

Programme for Regeneration of Mangrove Forests in Terengganu

After the 26 December tsunami, the Prime Minister, Datuk Seri Abdullah Ahmad Badawi, called for mangroves to be better managed and degraded areas to be replanted. The Ministry of Natural Resources and the Environment has called on State governments to intensify efforts to protect the coastal areas by conserving and restoring the mangrove forests. Community's involvement in this effort is also essential.

The primary roles and importance of mangroves as an ecosystem are:

- Its **ecological function** in trapping sediments like organic matters and transforming them into nutrients utilised by the different organisms living in the ecosystem. The mangrove ecosystem is recognized as the 2nd most productive ecosystem in the world.
- Its **economic function** in which it provides for the continued existence of the fisheries stock and this is utilised by the communities engaging in aquaculture activities. In addition, the mangrove forests have been harvested for centuries for the purposes of charcoal production and construction.
- Its **geomorphological and physical functions** where it acts as a windbreaker, wave breaker and erosion control.

At the end of 2004, Malaysia's mangrove forests covered a total area of about 564,971 hectares (ha), with 97,882 ha in Peninsular Malaysia, 340,689 ha in Sabah and 126,400 ha in Sarawak. Of this total, 436,714 ha have been gazetted as forest reserves, while the remaining 128,257 ha are gazetted as state land.

Project Objective

This project aims to develop community led protection and restoration of the mangrove ecosystem in order to protect the integrity of the mangroves and their functions, and to provide for the sustainable development of the community.

The strategy to achieve the objective includes:

- i. Training and capacity building of local communities on fostering and sustaining the growth of mangrove forests;
- ii. Capacity building of local authorities to support mangrove forest protection;
- iii. Support for mangrove forest restoration; and
- iv. Develop a conservation/management plan for replanted areas and the surrounding mangrove ecosystem.

Proposed Project Area

One of the proposed project areas is the coastal area of Terengganu. The mangroves of Terengganu are mostly small and fragmented and are found in the protected waters of estuaries and lagoons. Total mangrove area is about 2,400 ha, amounting 0.4% of the total mangrove area of Malaysia. The most extensive mangrove areas are in Kemaman with total area of 938 ha. The district of Kuala Terengganu has the least amount of mangroves, due to industrial and other development projects. Most mangrove areas in Terengganu are still relatively undisturbed with high diversity of vegetation. They are 29 exclusive and 26 non-exclusive species found in Terengganu.

Terengganu is suggested as a proposed study site as the mangrove ecosystem contributes to the livelihood of the local communities. The communities rely on the mangroves for the fish stock. Only recently ecotourism has been explored as another source of income for the communities. To this end, some stretches of board walk were constructed within the small area of mangroves at Bakau Tinggi with the intention of enabling better access for the public.

The current threats to Terengganu's mangrove forests are primarily in the form of development for residential and industrial purposes, followed by aquaculture and related activities. However, currently there is very little study on these threats. This provides us with an opportunity to examine the condition of the mangrove ecosystem in Terengganu and to explore opportunities for conservation of the ecosystem through a community led conservation initiative.

Preliminary Project Activities

The initial step is to conduct a study to determine the locality and the condition of the mangroves in the proposed study area. The study will provide the necessary information to proceed with the next step of the project.

The preliminary study will include the following activities:

- A literature review on studies conducted on the mangrove ecosystem in general, and on the proposed site in particular.
- Field surveys to verify the findings from the literature review and to provide current information on the status of the mangrove ecosystem. This will include documentation of the communities' dependence on the ecosystem and the threats. If time permits, preliminary economic valuation of the mangrove ecosystem can be also be included to demonstrate the market value of the resources.
- Stakeholder consultations with the local authorities and communities on opportunities and activities for the main project activities.

The development of the main project activities and outcomes will be based on information collected from the preliminary study.

Main Project Outputs and Activities

Mangrove forest restoration. A programme will be developed for mangrove restoration based on the conditions of the mangrove forests as identified in the preliminary study. The communities in the area will be included to restore the ecosystem and to monitor progress.

Sustainable Use and Production. In addition to the restoration of the mangrove ecosystem, the project will include sustainable use and production of mangrove ecosystem resources. The aim will be to diversify income sources and improve the financial security of local communities. In addition to the existing economic activity of fishing, other economic activities can be explored and developed, including ecotourism and the small cottage industries.

Development of a comprehensive awareness and education programme for various target groups. The awareness and education programme will enhance understanding of the mangrove ecosystem at all levels of local government and local communities. This will in turn empower and enable the local government and local communities to contribute towards the management of this ecosystem. This programme will highlight the benefits and values of mangrove ecosystems and the services they provide, and the benefits of a sustainable approach to development, through seminars, workshop, field visits, youth camps and the media.

