



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

9-13 July



SUBTHEME 3

Securing Ecosystem Services through Integrated Coastal and Ocean Management

WORKSHOP 1

Food Security in Watersheds and Coastal Areas

CO-CONVENING AGENCY:



Chair: **Dr. Sudirman Saad**
Ministry of Marine Affairs and Fisheries, Indonesia

Co-chair: **Atty. Asis Perez**
Bureau of Fisheries and Aquatic Resources, Philippines



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

**Subtheme 3: Securing Ecosystem Services Through
Integrated Coastal and Ocean Management**

Workshop 1: Food Security in Watersheds and Coastal Areas

11 July 2012
10:00 am – 4:00 pm

Co-Convening Agency:
The WorldFish Center

Chair:
Atty. Asis Perez
Director, Bureau of Fisheries and Aquatic Resources, Philippines

Co-Chair:
Dr. Michael D. Pido
Vice President for Research and Extension,
Palawan State University, Philippines

1. INTRODUCTION

- 1.1 The 4th East Asian Seas (EAS) Congress, the triennial coasts and oceans event of the region, was held in Changwon City, Republic of Korea, from 9-13 July 2012. This international event was hosted by the Ministry of Land, Transport and Maritime Affairs (MLTM) of the Republic of Korea and the City Government of Changwon.
- 1.2 Carrying the theme, “Building a Blue Economy: Strategy, Opportunities, and Partnerships in the Seas of East Asia,” the EAS Congress 2012 provided participants with the prospect of identifying contributions, progress and achievements in the governance of regional/sub-regional seas within the framework of the Sustainable Development Strategy for the Seas of East Asia (SDS-SEA), which are the essential building blocks for a blue economy, as well as new opportunities and the intergovernmental and multisectoral partnerships, which are required in order to realize the full potential of the ocean economy of East Asia.
- 1.3 A major part of the EAS Congress 2012 consisted of a three-day International Conference held from 9-11 July, with five thematic workshop sessions. As such, the focus was on various aspects of sustainable development of a coastal and ocean-based economy — what is now popularly referred to as the “blue economy.”

- 1.4 The International Conference featured the following subthemes: (1) Nurturing the Coastal and Ocean Economies of the Seas of East Asia: Opportunities and Challenges; (2): Accelerating Blue Innovations in Support of an Ocean-based Blue Economy; (3): Securing ecosystem services through integrated coastal and ocean management; (4) Good Governance, Good Business; and (5) Meeting Institutional and Individual Capacity Demands for an Ocean-based Blue Economy.
- 1.5 With the WorldFish Center as the co-convenor, representatives from the national and local government agencies, nongovernmental organizations, private sector, civil society groups, research institutions and the academe from various countries participated in Workshop 1: Food Security in Watersheds and Coastal under Subtheme 3: Securing Ecosystem Services through Integrated Coastal and Ocean Management. Dr. Maripaz Perez, Regional Director for Asia and Country Manager, served as the lead coordinator. He was assisted by Mr. Len R. Garces (Research Fellow, Natural Resources Management) who also served as the workshop rapporteur. Partnerships in Environmental Management for the Seas of East Asia (PEMSEA) provided technical and administrative support.
- 1.6 The participating institutions include the following (see **Annex 1**): Yellow Sea Fisheries Research Institute, People's Republic of China; Directorate General for Marine, Coastal and Small Islands, Ministry of Marine Affairs and Fisheries, Indonesia; Bogor Agricultural University (Indonesia); Secretariat, Water Resources and Environment Administration, Prime Minister's Office, Lao PDR; Western and Central Pacific Fisheries Commission, Federated States of Micronesia; Bureau of Fisheries and Aquatic Resources, Philippines; National Fisheries Research and Development Institute, Philippines; Bureau of Agricultural Research, Philippines; Sulu-Celebes Seas Sustainable Fisheries Management Project, Philippines; Faculty of Science, Burapha University, Thailand; Stockholm International Water Institute, Sweden; The WorldFish Center, Philippines and Malaysia; and Palawan State University, Philippines.
- 1.7 Food security as a crucial global issue consists of three intricately-related variables: availability, access and utilization. It has been argued that food security in watersheds and coastal areas is best sustained through integrated management approaches. Hence, the workshop was undertaken to assess the issue of food security in the context of integrated coastal management (ICM) taking into account the elements of food availability, access and utilization.
- 1.8 Food availability implies that sufficient quantities of appropriate and/or necessary types of food are available; hence, this variable is largely technological in nature. Constraints to food availability include inappropriate production or harvesting practices of crops, fisheries and livestock as well as factors like climate change, sea level rise and natural hazards. Food access as a variable implies that the population has adequate income or other resources to purchase or barter to obtain levels of appropriate foods.
- 1.9 Food utilization/consumption relates to aspects of proper food usage (such as proper food processing and storage techniques) as well as adequate health and sanitation services. Food security in watersheds and coastal areas is best sustained through integrated management approaches. Hence, this workshop aimed to assess the issue of food security in the context of ICM, taking into account the elements of food availability, access and utilization.

