PARTNERSHIP POLICY IN SONGKHLA LAKE BASIN, THAILAND, CASE #269

A Case Experience on applying integrated environmental and water resources management towards improvement of peoples livelihoods and using a participatory approach.

ABSTRACT

Description

Land degradation and water pollution caused by land use changes and shrimp farming expansion are the most serious environmental problems related to the present development within Songkhla Lake Basin. This causes destruction of environmentally valuable wetlands and mangrove forests and disturbances of the present coastal equilibrium. The depth in Thaleh Luang and Thaleh Sap Songkhla is decreasing due to erosion and siltation, water temperature is increasing and making the environment unsuitable for aquatic resources. Planning and/or management have completely ignored environmental considerations. Deforestation of upland evergreen forest area for rubber plantations has resulted in a decrease of forest area of 70% from 1967 to 1996. Heavy rainfall creates flooding during wet season both in upstream and downstream areas. To address these problems government policies would aim to divert the water use from the upland area to the downstream area by building a dam, weir and reservoir. These might obviously create another problem in the upstream rubber plantation area by flooding. These issues were addressed through a comprehensive strategic and participatory process.

Lessons learned

- Replacement of blue-print master planning approaches with process oriented planning frameworks increased sustainability significantly.
- National planning cannot work unless it is accompanied by local level acceptance and by implementation with involvement of all stakeholders.
- Devolution and decentralisation of power and authority is important to facilitate impact at the field level.

Importance for IWRM

By implementing a comprehensive strategic and participatory approach, this case has demonstrated the strength of taking advantage of natural resources management to empower local communities. This has been carried our by structuring the management process and providing the necessary planning and decision support tools. The sustainability of the approach and the long term impact of the project have been very visible, mainly after project implementation when the participatory strategic process towards sustainability really took off. It demonstrates that determining factors for the implementation of this planning process for integrated management of water and environment at community level was the political will and the dynamic nature of the Joint Development Committee (JDC). The active participation of the local communities and their representatives is also an excellent indicator of the degree of local ownership.

Main Tools used

B1.1	**Reforming institutions for better governance**
B2.1	**Participatory capacity and empowerment in civil society**
C2.2	**Basin management plans**
C4.3	**Information and transparency for raising awareness**
C5	**Conflict Resolution– Managing disputes, ensuring sharing of water**
C5.3	**Consensus building**

Keywords:

Integrated environmental management, participatory approaches, shallow lagoon system, regional planning

MAIN TEXT

Problems

The problems related to the Songkhla Lake Basin are a broad range of water resources development and management problems combined with coastal zone management problems:

Water shortage is a problem in the entire area during greater parts of the year, mainly affecting water supply and the agricultural sector. Shortage of fresh water leads to a lack of potable water mainly in the coastal areas, Ranot and Sating Pra peninsular. The Rural Water Authority of Thailand is responsible for domestic water supply in municipalities and urban areas. While the Ministry of the Interior and the Mineral Department supervise the rural water supply. However, as both surface water and ground water resources of good quality are limited, the domestic water shortage applies for both rural and urban sectors.

The rapid and uncontrolled extension of shrimp farms with an annual growth of over 10% in the past years will increase the problem of fresh water shortage. The demand for fresh water for to sustain optimal water levels and salinity control in the shrimp ponds, combined with the economic strength of the companies further increases the pressure on the competitions for water.
Flooding of the low land areas in Songkhla Lake river basin also poses regular problems. Storms of lower strengths occur every 2 or 3 years causing inundation of the area. In addition, the high water level in the Gulf of Thailand often leads to drainage obstacles in the rainy season.

Waste water discharges from households and shrimp farms cause significant water quality problems. The drainage water from the shrimp farms generally has high BOD5, nitrate, phosphate, chlorophyll-A and bacteria concentrations. Most of the shrimp farms discharge the water directly into the surface water system behind the coastal strip, threatening the fresh water sources (Figure 1).