Development of a simple Management Plan. The project will indirectly seek to provide the local communities and the local governments an avenue to dialogue and to participate in the management planning process of the mangrove ecosystem. Through this intervention, the local communities will be able to communicate with the local planning authorities, which will in turn contribute to a sustainable management of the mangrove ecosystem in the future.

Expected Project Impact

This study will contribute towards improved management of the estuarine ecosystem in the east coast of Malaysia in general, and the improved management of the mangrove ecosystem in Terengganu in particular.

The **Local Communities** will benefit as the project will enable them to participate actively in the conservation and management of the mangrove ecosystem that is integral to their community. Through the dialogues, capacity building and direct involvement through the restoration activities, the

communities will be empowered to speak to and influence the way the mangrove is being managed by the local authorities. This will in turn provide the local community with a greater sense of stability through an involvement on the decisions and the activities that will be carried out on the ecosystem that sustains their livelihoods.

Terengganu State Government will benefit through the increasing awareness of the local communities in sustainably managing the mangrove ecosystem. This will enable the State government to better manage these resources through greater participation from the local communities. In addition, the results from the restoration and community development outcomes will be a best practice that can be incorporated into the State's planning processes, and be used as a tool for managing the mangrove forests in Terengganu. This will enable the state to better manage its natural resources to ensure sustainable development.

Petra Perdana Bhd and UNDP. The involvement of staff within Petra Perdana Bhd. in the field surveys and the subsequent project activities will create opportunities for building staff capacity on the mangrove ecosystem. The staff's involvement in project activities will provide the opportunity for them to learn about mangroves. The selective involvement of staff will contribute to fostering better staff relations and staff awareness of environmental management. This project will also enhance the private sector partnership with UNDP on development in Malaysia. The lessons learned from this project could be shared with UNDP networks worldwide.

Opportunities for Media Outreach for Petra Perdana Bhd

The project will provide several opportunities for media outreach.

The Project Launch will send a strong signal of Petra Perdana Bhd.'s commitment towards the conservation and protection of the mangrove ecosystem as well as its support for the government's call for improved management of the ecosystem.

Awareness campaign. Through the preliminary project activity to the main project activity, specific and timely involvement of the media to cover significant finds, or activities, can be scheduled as part of the media outreach. For example, a series of articles on Petra-UNDP partnership in support of mangrove regeneration.

Documentation of Project Activities. The project can undertake to document best practices and examples that results from the project activities. These best practices can include technical best practices, e.g. the technical details of restoring a mangrove ecosystem or best practices on Corporate Social

Responsibility and its challenges. This documentary can then be shared with practitioners and for media outreach purposes.

Dissemination of Final Report. At the end of the project, a final report will be presented documenting the lessons learnt, best practices and the project successes. This report can be summarised and presented to the various stakeholders and target groups for reference.

Project Management and Timeline

This project will be part of the Energy and Environment practice area of UNDP Malaysia. The project will be funded by Petra Perdana Bhd. It will be carried out in collaboration with the Terengganu State Government, Forestry Department, Ministry of Natural Resources and Environment, the local communities in the proposed project site and Petra Perdana Bhd.

This project will be managed by a project leader who will be responsible to a Project Management Committee for ensuring project delivery. The Project Management Committee will consist of representatives from the Terengganu State Government, Forestry Department, representative from the local community, Petra Perdana Bhd and UNDP. The chairman of the Management committee will be a representative from the Terengganu State Government. The project leader will be working in close collaboration with UNDP, the officers at the Terengganu State Government, Department of Forestry and environmental, health and safety officers of Petra Sdn Bhd. UNDP will conduct the necessary monitoring and evaluation in order to ensure the smooth implementation of the project activities. The project will start in January 2006 and is envisaged to be completed in 12 months time.

Budget

Budget for Petra-UNDP Mangrove Regeneration Community Project

Output	Description	Amount (RM)	
Replanting	Seedlings	20,000	100,000
	Local consultants	10,000	
	Labour allowance	40,000	
	Equipments and facilities	20,000	
	Miscellaneous	10,000	
Preliminary Study	Local consultants	8,000	10,000
	Workshop	2,000	
Education and	Local consultants	5,000	

Awareness	Workshop Publication Miscellaneous	5,000 5,000 5,000	20,000
Sustainable Use and Management Plan	Local consultants Miscellaneous	5,000 5,000	10,000
UNDP CO Support Cost	UNDP Project Management Cost Recovery		10,000
TOTAL			150,000

Note:

1. Replanting area is 4 hectares.
2. Additional funding of USD 25, 000 = RM 92,000 will be used to increase the replanting area to 8 hectares and

Budget for USD 25,000 = RM 92,000

Output	Description	Amount (RM)
Replanting	Seedlings	20,000
	Local consultants	10,000
	Labour allowance	40,000
	Equipments and facilities	12,000
	Miscellaneous	10,000
Total		92,000