



THE EAST ASIAN SEAS CONGRESS

25 Years of Partnerships for Healthy Oceans, People and Economies

Moving as One with the Global Ocean Agenda

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TRACK 5: RESEARCH AND TOOLS

SESSION 5.3

A Critical Review of 25 Years of Land Reclamation in East Asia

CONVENERS:



Florida International University



Xiamen University



Korea Institute of Ocean Science and Technology



East Asian Australasian Flyway Partnership



UNDP/GEF Yellow Sea Large Marine Ecosystem Phase II Project



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Partnership Hub Track 5: Research and Tools

5.3. A Critical Review of 25 Years of Land Reclamation in East Asia

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Session Proceedings

Convener

Florida International University, Xiamen University, Korea Institute of Ocean Science and
Technology, East Asian Australasian Flyway Partnership, UNDP/GEF Yellow Sea Large Marine
Ecosystem Phase II Project

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Dr. Young Rae Choi, Assistant Professor, Florida International University

Dr. Qinhuang Fang, Professor, Xiamen University

Dr. Moon Suk Lee, Senior Research Scientist, Korea Institute of Ocean Science and Technology

INTRODUCTION

1.1 In East Asia today, coastal land reclamation is emerging as an attractive option to provision land for real-estate development. This is concerning because coastal land reclamation inevitably degrades the health of the coastal and marine ecosystems and threatens the livelihood, culture, and traditions of fishing communities. With sea-level rise, coastal waterfront development also increases the risk of natural hazards such as tsunami and stormwater flooding. Land reclamation should be seriously concerned regarding the long-term resilience of the coasts and the people of East Asia. In this regard, this session reviewed various dimensions of land reclamation: history and current status, political economic drivers of land reclamation, the importance of preserving wetlands as migratory

bird habitats, wetlands restoration, and policies. Panel discussion following the presentations discussed a possibility for creating a regional reclamation watch program to share knowledge on land reclamation among PEMSEA's member countries. There was a consensus that, as reclamation becomes a profitable business, economic impact assessment alone is not sufficient to assess the real costs and long-term impacts of land reclamation. The session concluded that equity and sustainability, the two main goals of SDGs, should be the leading principles in evaluating the feasibility of present and future reclamation projects.

THEMES

- 1.2. In his opening remarks, **Dr. Suk-Jae Kwon** (Principal Research Scientist, Korea Institute of Ocean Science and Technology) briefed the participants on the current situation of land reclamation in East Asia. Land reclamation has been widely implemented in many East Asian countries in the past decades. While provisioning new land that increases the countries' development potentials, land reclamation brings irreversibly detrimental impacts to the livelihoods of local fishing communities, the marine ecosystem, and globally migrating shorebird populations. Technological advances have enabled faster, larger-scale reclamation that transforms the marine environment to an unprecedented degree. Land reclamation projects in recent years are particularly driven by the logic of construction and politics, rather than an actual need for land. Land reclamation as 'ocean grabbing' demands thoughtful discussion on how to effectively manage and control reclamation practices.
- 1.3. **Dr. Bong-Oh Kwon** (Assistant Research Professor, Seoul National University) provided an overview of tidal flats in the Yellow Sea (China, DPRK, and ROK). Approximately 1% of total tidal flat areas in the region was lost every year between the 1980s and the 2010s. Net loss of the Yellow Sea's tidal flats during the same period was up to 3800 km². The loss of tidal flats also means a significant loss of carbon stocks. The estimated loss of annual ecosystem services value of Yellow Sea tidal flats is about 7.8 billion USD per year, from 21.4 billion USD per year in the 1980s to 13.6 billion USD per year in the 2010s. Moreover, while the remaining tidal flat areas are about 19,000 km², about 9,700 km² is anticipated to disappear by the 2020s. To minimize coastal vulnerability and loss of ecosystem services, he noted, science-based policy design and implementation based on the principles of conservation is urgently required. He also introduced tidal flat restoration projects.
- 1.4. **Dr. Qinhua Fang** (Professor, Xiamen University) discussed how science can inform policymaking. From the case study of Xiamen and the Fujian province's integrated coastal management (ICM) experimentations and their successful scaling-up as national-level policy, he noted the importance of communication amongst scientists and policymakers.

The Marine Expert Group in Xiamen could be one of the best-practice models. Scaling-up is another key consideration. Upscaling ICM to a regional level across administrative borders and ultimately developing it as a comprehensive development model of a coastal region is necessary. Also, he emphasized that both science and policymakers should consider the cumulative and cross-jurisdictional impacts of reclamation projects. Beyond environmental impact assessment (EIA), he introduced the concept of cumulative impact assessment (CIA), which can account for geographically broader, long-term, and combined impacts of individually scattered land reclamation projects in a region.