- 1.10 The workshop was formally opened by the subtheme 3 Chair, Dr. Cielito Habito, former Director General of the Philippines' National Economic and Development Authority (NEDA). He provided the workshop's general context in relation to subtheme 3. After that, Dr. Habito introduced the Workshop Chair, Atty. Asis Perez, Director, Bureau of Fisheries and Aquatic Resources (BFAR), Philippines. Atty. Perez then introduced co-chair, Dr. Michael Pido, Vice President for Research and Extension, Palawan State University, Philippines.
- 1.12 Atty. Perez highlighted that the workshop proper consisted of two parts: (1) case studies on how ICM has promoted food security in watersheds and coastal areas by effectively linking food production modalities (such as capture fisheries, aquaculture and mixed/integrated systems, etc.) with human dimensions and ecological systems; and (2) the evaluation of how the key regional initiatives (plans/programs/projects) have contributed to food security in the region. Atty. Perez briefly ran through the workshop program (see **Annex 2**).
- 1.13 Atty. Perez introduced the keynote speaker, Dr. Subandono Diposaptono, Director of Coastal, Marine and Small Islands Spatial Planning, Directorate General of Coastal, Marine and Small Islands of Indonesia. His keynote, titled *Food security in watersheds and coastal areas of the South East Asian region with emphasis in Indonesia*, described the ICM initiatives in Indonesia — including the national ICM legislation — to promote food security in watersheds and coastal areas. Dr. Diposaptono also provided emphasis on the sustainable development of capture fisheries.

2. PART 1: CASE STUDIES AT LOCAL AND NATIONAL LEVELS ON HOW ICM HELPS ACHIEVE FOOD SECURITY

- 2.1 Three in-country case studies from Thailand, Philippines and Lao PDR were presented on how ICM helps achieve food security.
- 2.2 Dr. Praparsiri Barnette, Assistant Professor at Burapha University, presented on *Utilizing ICM to address food security issues in Chonburi Province, Thailand*. Chonburi has been an ICM demonstration site of PEMSEA since 2000. Management measures that have been used to address food security issues include the following: mangrove reforestation to enhance fisheries habitats; stock enhancement (of various species such as shrimp, seabass and crab gill); and pollution reduction to improve water quality for bivalve farm production.
- 2.3 Small-scale fisheries (SSF) sub-sector in the tropical developing countries is getting more critical. Presenting on the *Small-scale fisheries and food security in the Philippines*, Mr. Len Garces of the WorldFish Center reiterated that coastal residents are highly dependent on fisheries for food, livelihoods and income. The situation is exacerbated by the uncontrolled population increase. Using case studies from eight project sites, he pointed out that the need to up-scale fisheries management through ICM is paramount. Many of problems/issues that confront the SSF are outside the fishery sector's domain. Mr. Garces noted that if these issues are not properly addressed and inappropriate harvesting practices continue, fishfood availability and food security in coastal areas will be severely affected in the future.

