Three Different Management Options for Abandoned Shrimp Farm Rehabilitation in the Upper Gulf Coast of Thailand

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According to FAO, shrimp aquaculture is the world fastest food production sector and Thailand had become the world largest producer, accounted more than 55% or 277,000 MT of marine shrimp production in 1995 which was 13,000 MT in 1984. Marine shrimp farming area also increased in Thailand from 36,800ha in 1994 to 74,000ha in 1995. Rapid development in this profitable venture had been done both in horizontally and vertically but left a large number of ponds abandoned after a period of shrimp production, which were previously productive mangroves, paddy fields and other land uses. Only in Samut Sakhon Province, where the countries first intensive shrimp farming had been started since 1985, a total of 974 shrimp farms out of 1,877 in 1990 were being abandoned in 1995 with an area of 3,051.68 ha. When it became a challenge about what to do (?) and how to do (?) with these huge abandoned lands with a considerable high economic return, most people converted back their farms into low profit extensive shrimp farms and salt farms. Government had influenced the abandoned farm owner through monetary incentives (416 US$/ha) since 1996-97. Only few people started integrated aquaculture and "Wang Koong Maneerat" is one of these integrated shrimp-mussel-fish culture farms situated close to the Tha Chin River estuary of the Upper Gulf of Thailand. This paper is presenting a detailed management aspect with environmental and economic study of resource uses of abandoned shrimp farms for integrated fish-mussel-shrimp culture, salt farming and mangrove plantation. The four months environmental study shows that the temperature, pH and salinity of the integrated aquaculture far are as same as with planted *Avvicennia* and *Rhizophora* forest and under the accepted limit of standard coastal water quality for aquaculture development and mangrove conservation. The DO is slightly lower but NH_3-N and PO_4-P are slightly higher than the natural condition. For the salt farm except temperature, salinity and DO other parameters are within the acceptable limit. The economic study shows that the financial returns of integrated aquaculture farm varies from 1,761.81-3,225.69 US$/ha, whereas the returns from the salt farm and mangrove vary 616.38-1,849.71 US$/ha and 3,206.57-4,090.45 US$/ha respectively. The economic returns from mangrove has been estimated considering direct use value (without charcoal), offshore fisheries linkage and coastline protection using surrogate prices and the high value obviously comes from the over estimation in terms of coastline protection (2,991.35 US$/ha). A study of abundance of 14 meiofaunal taxa also shows that the three resource uses systems are significantly different (P = 0.00%) with each other.