



## Fact sheet

Monitoring

11/2013

### Management of Natural Resources in the Coastal Zone of Soc Trang Province

Monitoring tells us whether or not interventions have been successful. It is a process which aims to detect changes, establish their direction and measure their extent or intensity. Monitoring can be used to assess the effectiveness of any management carried out, and to detect changes (i.e. act as an 'early warning').

Ecosystems are rarely at equilibrium, they are continually perturbed both in space and time. An understanding of the biological processes underlying ecosystems is therefore essential in order to distinguish between acceptable short-term changes and unacceptable long-term changes which should be prevented.

The project supports 3 types of monitoring activities:

- Remote sensing
- Systematic Mangrove monitoring
- Participatory monitoring

#### Monitoring of land-use changes and mangrove area coverage using remote sensing

High resolution optical satellite images (QuickBird) from 2006 and 2007 have been used to produce detailed land-use maps of the coastal zone of Soc Trang Province. These maps form the base-line for monitoring of land-use changes and changes in mangrove area coverage. They are also an important tool for integrated coastal area planning.

This area-change monitoring is complemented by a programme of monitoring patrols by staff from the Forest Protection Sub-department along the sea dyke which provides additional data at a higher resolution and at regular intervals.

#### Monitoring of mangrove structure and planting success

A systematic monitoring programme using randomly located sampling plots along transect lines is carried out by staff of the Forest Protection Sub-department. The aim is to detect, record and present in a comprehensible form any changes, trends or impacts in the area and condition of the mangrove forests of Soc Trang to the Department of Agriculture and Rural Development.

Details of this monitoring programme are described in a Manual which was published in early 2011.

#### Participatory monitoring by local communities

A participatory natural resource use monitoring programme using two indices is being used by local communities to monitor the compliance with the co-management agreement as well as the sustainability of the resource harvest. The results of this monitoring will indicate whether the natural regeneration can sustainably support the current harvest volume.

The two indices required to monitor the impact of the harvest on the resource base are:

- the amount of resources harvested
- the effort required for the harvest of a defined quantity

For example, if the amount harvested per month remains more or less constant over time (or closely follows a seasonal harvest pattern) one might conclude that there is enough regeneration to sustainably support the current harvest volume. If at the same time the effort to harvest a given amount (i.e. the time needed) increases significantly this may indicate that the natural regeneration does not support the current harvest volume and that the resource off-take is therefore unsustainable. In such a situation the resource users and local authorities would need to renegotiate parts of their agreement to ensure sustainability of the resource use (see fact sheet co-management).

To ensure sustainability of any monitoring programme it is essential that all monitoring data are stored in easily accessible databases and that clear protocols for data collection and easy to use tools for data analysis are available. This has been achieved by using the database software MIST and mobile phones for data entry. In addition, the results of the monitoring must be reported regularly to all stakeholders.

Indices provide measures of relative density. They can be used in comparisons for monitoring without the need for expensive baseline data. Indices can be calculated using non geo-referenced data.