- 2.4 Water is an important integrating medium related to food security as water regulates agricultural production. This is particularly critical for land-locked areas. Hence, integrated water and watershed management is crucial to food security in the terrestrial environments. This contention is adequately demonstrated in the presentation by Mr. Souphasay Komany, Assistant Director of Water Resources Coordination Committee, Secretariat, Water Resources and Environment Administration, titled *Water and Food Security in the Nam Ngum River Basin in Lao PDR*. Water is not only primordial for crop production; water quality is crucial in capture fisheries and inland aquaculture as well.

3. DISCUSSIONS ON THE KEYNOTE ADDRESS AND PART 1

- 3.1 Small-scale fisheries (SSF) subsector is anticipated to become more critical as population continues to increase. However, to be able to determine the importance of SSF to food security, there is a need for improved data collection on SSF in Southeast Asian countries. For example, in the Philippines and Thailand, it was recognized that there is a gap on the amount of fish catch reported at the national level due to limited capacity/personnel to monitor fish catch at the local level (municipality/province). The situation is exacerbated by the limitation of data collection systems. Also, there is lack of cooperation among fish traders or fishers to report their actual volume of fish catch due to their perception that the monitoring of catch is viewed as a measure to impose additional taxation.
- 3.2 The restocking program in Chonburi Province was also clarified. The release of marine organisms (such as blue swimming crabs, shrimps and fish) into the coastal areas is done due to declining fish abundance, which is attributed to overfishing. It was noted that the marine organisms used for restocking are produced from hatcheries. The restocking activities are also intended to promote public awareness; hence, the community members are engaged in the release of marine animals.
- 3.3 Water management in Lao PDR is important due to the expansion of agriculture activities. Optimal use of water for irrigation is carefully considered to ensure both food security and natural sustainability. Also, greater application of chemicals to intensify agricultural production is likely to have impacts on water quality in the future, if they are not properly managed. Food security in watersheds and coastal areas will be best sustained through integrated management approaches.

4. PART 2: REGIONAL AND INTERNATIONAL INITIATIVES' CONTRIBUTION IN ACHIEVING FOOD SECURITY

- 4.1 Presentations in the afternoon consisted of five regional and international initiatives and how they contribute in achieving food security.
- 4.2 Presenting on *Aquaculture growth, ecological systems and food security*, Dr. Michael Phillips of The WorldFish Center demonstrated that aquaculture is the world's fastest growing animal food-producing sector. Aquaculture has surpassed production of fisheries in the wild. The East Asian Seas contribute significantly to global supplies and the region is already a major consumer of aquatic products. Nonetheless, aquaculture's growth has largely been pursued at the expense of ecological impacts — such as loss of wetlands, water and sediment pollution and reduction of biodiversity. Through ICM, aquaculture can

be an ecologically efficient means of producing animal products and more efficient use of natural resources as well.

- 4.3 Marine food production can co-exist with biodiversity concerns. Hence, food security need not be in conflict with marine biodiversity conservation. An example was provided in the presentation on *Sustainable fisheries management project of Sulu-Celebes (Sulawesi) large marine ecosystem (LME) in relation to food security*. Dr. Annadel Cabanban, the project's senior fisheries expert, argued that this LME can produce fisheries sustainably. Appropriate fisheries plans were developed in line with Aichi Target 6 (2020). This necessitates that all fish stocks are harvested sustainably and that ecosystem-based approaches are judiciously applied to avoid overfishing.
- 4.4 Dr. Xianshi Jin, Deputy Director of Yellow Sea Fisheries Research Institute, China, reiterated that fisheries will remain a crucial economic sector for local, national and regional food security. His paper titled *Sustainable Fisheries Management in China in Relation to Regional Food Security* is an illustrative example that in order to increase seafood supply from coastal fisheries, three management measures have been used in China. These included measures that are related to the conservation of coastal marine ecosystem by construction of artificial reefs and seaweed beds; those programs that are geared towards the development of mariculture; and measures to reduce fishing capacity.
- 4.5 Lack of or limited information on regionally-shared fish stocks has hampered their management that has bearing on food fish security. There is limited information about tuna and related species in the Western and Central Pacific Ocean as noted by Dr. Sung Kwon Soh of the Western and Central Pacific Fisheries Commission. The lack of accurate catch statistics for the Philippines and Indonesia are largely responsible for much of the uncertainty in regional stock assessments for big eye and yellowfin tuna. Such concerns for industrial/commercial fishing are highlighted in his presentation on *Food security in relation to fisheries in the Western and Central Pacific region*. Without accurate time series information, such straddling fish stocks cannot be managed effectively.
- 4.6 Governance is still a challenge as integrated institutional arrangements may not be fully defined within the continuum from the highlands down to the coastal environments. This was tackled by Ms. Birgitta Liss Lymer (Stockholm International Water Institute) in her presentation on *Strengthening the Management of Water Resources in the Continuum from Land to the Coastal Sea with Spatial Planning*. While scientific knowledge on ecosystem functions are largely known, the governance frameworks or arrangements that are necessary to handle the management of resources in the continuum are not necessarily well-established. Hence, institutional modalities may vary across ICM programs in relation to food security. Ms. Lymer argued for a more explicit link between institutional arrangements and spatial development.

