

2.4 Technology Action Plan, Project Ideas, and Other Issues in the Coastal Zone

2.4.1 Technology Action Plan for the Transfer and Diffusion of Mangrove Management

Mangrove forest management requires co-management. The co-management of natural resources cannot be implemented successfully unless local people can derive income from their involvement in the process. This is in part due to the high prevalence of rural poverty in Cambodia, limited livelihood options, and arguably low social capital for working together. Because illegal activities especially land encroachments and logging of mangroves are the prime causes of degradation, law implementation and enforcement are required otherwise the natural resources co-management cannot be implemented successfully. The presence of the State needs to be felt more strongly as the customary rights of local people over communal mangroves are not respected. In addition, research is necessary to provide a strong basis of social, economic and biological information for mangrove co-management. To enable the diffusion of mangrove management in Cambodia, a technology action plan is proposed hereunder. The technology action plan considers actions for the short term (3 years), the medium term (5 years), and the long term (10 years).

Promote eco-tourism as a way for resources co-management: Due to high poverty prevalence in rural Cambodia together with limited local livelihood options, it may not be practical to expect full voluntary participation from local communities. Job creation in local communities could facilitate stronger local participation in mangroves forest management. There is in-depth experience in resource co-management at Peam Krasop (Figure 18) Wildlife Sanctuary and Ream National Park (eco-tourism – mangroves protection). In addition, it is important to strengthen local institutions to better tap social capital in protecting mangrove resources. Public consultations at all stages lead to more engagement and acceptance which in turn, will enable the transfer of technology to local communities for operation and maintenance (UNFCCC, 2006).

