

Sriracha, Thailand

Balance development and conservation with integrated coastal management: The crab condominium example



Sriracha Municipality in Thailand plays a vital role as a leader in integrated coastal management. Sriracha has linked conservation and urbanization to achieve sustainable development goals through the mobilization of local agencies. The coastal biodiversity of Sriracha Bay is of ecological, social and economic significance. The Blue Swimming Crab Condominium is a good example of this effort.

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Abstract

The concepts of sustainable development and green growth are widely recognized as means to control pollution and improve ecological efficiency of natural resources. Integrated Coastal Management (ICM) is a highly efficient approach to mobilize local agencies, and actors within local contexts. The activities aim to promote biodiversity, build capacity, restore habitats and protect marine life. Capacity building seeks to address various challenges to enhance and strengthen food security and livelihoods.

While there are various important marine species, the Blue Swimming Crab is economically significant for the tourism industry of Sriracha and Chonburi province. The Crab Condominium project has been a success in increasing the crab population and raising public awareness.

Importance of integrated coastal management project

Chonburi Province is the center for coastal tourism and economic development in the eastern region of Thailand. The area is known for its seafood, including the Blue Swimming Crab, and a variety of other seafood products. The young crabs, for instance, are used for popular delicacies such as the Som-Tam papaya salad. The crabs are also supplied to local and international markets.

However, rapid and unregulated coastal development, urbanization and the over harvesting of sea products have endangered the local ecological resources and the overall quality of life for local communities.

While there are various other important marine species, the Blue Swimming Crab (*Portunus Pelagicus*) is particularly significant as an economic resource for the tourism industry of Sriracha and Chonburi province. The crab also plays a significant commercial role in Thailand as a whole.

The yield from this species has recently declined from habitat degradation, over harvesting, and fishing gear's inability to discriminate by fish size. The continued decline of the crab population will seriously affect the income of fisherman and other livelihoods associated with the crab trade.



Population / Land area

~ 20,000 / 4,000 km²

Municipal budget

Approx. THB 148 million
(US\$ 4.8 million)



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Case Study

City context

Sriracha Municipality is located in Sri Racha District, Chonburi Province in the eastern region of Thailand. Sri Racha covers an area of approximately four km² with a coastline of about two km along the Gulf of Thailand in the north. The

weather in this province is moderate throughout the year with an average temperature of approximately 28.8 degree Celsius. The average annual rainfall is about 960 – 1,577 mm. The long coastline is well known for its tourism activities both locally and internationally. It also serves as a gateway for import and export.

The province is considered as an industrial center and a new economic hub for the country. This is partly a result of the Eastern Seaboard Development Project of Thailand, which aimed to develop the region as a major economic zone and distribute economic and industrial growth at the

local level. Industrial development is likely to dominate as a result of the projects implementation. This has resulted in major coastal environmental problems including red tide, untreated sewage (coliform contamination of coastal waters), a decline in fisheries and mangroves, poor water quality due to pollution (oil and grease, nutrients, pesticides, mercury and cadmium), limited supply of good quality ground water and urban expansion.

Sriracha's integrated coastal management project

Since 1999, Sriracha Municipality, together with other local governments of Chonburi province, has developed an Integrated Coastal Management (ICM) project. Since 2001, the provincial government of Chonburi and the Partnerships in Environmental Management for the Seas of East Asia (PEMSEA) Regional Program have assisted in the development of the project. The municipality of Sriracha is hosting the Project Management Office (PMO). Five municipalities initially participated in the ICM project; namely, Sriracha, Laemchabang, Saensuk, Koh Si Chang and Chaoprayasurasak. By late 2008, a total of 26 local government units were part of the Chonburi ICM network, which covers the entire 157 km coastline of Chonburi province.

Integrated approach and governance structures. The ICM project aims to conserve coastal resources and marine life. At the same time it seeks to enhance local economic development and local livelihoods.

The governance structures enhance public participation and partnership building among various stakeholders. Various coastal management initiatives collaborate in planning and implementing conservation activities. The project receives steady support from different sectors, including local governments, provincial



Coastal area along Sriracha Bay. A source of income for local fishermen.

