REMOTE SENSING AS A TOOL
FOR IDENTIFICATION OF AQUACULTURAL SYSTEMS AND MANGROVE SPECIES IN THE COASTAL PART OF THE MEKONG DELTA, VIETNAM

E. Koopmanschap', W. Vullings', M. E. F. van Mensvoort[1], Le Quang Tri[2] and M. Tromp•

[1] Dept. of Soil Science and Geology, Wageningen Agricultural University,
P.O. Box 37, 6700 AA Wageningen, the Netherlands
[1] Soil Science Dept., Faculty of Agriculture, Can Tho University, Can Tho, Vietam

ABSTRACT

The mangrove forests of the Mekong delta, Vietnam have suffered severe decline over the past 50 years caused by human exploitation, a consequence of population pressure, lack of job opportunities and fast expanding aquaculture. The aquaculture activities (shrimp farms) have resulted in an unsustainable system with polluted surface water and disease outbreaks. Shrimp farms are often abandoned and reforestation is an option.

In Vinh Loi district, Bae Lieu province, a study area was selected in which a detailed land use inventory of the mangrove and aquaculture zones was carried out by means of SPOT satellite images and field surveys. For the aquaculture area differences in reflection were caused by differences in pond depth and sediment load. The district had only a narrow fringe of *Avicennia marina* along the shoreline. After processing the image the main detectable differences in the mangrove area were associated with the height and the density of the tree stands. The data of Vinh Loi were also compared to a neighbouring area in Soc Trang province, which also appears on the same image. This part has stands of *Rhizophora apiculata*. It was possible to match the spectra of *Avicennia* and *Rhizophora* species.

Most striking was the recognition that the stand of mangroves is very narrow, especially when compared to the situation on 1953 air photos. It also appeared that the coast has accreted over a distance of 750 to 2000 m in less than 50 years.