- 1.5. **Dr. Young Rae Choi** (Assistant Professor, Florida International University) introduced a historical and a political economic perspective on coastal land reclamation. The pathways and drivers of land reclamation in Japan, China, and RO Korea differ from one another but also share a macro-trend. In Northeast Asia, modern land reclamation began as a post-war, state-building project since World War II. Initially designed for agriculture and irrigation, the purpose of modern land reclamation projects gradually shifted towards multi-use, including infrastructure, industrial and urban space, and tourism. Today, land reclamation is increasingly considered as a way to provision land to realize urban ideals, and the real-estate boom in recent years and high land price drive further land reclamation. As such, she noted, environmental pressure is greater due to high population-density and new challenges and problems arise such as sea-level rise, floods, and tsunami. She emphasized that small-scale but high-impact reclamation projects, hitherto underestimated compared to large-scale ones, should be closely monitored and assessed.
- 1.6. **Dr. Colin Studds** (Assistant Professor, University of Maryland) emphasized the importance of Yellow Sea tidal flats in conserving global shorebird populations. The Yellow Sea is a 'migration bottleneck' of the East Asian-Australasian shorebird flyways, in that a majority of migrant shorebirds using the flyways stop by the intertidal habitats. The rate of loss for these tidal flats is alarming. Since the 1950s, 65% of the Yellow Sea's tidal flats have disappeared. Among them, about 28% was lost since the 1980s. Using the concept of migration connectivity networks, he showed that the taxa relying more on the Yellow Sea have greater declines in global population than other shorebirds. Finally, he introduced the Google Intertidal Project led by Nick Murray, which aims to identify the historical changes in tidal flats at the global scale using geospatial analysis.
- 1.7. **Dr. Wang Wei** (Associate Scientist, First Institute of Oceanography/Ministry of Natural Resources of China) discussed China's recent efforts to minimize land reclamation and to restore coastal ecosystems. He introduced seagrass (*Zostera japonica*), oyster reef (*Ostrea rivularis*), and coastal plants (*Suaeda salsa*) restoration projects that had successful outcomes. Yet, China's coasts are not without threats. The runoff of the Yellow River has

significantly decreased due to the construction of reservoirs and dams, especially affecting the patterns of annual Spring floods. *Spartina anglica* and *Spartina alterniflora*, known as cordgrass, spread out along the coasts since they were introduced back in the 1980s and the 1990s. Eco-recovery projects address this issue, using dredged sediments. He concluded that large-scale ecological regulation techniques should be further developed and that there is a need to identify umbrella species and understand their habit conditions preferences for effective restoration.

DISCUSSION

1.8. **Dr. Young Rae Choi** opened the panel discussion by asking three questions:

- a) How can we reduce the impacts of land reclamation?;
- b) How can marine spatial planning (MSP) help control unsustainable reclamation practices?; and
- c) How can we better monitor the status and trends of land reclamation in East Asia and promote regional cooperation?

1.9. **Dr. Moon Suk Lee** (Senior Research Scientist, Korea Institute of Ocean Science and Technology) introduced RO Korea's marine spatial planning related laws and regulations. She emphasized the utility of marine spatial planning, as an umbrella framework addressing numerous issues discussed in the session including appropriate spatial uses, the feasibility of such uses, environmental impact assessment, and so on.

1.10. **Dr. Gil Jacinto** (University of the Philippines) pointed out the tensions within the sustainable development paradigm, saying that land reclamation today seems to be solely justified based on economic values, i.e., the value of the environment is always much less than the value generated by businesses. The panel discussed that zoning and cumulative impact assessment might help evaluate multi-dimensional impacts of land reclamation. The consensus was that singular economic impact assessments are not enough as they may not reflect the real costs of land reclamation. Equity and sustainability, two main goals of the SDGs, should be seriously taken into account in evaluating the impacts of reclamation.

1.11 **Elizabeth Mendoza** and **Jackie Caancan** (DENR) from the audience brought up issues regarding the cost-benefit analysis of land reclamation and reclamation projects taking place in the Philippines. Including the New Manila Bay project, there are seven land reclamation projects planned by different authorities in the National Capital Region, and many other agencies involved in issuing the permits or approving reclamation projects.

Cumulative impact assessment would be able to address such issues of jurisdictional complexities. Dr. Qinhua Fang added that the political will of decision-makers is crucial.

- 1.12 **Dr. Chua Thia-Eng** (PEMSEA) remarked that land reclamation projects booming all over in East Asia are very concerning and that this issue must be addressed to politicians as a warning via more serious and stronger messages. He noted that the ignorance of politicians and local government leaders on the seriousness of this issue, in terms of ecological and social consequences, can be fixed by accumulating and communicating knowledge and translating them as actual policies. He emphasized that a knowledge-production and political communication platform is necessary at the scale of the East Asian region.

CONCLUSIONS AND RECOMMENDED ACTIONS

- 1.13. In terms that the knowledge on the trends and the current status of reclamation in East Asia has so far been scattered and not understood in a comprehensive manner, the session firstly suggested creating a regional “reclamation research and action network” program. The impacts of reclamation last long and affect nearby areas, not just the reclamation site alone. As such, the session secondly recommended a broader application of the cumulative impact assessment system for evaluating long-term and regional impacts of reclamation. Thirdly, as an integrative marine and coastal governance mechanism, marine spatial planning (MSP) has the capacity to consider the various dimensions of land reclamation hitherto overlooked (e.g., sea-level rise). The session suggested that an MSP framework should aim to consider equity and to strengthen the long-term resilience of coasts.