Pollution of both the ground water and the surface water system from agricultural sources, i.e. nitrates, phosphates as well as toxic substances such as pesticides and herbicides is yet another problem.

Some of the land related problems can be referred to soil suitability. The soils in the lowland area, in combination with the water management practices, are generally not very suitable for cash crop cultures. The productivity is rather low, for rice about 1.5 ton per ha. The boom in the shrimp farming industry has therefore caused an enormous change of land use and the demand for land in the coastal area has risen very fast. Similar problems apply for the illegal clearing and encroaching of peat swamp forest in the upper part and wetlands along the lake bank. In this respect the existing problems in land tenure, land ownership and land registration play an important role. These problems originate in regional development, land use planning and related law enforcement.

One of the major issues found was increasing water salinity in the lakes as a result of agricultural practices. The irrigation system in the basin withholds the rain runoff and prevents it from flowing into the lake system leads to the intrusion of brackish water from the lower lake system and affects rice-growing communities on the Sathing Phra Peninsula dependent on freshwater from Thale Luang negatively.

Soil erosion is another principal issue associated with inappropriate soil management. The cultivation of rubber and other crops on steep hills causes erosion. Shifting cultivation is often resulting in land being abandoned, and the cleared land rapidly erodes. In addition, at some places along the coast huge seawater intake installations have been constructed, consisting of large pumping stations and supply canals built on sizeable jetties. These structures cause substantial local sedimentation and erosion, as they disturb the coastal equilibrium of the northwards directed alongshore sediment transport. At some locations small villages and the main road are clearly threatened by such effects.

Aquaculture is an important activity in Songkhla Lake Basin, which comprises mostly cage culture in Thaleh Sap Songkhla and marine shrimp pond culture around the lake. An oversupply of feed and

fertilizer has lead to euthrophication and high chlorophyll levels. Low oxygen concentrations, eutrophication and diseases all influence the mortality rate and the resulting yields. The fisheries sector accounts for a large part of the economic activities in the lake basin area. The fishing communities in Songkhla Lake Basin (including communities along the coast of Gulf of Thailand) consist of approx. 6,010 households (30,400 individuals) living in in 142 villages. There are about 7000 tonnes of fish caught from the Songkhla Lake and surrounding streams, a major portion coming from the Thaleh Sap Songkhla. However, it has been reported by the fishermen that the catch now is lower than in the past. This is due to illegal fishing and environmental degradation along with serious sedimentation problems. The occurrence of fish death has been increased due to diseases and pollution.

Thaleh Sap Songkhla is the lowest part of the lake, which has an average depth of 1.0-1.5 m and connects Songkhla Lake Basin with open sea through a short narrow channel (about 8 m depth) near Songkhla town. Coastal erosion is noticeable due to hindering of alongshore sediment transport through infrastructure development and construction of a deep sea port near the lake mouth. This has apparently changed the lake hydrodynamics due to low flushing rate (less tidal influence) resulted from changing of lake opening by groin construction to support deep sea port and tourism infrastructures.

The mangrove areas in lower part of the lake have been and are still cleared for shrimp farms extension and settlements, with unknown consequences for the coastal and bay dynamics. The Thailand Tourist Authority has put forward proposals for tourism development of the coastal tip, mainly for domestic and Malaysian tourists. This may require clearing of either mangrove areas or the coconut belt. Such projects may again endanger the coastal stability, and call for a well-balanced coastal zone development and management.. However, several efforts of mangrove replanting can also be noticed along the lower part of the lake. Most of this can be regarded as unplanned replanting and considered as encroachment of water body.

Furthermore fast economic development has resulted in garbage and wastewater discharge problems from Songkhla and Hat Yai town into the lake mouth area and near sea area. Pollution from urban settlement, port, fishing industries, shrimp farming and fish farming should receive considerable attention for further development plans or studies. One of the major institutional problems observed in the project area is the lack of an authority responsible for integrated regional planning. Various government authorities like the Royal Irrigation Department, the Rural Water Authority, the Tourism Authority, the Public Works Department; the Forestry Department etc. bear responsibility for development within their own sectors. However, regional objectives regarding land and water resources should as a first step be formulated by a competent planning authority including integrated environmental and water resources management to address coastal zone management, industrial development.