5. WRAP UP

- 5.1 The workshop chairs and members of the workshop co-convenors and/or organizers also made an initial synthesis of the presentations and discussions. These relate to the following: (1) major findings/conclusions; (2) challenges; and (3) major recommendations. These presentations were consequently accepted by the participants at the plenary session. Details are provided in **Annex 3**.

- 5.2 As part of major findings/conclusions, it is recognized that accelerated economic development is happening in the coastal zone as the highly productive inter-phase between the land and the sea. There is also a continuing increase in human population particularly in the coastal zone. Increase in the level of development and increase in population create greater demand for food. These factors often result in the degradation of the resource base, which in turn may lead to food insecurity. Sustained food production is linked with resilient and healthy environments in the coasts and watershed areas. Both capture fisheries and aquaculture remain a crucial economic sector for local, national and regional food security. Also, small-scale fisheries sub-sector will become more critical as population continues to increase. The negative impacts of aquaculture can be better compared with the production of other animal source foods. There are areas, though, for improvement in terms of species and culture systems.
- 5.3 The challenge largely relates to this question: What can we do to continue accelerated development and population increase without threatening the resource base and thereby creating food insecurity? There is a need to strike a balance that if economic development and population growth continues, then measures have to be undertaken to ensure the functional integrity of the ecosystems so that food security is assured. Also, knowledge gaps exist on quantification of relationships between ICM and food security parameters. Marine food production systems can co-exist with biodiversity conservation. Successful ICM/CRM programs that uses complementary management measures to promote food security in the coastal and marine environment; however, governance arrangements for effective management of resources in ridge-to-coast continuum are not well established.
- 5.4 The key recommendations of the workshop included: (1) need to integrate the various sectoral needs and concerns in developing ICM programs if we are to promote food security; (2) formal legislations enhance probability of effective ICM implementation; (3) special attention must be given to small-scale fisheries (SSF) sub-sector in understanding it better through improved data collection, including highly migratory species; (4) need to integrate not only coastal concerns but the watersheds to promote food security; (5) regional cooperation and management is key to effective management of highly migratory fish species.

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Annex 2. Workshop Programme

Time	Activity/Presentation	Speaker
1000 -1012	Workshop Overview by Chair	Atty. Asis Perez Director Bureau of Fisheries and Aquatic Resources Philippines
1013 -1015	Introduction of Keynote Speaker	Atty. Asis Perez Director Bureau of Fisheries and Aquatic Resources Philippines
1015 -1045	Keynote paper: Food Security in Watersheds and Coastal Areas of the South East Asian Region with Emphasis in Indonesia	Dr. Dipo Saptono Subandono Director of Coastal Spatial Planning Director General Directorate General for Marine, Coastal and Small Islands Ministry of Marine Affairs and Fisheries Jakarta, Indonesia
Part 1: This session aims to present case studies at the local and national levels on how ICM helps achieve food security		
1045 – 1100	Utilizing ICM to address food security issues in Chonburi, Thailand	Dr. Praparsiri Barnette Assistant Professor Head of the Department of Aquatic Science, Faculty of Science, Burapha University, Chonburi 20131, Thailand Advisory committee of the Chonburi ICM (Integrated Coastal Management) program
1100 – 1115	Small-scale fisheries and food security in the Philippines	Mr. Len R. Garces Research Fellow, Natural Resources Management The WorldFish Center Philippine Country Office
1115 - 1130	Food security in the watersheds of Lao PDR	Mr. Souphasay Komany Assistant Director Water Resources Coordination Committee Secretariat, Water Resources and Environment Administration Prime Minister's Office Lao PDR
1130 – 1230	Open Forum: Moderated Discussion	
Part 2: This session aims to present regional and international initiatives and how they contribute in achieving food security. It also aims to discuss how regional cooperation between and among the relevant organizations and/or institutions can be enhanced to achieve sustainable development, which may ultimately lead to food security.		
1400 - 1415	Aquaculture growth, food security and ecological systems	Dr. Michael Phillips Senior Scientist Aquaculture and Genetic Improvement The WorldFish Center