Organizational structure of ICM

A high level multi-sectoral Provincial Project Coordinating Committee (PCC), headed by the Vice Governor, provides guidance to the implementation of the ICM project and facilitates inter-agency and cross-sectional collaboration with a Technical Working Group (TWG) as its scientific arm. A Project Management Office (PMO) consisting of a Local Government Consultative Board made up of local government chief executives, an ICM Secretariat at Sriracha Municipality, and several committees led by various municipalities, serve as the operational arm of the ICM project. The Local Government Consultative Board elects an ICM Project Director every two years. Supported by local administrative authorities, this functional multi-sectoral coordinating arrangement has been able to mobilize necessary support from relevant agencies and institutions, and is recognized to have improved the decision-making process of the local governments in Chonburi province.

Characteristics of the crab condominium

The crab condominiums are artificial shelters for spawning crabs until the eggs are released. Each female crab has between 300,000 to 500,000 eggs. Without the protection of the crab condo, only one percent of those eggs would survive.

- Convenient floating container with submerged resting cages are set up off-shore.
- Pregnant crabs are donated or purchased from fishermen and put into separate baskets that are vertically stacked like a condominium.
- Teams consisting of fishermen and community committees are in charge of caging and feeding pregnant crabs, and to return them back to the owners or marketing after the crabs have released their larvae.
- The teams are also asked to educate and provide advice to others. They are supported by professors, and municipal officers.
- Blue Swimming Crab population are measured by the development of the yield stock in Sriracha Bay.
- Relevant research institutes monitor the environmental impacts of the project: Chonburi Fishery Association, local academy and ICM project consultants provide technology and knowledge.
- In collaboration with Sriracha Fisheries Research Station of Kasetsart University, potential impacts of the project on sea water quality is monitored.

government agencies, non-governmental organizations, business, academic institutions, and various social groups within the ICM network.

The Blue Swimming Crab conservation activities. The rehabilitation of the Blue Swimming Crab through crab condominiums plays a central role within the ICM project. Since 2006 crab condominiums have been successfully established by the Rimalae and Srirachanakorn communities in Sriracha Municipality as part of the initial implementation of the Chonburi Coastal Strategy. It involves the maintenance of existing crab condominiums and the construction of new ones that are operated by the communities of other nearby municipalities and districts, such as Wat Luang community in Bangphra Municipality, Bangsaray Community in Sattahip District, and other communities in Chonburi Province.

Other activities to conserve coastal resources include:

- Growing sea grasses, eg. *Enhalus Acoroides* in growth areas of 6,000 m²;
- Recovering vertebrates and invertebrates of the Sriracha Bay by using artificial habitats, eg. mussel rafting farms;
- Increasing tourist awareness on marine conservation by training youth from local schools as eco-travel guides in several tourist areas to develop a sense of responsibility for marine conservation and environmental protection (eg. a sea turtle pond at Koh Loy Public Park).

Capacity building. The ICM project started with the development of the capacity of communities to implement activities related to the protection and sustainable use of marine resources, coastal habitat rehabilitation, and waste management and pollution reduction. It has emphasized the need to strengthen capacity among the beneficiary communities to address their own concerns, as well as the need for the participation of different sectors to create a strong community of implementers that are conscious of the development initiatives being pursued. Local governments also work closely with universities in the area to address various technical information needs and enhance decision-making.

Participation. The Crab Condominium project for example relies on active



The worker is producing a crab condominium.

Credit: Sriracha Municipality



The worker is setting up and preparing crab condominiums to be placed in the sea.

participation of local authorities as well as the people of specific sectors, such as local fishermen and community members. These stakeholders turn over spawning crabs caught in the wild to caretakers for protection and nurturing in the crab condos.

Assessment. The ICM project also monitors the impact and development of its activities, such as the overall development of the Blue Swimming Crab population. Even though there are no scientific surveys in the project area that can serve as baseline for assessment, fishermen in the three municipalities observed an increase in crab catch compared to 2005.

Results and impacts of the project

Outcomes of the ICM projects include:

- Blue Swimming Crab population and awareness of responsible fishing has increased.
- Eco-tourism at Koh Loy Public Park includes crab activities as one of its attractions.
- Private schools located in Sriracha district provide effective transfer of knowledge to young people through experiential learning and dissemination of information as part of school-based curricula.
- Best practice on Generosity Approach among community team.
- Local governments developed and adopted a common vision and framework for activities through the coastal strategy and implemented local initiatives in their strategy and municipal plan.
- Appropriate legal and institutional arrangements for multi-sectoral and inter-agency coordination through the PCC.
- Sriracha Municipality provides political commitment and a dedicated coordinating body/secretariat.
- Strategic capacity development of local personnel and awareness building and education of stakeholders.
- Participatory and integrated planning and implementation approach involved various stakeholders.
- Multi-stakeholder partnerships have developed.