Tasks and responsibilities of the individual authorities seem narrowly defined. However, wherever regulations did exist, law enforcement was lacking. An example is the uncontrolled change of land from agriculture to shrimp farms and the destruction of wetlands and mangrove forests for the same purpose. Private economic interests seem to prevail in the priorities for development. Therefore long term effects of environmental degradation were underestimated or neglected, to the benefit of economic interests

Description of Actions Taken

As development is unpredictable, and environment and development are interrelated traditional master planning based on rigid projections and sector considerations are often rendered obsolete**.** This calls for an integrated planning approach to environmental management, which could respond to inevitable changes in the fundamental assumptions and be based on a strategic participatory approach.

An Integrated Environmental Management (IEM**)** approach was applied based on an ongoing interactive strategic process, which dealing with environmental and development issues in an integrated manner and is an important planning tool in ensuring sustainable development.

The starting point for the IEM was three in-depth, comprehensive strategic analyses:

Development Analysis, where:
- The existing situation is described for relevant development issues;
- Trends based on the monitoring results of key development indicators are assessed;
- Possible development scenarios are evaluated.

Environmental Analysis, where:
- The current situation is described in relation to relevant environmental and ecological conditions;
- Development trends, based on the monitoring results of key environmental indicators, are assessed
- The quality and the cause-effect relationships of the ecosystems are evaluated and the trends in ecosystem development assessed for different development scenarios.

Affordability Analysis, where:
- Options for financing development and their inherent environmental protection activities are analysed.

These three analyses were the core of the initial process. Development policies and strategies are formulated by weighing development benefits against economic and environmental costs. Based on this, environmental objectives and strategies can be formulated. The initial part of the environmental management process was the formulation of strategies, which could achieve the environmental objectives. These strategies comprised two distinct groups:

1. Planning strategies, which control and influence the establishment of activities with potential environmental effects through proper environmental planning;

2. Externality strategies for introduction and implementation of interventions, which will ensure that the impact from potentially environmental adverse activities, are within the established environmental objectives.

Interventions include: Legal and Regulatory Interventions; Organisational Interventions; Economic Incentive Interventions; Awareness Interventions; and Environmental Technology Interventions.

The IEM approach for Songkhla Lake was premised on the basic principle that the Project, as an international consultants based project with a limited time frame, should "boost" the integrated strategic and participatory planning process for the area and at the same time ensure the sustainability of the planning process after project completion.

An overview of the actions taken and instruments used are summarised below and in Figure 2. This also includes a description of the stakeholders involved and their role:

- The integrated and participatory strategic environmental and development planning process was conducted through the *EmSong Working Environment.* It included the Office of Environmental Policy and Planning (OEPP), Environmental Office Region 12, the EmSong Permanent Working Group (EPWG), the EmSong Project Team, with permanent Thai staff as well as expatriate and local consultants, and the Public Participation Activities comprising Workshops and Forum Meetings, as well as unscheduled activities. The public participation activities covered organised Non Governmental Organisations (NGO) and Community Based Organisations (CBO) as well as the public.

- The knowledge and findings of the EmSong Working Environment was structured in relevant sectors and issues and reported in *Technical Background Reports*. These reports constituted the main technical background for the further planning process, and they fed into every stage of the planning process.

- Based on a processing in the EmSong Working Environment of the Technical Background Reports an *Environmental Diagnosis* was prepared, *Goals* were discussed and articulated and *Potentials and Constraints* for the environmental development in the Songkhla Lake Basin was identified.

- The end result of the above process was the formulation and of the *Vision* for the Songkhla Lake Basin.