		Penang, Malaysia
1415 - 1430	Sustainable Fisheries Management Project of Sulu-Celebes Sea in relation to food security	Dr. Annadel S. Cabanban Senior Fisheries Expert Sulu-Celebes Seas Sustainable Fisheries Management Project Philippines
1430 - 1445	Sustainable Fisheries Management in China in Relation to Regional Food Security	Dr. Xianshi Jin Deputy Director General and Senior Scientist Yellow Sea Fisheries Research Institute Beijing, People's Republic of China
1445 – 1500	Reframing governance in integrated river basin and coastal management with emphasis on food security issues	Ms. Birgitta Liss Lymer Programme Manager Stockholm International Water Institute (SIWI), Sweden
1500 – 1515	Monitoring of Tuna Fisheries in the West Pacific East Asia	Dr. Sung Kwon Soh Science Manager Western and Central Pacific Fisheries Commission PO Box 2356, Kolonia, Pohnpei, Federated States of Micronesia
1515 – 1600	Open Forum: Moderated Discussion and Chair Synthesis	

Annex 3. Workshop Summary/Highlights Presented in Plenary

This consists of four main areas, each of which was presented in a bulleted format in a PowerPoint slide. The first slide provides a general explanation of the workshop, including its focus and relevance to the Congress as follows:

- Food security is a crucial global issue/phenomenon that consists of three intricately-related variables: (1) food availability; (2) food access; and (3) food utilization.
- Food security in watersheds and coastal areas is best sustained through integrated management approaches.
- Workshop aims to assess the issue of food security in the context of ICM taking into account the elements of food availability, access and utilization.
- Part 1 aims to present case studies at the local and national levels on how ICM helps achieve food security.
- Part 2 aims to present regional and international initiatives and how they contribute in achieving food security.

The second area relates to the major findings and/or conclusions.

- Accelerated economic development is happening in coastal zone.
- There is also a continuing increase in population particularly in the coastal zone.
- Increase in development and increase in population create greater demand for food.
- Increase in both development and population often results in degradation of resource base.
- Such degradation of resource base may lead to food insecurity
- Sustained food production is linked with resilient and healthy environments in the coasts and watershed.
- Both capture fisheries and aquaculture contribute significantly to food security
- The negative impacts of aquaculture can be better compared with the production of other animal source foods.
- There are areas for improvement in terms of species and culture systems.

The third area refers to the challenge. A key question posed was:

- “What can we do to continue accelerated development and population increase without threatening the resource base and thereby creating food insecurity?”
- Need to strike balance that if economic development and population growth continues, then measures have to be undertaken to ensure the functional integrity of the ecosystems so that food security is assured.

The fourth area contains these five major recommendations:

- Need to integrate the various sectoral needs and concerns in developing ICM programs if we are to promote food security.
- Formal legislations enhance probability of effective ICM implementation (e.g., Indonesian experience).
- Special attention must be given to small-scale fisheries (SSF) sub-sector in understanding it better through improved data collection, including highly migratory species.
- Need to integrate not only coastal concerns but the watersheds to promote food security
- Regional cooperation and management is key to effective management of highly migratory fish species