

'Mangrove-research', making use of satellite images and GIS in the framework of the project 'Improvement of shrimp production sustainability and shrimp safety - BL/03/V42

Project partners:

- VUB (Nico KOEDAM)
- CTU (Can Tho University – Vo Quang Minh)

(Geographic) study area : Mekong area in Vietnam (Ca Mau s.l.)

Project period: 15/02/2006 - 30/06/2006

Data used:

- satellite data I SPOT, IKONOS
- historical maps, aerial photographs, literature
- fieldwork, (limited : interviews)

Context and objectives

In the framework of the programme '*Improvement of shrimp production sustainability and shrimp safety in Vietnam*', a collaborative programme between the Belgian Science Policy Office (BelSPO) and the Vietnamese Ministry of Science and Technology (MOST), which together supported a consortium of Belgian and Vietnamese research teams, it was deemed necessary to estimate the state and spatiotemporal dynamics of the mangrove in the Mekong delta, more specifically in the wider Ca Mau area.

Methodology

The project approach was implemented by a remote sensing approach at two resolution levels : land uses and land use changes were detected with SPOT satellite imagery, also making use of archived remote sensing material, and with very high resolution IKONOS satellite imagery for selected areas. The selected areas were chosen such as to represent various land use types. Both approaches were coupled to short field campaigns for preliminary ground truthing.

Results (

Remote sensing and image classification for land use in view of diachronic analysis is difficult because of unreliable georeferencing by the lack of suitable landmarks. The very small scale interspersed land use types, particularly in the mixed mangrove-aquaculture system reduces the reliability of the classification, both unsupervised and supervised, though satisfactory results were obtained up to a certain level. Few mangrove tracts show the species richness and ecological diversity expected for this biogeographical region and in view of the original extent of mangroves. This also applies to the areas set aside for protection. The policy approach of having intimately mixed mangrove and aquaculture, though a laudable approach in se, is by no means generating biologically valuable mangrove forests in its present form. This is mainly due to their limited contiguous extent, their isolation from the natural water-borne processes (such as propagule dispersal), their common monospecific character and their short decadal cycle.

Also in the framework of the programme archived remote sensing and map material were purchased and catalogued, for future research. Exchange of approaches and scientific collaboration allowed capacity building for the partners of the consortium in this project part.

Discipline

Aquaculture
Biology
Biodiversity
Environment/nature conservation
Oceans & coasts
Forest & natural vegetation
Cartography
General Earth observation

Publications

- Final Report :

Improvement of shrimp production sustainability and shrimp safety in Vietnam : Evaluating the effects of shrimp production methods on shrimp quality (safety) and production sustainability and the general impact on the environment, in view of the development of methodology for the analysis of shrimp quality and safety, in respect with international food regulations - aspect '**Mangrove-research' with the use of satellite imagery and GIS'**

- Peer reviewed publications: The work of the short term project has been extended and continued *post* project. Integration of the entire data set is expected to yield material for peer reviewed manuscripts.