- This Vision was then detailed into a time bound *Mission Statement* for the implementation of the Environmental Action Programme for the Songkhla Lake Basin, which constituted the main outcome of the EmSong Project.

- This Mission Statement were then further detailed and quantified into *Objectives* for the four main resource systems, and for application of Integrated Environmental Management, which was seen as the main carrier of the environmental planning and management process in the Songkhla Lake Basin.

- By applying the Technical Background Reports through *"Eight Guiding Principles"*, and based on the Resource Objectives, *Key Issues* were identified for environmental development for the Songkhla Lake Basin.

- These Key Issues were grouped into *9 Strategic Thrusts* that needed to be applied in order to address the Vision, achieve the Mission Statement and meet the Resource Objectives.

- The Strategic Thrusts were then detailed into *Specific Strategic Actions* that needed to be implemented.

- Based on this, and again by using the comprehensive EmSong Working Environment, *25 Immediately Needed Projects* were identified and prioritised addressing urgent Strategic Actions.

- In accordance with the concepts and principles for Integrated Environmental Management the *Environmental Action Programme (EAP) was designed as a rolling programme.*

At the end of each planning year the EAP should be extended by a year, and the strategic actions and priorities, and the projects, should be reassessed. If necessary they should be revised or changed to take into account changing internal and external environmental as well as socio-economic conditions. It was envisaged in the EAP from 1999 that the first comprehensive revision of the EAP should be conducted in 2003 based on the history of three years of implementation. An array of indicators was developed covering the monitoring of the environmental and socio-economic effects of the EAP implementation as well as the possible changes in the development context. An assessment of these indicator values should be the technical background for the above annual revisions.

Outcomes

A major outcome was the EAP for the Songkhla Lake Basin, which was approved by the Songkhla Lake Basin Development Committee as the strategic framework for environmental planning and management in the Songkhla Lake Basin. It has been forwarded to the Cabinet for final and formal approval through the National Environmental Board (NEB).

An equally important, but less tangible outcome of the EmSong Project is that through the interactive strategic process during the course of the EmSong Project a committed and very active working environment was created for the Songkhla Lake Basin. In connection with this important "process part", which included significant public participation activities, capacity has been increased locally as well as regionally for the integrated planning and management approach. A very visible expression of this is that the EAP is firmly embedded within the local and regional agencies as well as within the local and regional NGOs and CBOs. In a Thai context this is fairly new and unique.

Consequently at the project completion in early spring 1999, the necessary enabling environment for supporting the further strategic and participatory environmental planning and management process for the Songkhla Lake Basin was in place. In the following the activities in the area are described. They took their point of departure in the results produced within the EmSong Project and equally important used the enabling environment and the planning "boosting" introduced and developed through the EmSong Project.

A very significant outcome was a process of concerted village community actions, which were initiated in 2000, following the EmSong project catalogue. This took place under the leadership of the Office of Environmental Policy and Planning with the assistance of the experts from Coastal Resources Institute (CORIN) at Prince of Songkhla University and NGOs. The goal was to plan natural resources and environmental development through the self-promotion and capacity building of village communities. It is expected that the structure of these pilot projects will represent a unique experience. This model have encouraged other communities to do the same.

The operational action plans and project design choices followed the framework mentioned above as the project design process. A highly active core group of people, organized into a Joint Development Committee (JDC), who will eventually be organised into a Songkhla Lake Development Authority prioritised the actions as follows:

- Publicly define and carry out a **conflict resolution process** designed to resolve the location and the issues concerning the Tamod Reservoir currently an included part of Wildlife Sanctuary. CORIN and NGO's in consultation with JDC have assisted in designing and conducting this process. The use of a professional 3rd party capable to merge science and policy to select "round table" of participants and to lead the Conflict Management process, was seen as advisable. Hvad er nu det for nogen?