Crab condominium. The Crab Condominium project was a success in increasing the crab population and raising public awareness: Each condo houses over 350 crabs, which give birth to an estimated 2,000 baby crabs about every two months.

There is no scientific survey of the increased crab population, but crab catches have increased noticeably with abundant Blue Swimming Crabs on sale at the market.

Lessons learned

Raising awareness and understanding. At the beginning, the mayors and local authorities did not understand the broader ICM concept of wider cooperation both within and outside the municipal area. Therefore, it is important to make local leaders understand about the project by starting with activities that are simple and have tangible results.

Commitment. Local governments need to commit to projects and integrate them into their municipal plan in order to receive financial support for project implementation.

Capacity building. It is important to increase the capacity of communities as they are the main stakeholders who implement the project activities in diverse fields that include the protection and sustainable use of marine resources, coastal habitat rehabilitation, waste management and pollution reduction in their area. Fishermen in Laem Chabang, Bang Phra, Bang Sa-re and Sattahip areas, all in Chonburi, are gradually learning from the experience of Sriracha. In the future greater awareness among various stakeholders is expected hopefully resulting in a richer, healthier and more diverse marine ecosystem. To date, the project has taken place in over 25 nearby local government units.

Participation. Participation of different sectors is needed to create a strong community of implementers that are conscious of the development initiatives being pursued under the project.

Cooperative exchange. Concerned stakeholders need to take action to ensure a sustainable use of Chonburi's fishery resources, and need to apply innovative technology together with local knowledge.

Local focus. Locally-based activities affecting biodiversity conservation need to be taken into account. Each local government needs to respond individually to their context.

Replication

The signing of a Memorandum of Agreement between the Provincial Government of Chonburi (Thailand) and PEMSEA on the Scaling up of ICM Implementation in Chonburi Province represents the success and effectiveness of this holistic and integrated approach. The three-year project aims to support the scaling up of ICM implementation in Chonburi with regard to increasing the spatial coverage, strengthening the governance mechanisms to support long-term implementation, strategic implementation of the Chonburi Coastal Strategy, and systematic development of local capacity to sustain ICM implementation.

The approach of the ICM project is a model for replication, and is further supported by project sites that are currently serving as learning centers for visitors from other local areas that would like to replicate the approaches and good practices developed in Sriracha.

Budget and finances

Since 2006, Sriracha Municipality has received approximately THB 5 million (US\$ 161,300) of funding. Financial support has come from various sources, including government, private sector and community:



Preparing fishing nets.



The seafood product is sold near to the fishing areas.

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Private sector, for examples: Pearl Oil Energy (2009) contributed: THB 200,000 (~ US\$ 6,500) , Prawe Magazine (2010) contributed: THB 20,000 (~ US\$ 650).

Local Action for Biodiversity

The Local Action for Biodiversity (LAB) program is a global urban biodiversity program coordinated by ICLEI - Local Governments for Sustainability's Global Biodiversity Centre, in partnership with the International Union for Conservation of Nature (IUCN). The LAB Pioneer program began in 2006 with a selected group of local and regional authorities from around the world, representing over 54 million citizens. The program provides an accessible and enabling platform for committed, leading local governments from around the world. This is achieved by profiling and promoting the importance of urban biodiversity and the role of local governments in its management, as well as by sharing the experiences, successes and challenges of urban biodiversity management in the participating cities and local authorities.

ICLEI provides guidance in assessment, planning and implementation; strategic networking opportunities; profiling opportunities for the participating local authorities at global and regional events; and creates a platform for local authorities to contribute to global advocacy on biodiversity issues.

<http://www.iclei.org/biodiversity>

Sources

- Sriracha Municipality, Integrated Coastal Management Project Office, Sriracha Fishery Research Station of Kasetsart University
- <http://mangroveactionproject.org/news/the-map-news/increasing-crab-catch-and-mangrove-rehabilitation>
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