Part II - Technology Action Plans

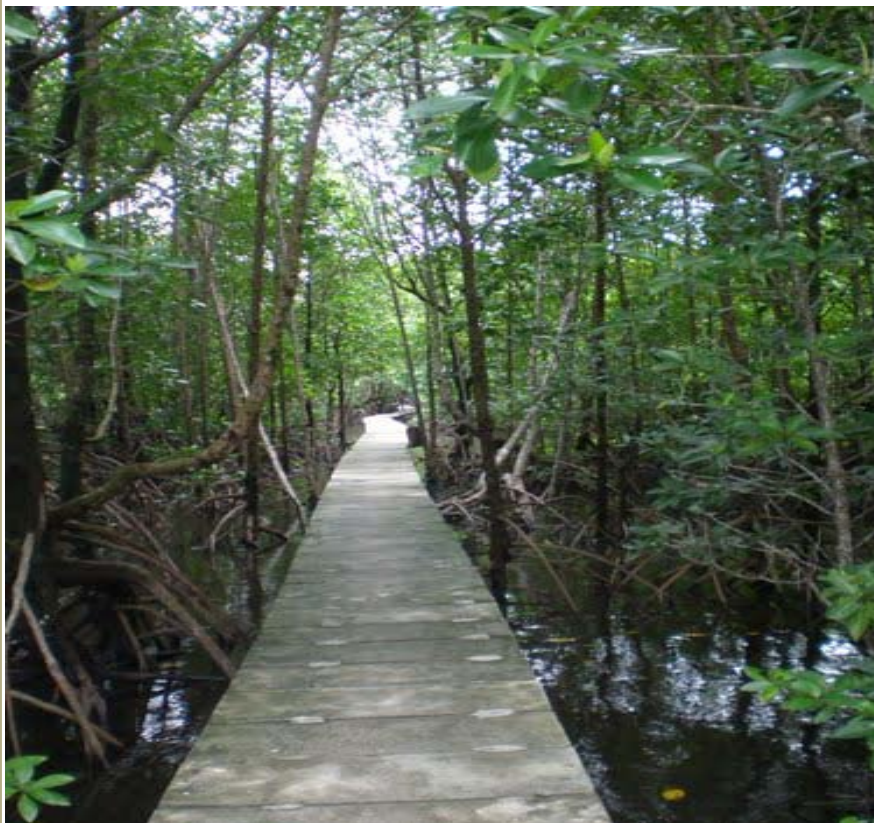
Kingdom of Cambodia

Table 11: Technology Action Plan for Mangrove Management

Targets	Barriers	TAP Action Plan			Key stakeholders
		Short term	Medium term	Long term	
Strengthening mangroves forest management on Cambodia's shoreline	Poorly defined institutional mandates and weak institutional capacity	Institutional capacity building and clarification of institutional mandates, improved coordination of responsible agencies and of donors			Coastal Steering Committee, MAFF, MOE and their respective provincial department in coastal provinces and municipality, relevant NGOs
		Capacity building in applied research to produce policy relevant data (social, economic, biological)			Research Institute and Marine Fisheries Development, RUA, RUPP and Partnered International University/research institute
	Limited local awareness and participation in mangrove management	Promote eco-tourism and sustainable small-scale resource extraction (fisheries, timber and non timber forest products) by local people			Coastal Steering Committee, MAFF, MOE, Ministry of tourism, RUPP, RUA, Fisheries and Marine resource development institute relevant NGOs
		Education and awareness raising of the benefits of mangroves for local communities, in particular with regards to ecosystem services (storm protection, fish habitat etc.)			Coastal Steering Committee, MAFF, MOE, RUPP, RUA, relevant NGOs
	Unclear land use planning and land encroachment	Develop national mangrove management and reforestation plan			Coastal Steering Committee, MAFF, MOE and their respective provincial department in coastal provinces and municipalities
		Delineate mangrove areas, mark boundaries of mangrove protected areas, and assign zones for sustainable development activities such as aquaculture and salt farming			Coastal Steering Committee, MAFF, MOE and their respective provincial department in coastal provinces and municipalities, relevant NGOs

Figure 18: Peam Kasop Wildlife Sanctuary

a).Eco-tourism facilities



b). Peam Krasop mangroves



Kingdom of Cambodia

Develop mangrove management and re-plantation plan: The Cambodia shoreline strategy (RGC, 2006) suggests replanting mangroves in historical mangrove areas. However, many of the mangroves re-plantation projects were not sustained due to land use change and land encroachment. It may be necessary that shrimp farms and salt production are required to develop mangrove re-plantation plan and implement it accordingly. The strategy also suggests developing regional plans for community mangrove management to thus mangroves forest areas for domestic use and areas for protection will be identified. In addition, environmental and social impact assessment for development activities such as shrimp farms and salt production will assist decision-makers and planners in making rational decisions.

Defining and strengthening roles and responsibilities of key stakeholders: Because mangroves forest is protected by Fisheries and Forestry laws which is under mandates of MAFF and the natural resources protection laws which is under the mandates of MOE, therefore both ministries play important role in managing mangroves forest. Meanwhile, the national coastal steering committee has been established, sitting within the MOE with the Minister of Environment as a chairman. Therefore, roles and responsibilities of these two important government agencies need to be clearly defined and strengthened.

Research, education and awareness raising: As part of a coastal zone management project funded by Danida in 1997-2002, a number of cases studies were undertaken to inform decisions, and series of capacity building activities were carried out for relevant staff at provincial level. However, further research to improve understanding and determine appropriate institutional arrangement and capacities, and roles of social capital in managing mangrove resources, is crucial. Exploring eco-tourism potentials is necessary in creating jobs for local communities, a core of sustainable mangroves management. On the other hand, Linham and Nicholls (2010) indicate the importance of stakeholder engagement, communication and awareness raising in the adaptation process, thus it is essential to understand social, cultural and economic dimensions of local communities.

2.4.2 Brief Summary of Project Ideas for International Support (Details in Annex 3)

The Cambodia shoreline strategy (RGC, 2006) recommends replanting mangroves in historical mangrove areas, and developing regional plans for community mangrove management. Development of eco-tourism is argued as the appropriate path towards mangroves resource co-management in Cambodia with already good examples from previous projects, in particular the development of eco-tourism in Peam Krasop Wildlife Sanctuary. The following project ideas are, thus, suggested:

1. Mangrove reforestation and management in coastal aquaculture farms areas
2. Mangrove reforestation and management in coastal salt farms areas
3. Community-based mangroves management and eco-tourism development
4. Strengthening research capacity (related to coastal resources, especially mangrove management) of the Research Institute and Marine Fisheries Development of MAFF, and
5. Institutional capacity building and awareness raising on climate change impacts and vulnerabilities on mangroves forests and marine ecosystems.