- Prepare an **operational action plan**, designed to increase the supply of irrigation water to farmers in the lowland. The plan has to consider suitable potential locations based on the inventory of small reservoir opportunities, social and economic needs of farmers, available supply of water resources, efficient management of existing irrigation facilities, land suitability and health of ecosystem. This operation was lead by the Royal Irrigation Department in cooperation with the farmer communities, Department of Land Department, Department of Agricultural Extension and other directly involved agencies and affected parties.

- Prepare an operational plan for Tourism opportunities featuring Eco-Tourism benefits, that is, non-destructive activities, utilising the inventory of attractive features and events. The plan has been designed for training local operators and for marketing potential tourists. The Provincial Government Office leads this in cooperation with Tourism Authority of Thailand and the Local Tourist Association.

As can seen from the previous an unprecedented concerted effort towards ensuring sustainable development for the Songkhla Lake Basin through a comprehensive strategic and participatory approach has been going on for the last 7 years. The aim has been to empower people with capacity for natural resources management through structuring the process and provision of the necessary planning and decision support tools. The planning process was initiated, structured and boosted through the " external consultancy" project, which from day one was very well aware of its role as a short-term initiator. The sustainability of the results of the EmSong Project, and the impact of the Project, has been very visible as the participatory strategic process towards sustainability really took off after project completion in early spring 1999 as has been described in the outcomes above. In this connection the "project concept", that is using participatory strategic planning tools to identify the "right" projects, and then implement through projects, has proven to be one of the best way to activate local people.

After completion of the EmSong Project, and based on the results of the pilot projects mentioned above, it can be concluded that the political will and the dynamic nature of the Joint Development

Committee (JDC) are a determining factor for the implementation of this concerted planning process for integrated management of water and environment at the local level. External experts like Coastal Resources Institute and NGOs can provide assistance according to the orientation chosen by the JDC; the former supply techniques and tools that are adapted to local conditions. The process is just beginning, but an excellent indicator of the degree of ownership by the local communities and their representatives is their active participation and "take-their-own-initiative" activities.

It should be mentioned that even though the participatory planning process now is fairly deeply rooted in the local environment, and the process is well under way, funds and support from outside is needed to implement the more complex and expensive projects. So at this stage of the process the activation and involvement of national governmental agencies is the biggest challenge.

Lessons learned

Some lessons learned from this project are valuable to highlight and demonstrate the types of management tools that are valuable for wider replications.

- Regarding the actual planning methods the project clearly demonstrated the importance of replacing the traditional blue-print master planning approaches with process oriented planning frameworks building on an integrated environmental management approach

- National planning cannot work unless it is accompanied by local level accept and by implementation with involvement of all stakeholders. In the present case it consisted of the establishment of a Lake Basin Committee and active involvement of local stakeholders in management and project implementation

- Another important lesson is the need for devolution and decentralisation of power and authority to facilitate impact at the field level

- Regarding conflict resolution the approach of establishing a dialogue of "agreed facts" showed good results

Importance to IWRM

The case demonstrated that it was possible to involve different sectors' and communities' interests in identifying and preparing actions that could be seen as important both for parties mainly concerned about the freshwater conditions and parties concerned about the coastal water conditions. Under these circumstances a participatory planning approach was worked, which could function continuously under the specific circumstances in the region.

References and websites

The EmSong Project – Environmental Management in the Songkhla Lake Basin Vol. I – III. Water Resources Management Section, Environmental Impact Division, Office of Environmental Policy and Planning, Ministry of Natural Resources and Environment.

Pakawan Chufamanee and Jens Lønholdt, 2001. CASE STUDY. Application of integrated environmental management through the preparation of an environmental action programme: Case study from the Songkhla Lake Basin in southern Thailand, Journal Lakes & Reservoirs: Research and Management 2001 6: 323-334

Interactive CD-ROM about the EmSong Project with a Thai and an English version. The CD-ROM is available on request from Ministry of Natural Resources and Environment, Office of Environmental Policy and Planning.

