Moderator: **Prof. Xue Xiongzhi** (COMI) Panelists: Session 2 presenters
15:50 – 15:55	Session wrap up	Chair: **Prof. Xue Xiongzhi**
15:55 – 16:00	Workshop Summary and Conclusion	Co-Chairs (KMI, COMI)