Abstract

SESSION 2:

Accelerating Actions for Sustainable Development and Climate Change

WORKSHOP 2.1:

Scaling up ICM: Innovations and Impacts at Local, National and Regional Levels

Transforming Traditional Pond Aquaculture to Modern Ecological Aquaculture through Multiple Seawater Use and Application of Industrial Management Practice in Dongying, China

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Dongying is located at the north of Shangdong Province, east of China, at the estuary and delta area of the Yellow River, the second longest river in China, which has a coastline of 412.67 km. In the last three decades, extensive coastal areas along the Yellow River Delta were converted into fish ponds for the cultivation of high value marine commercial species such as shrimps, abalones and sea cucumbers.

Widespread farming techniques required heavy inputs of commercial feeds for shrimp farming or fertilizers to increase benthic algae or primary productivity in abalone and sea cucumber farming. Such aquaculture practices have resulted in wastage of commercial feeds, increased sedimentation, and bacteriological/virological contamination and high concentrations of nutrients, in the water column. Collectively, this resulted in a high mortality rate of the farmed animals due to oxygen depletion and diseases from viruses, bacteria and other harmful micro-organisms. Uncontrolled or inadequately controlled application of antibiotics for disease prevention and treatment further contaminated the aquaculture products and posed health concerns to consumers.

In May 2009, Dongying adopted an ICM Strategy, which included actions to achieve the dual objectives of developing the aquaculture industry and improving the marine environment through demonstration of intensive and highly efficient modern aquaculture. Modern Ecological Aquaculture is practiced by using seawater in multiple ways, using ocean natural process for farming, closing nutrient cycle through multi-trophic farming and applying industrial management practice. This approach has significantly reduced the concentration of nutrients in coastal areas surrounding Dongying City while being recognized as an important sea cucumber breeding base and significant supplier of eco-aquaculture products in PR China. This in turn has added social and economic benefits to the City. Enabling national, provincial and local strategies, policies and legal instruments have helped Dongying City establish constancy in pursuing its sustainable farming practice.

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About Yi Dan:

Before 2010, Dr. Yi Dan's main research field was marine biology, with a special interest in the study of marine bioactive substances. Currently, marine ecology and environment has become her new research target. She holds a position as an Associate Professor in the Marine Ecology Research Center, and is responsible for the work on ecosystem management and assessment, as well as environmental assessment. Furthermore, Yi Dan does the research and assessments that will be provided to the State Oceanic Administration as a consultant on information for the marine management or policy decision-making. Her recent project is focusing on the basic research for marine ecosystem management, including, how to apply the concept of ecosystem services into management, and how to assess the effect of the management.