Organisations and people

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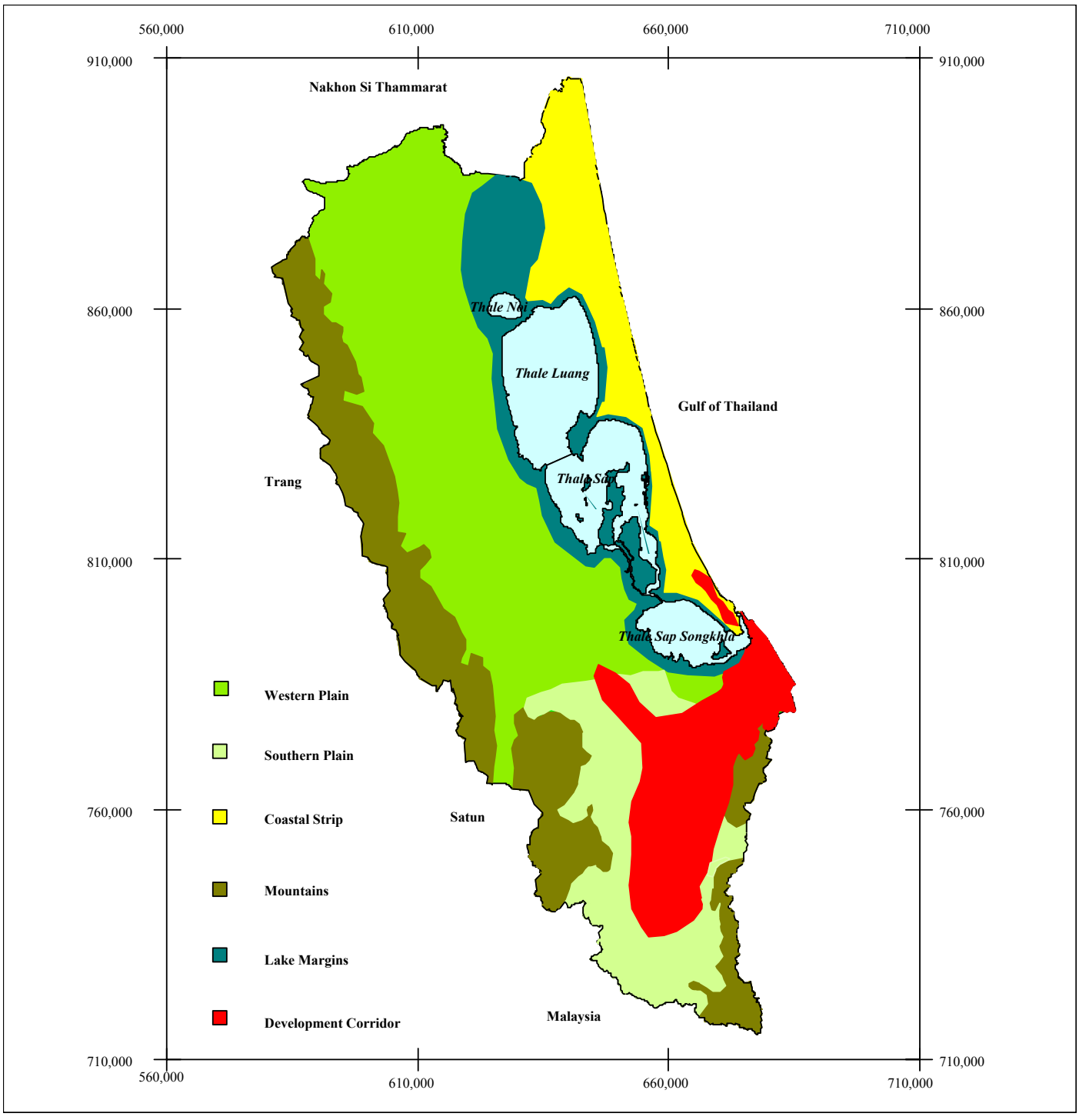

Figure 1. Map of the location

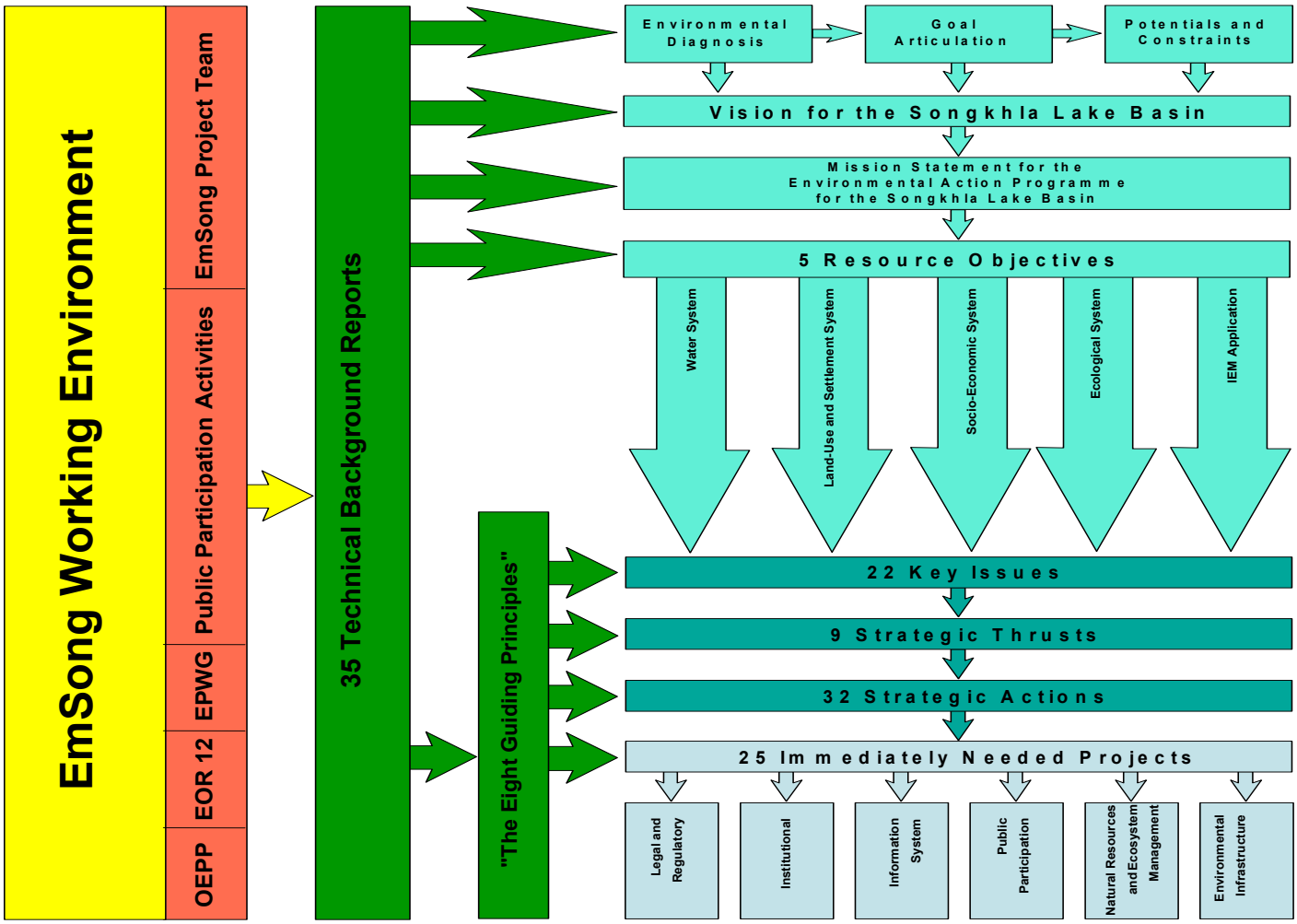

Figure 2. Illustration of approach and activities