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INTERNATIONAL TROPICAL TIMBER ORGANIZATION

ITTO

PROJECT DOCUMENT

TITLE	DEVELOPMENT OF LANJAK ENTIMAU WILDLIFE SANCTUARY AS A TOTALLY PROTECTED AREA, PHASE IV (FINAL PHASE)
SERIAL NUMBER	PD 288/04 Rev.2 (F)
COMMITTEE	REFORESTATION AND FOREST MANAGEMENT
SUBMITTED BY	GOVERNMENT OF MALAYSIA
ORIGINAL LANGUAGE	ENGLISH

SUMMARY

The project is the fourth and final phase of the ITTO Project : Development of Lanjak Entimau Wildlife Sanctuary as a Totally Protected Area. The project emphasizes the need to enhance participation of the local communities in conservation management. Phase IV will allow for the completion of the community-based field center (proposed in Phase III) by the Implementing Agency to be used as a permanent field base to enhance co-operation with the local communities. Another emphasis is to extend resource surveys and collection of baseline data to Batang Ai National Park (BANP). This park was incorporated into the TBCA in 2001. It is also the aim of the Implementing Agency to strengthen the protection of the TPA by developing long-term environmental education programme targeting at the school children. At the TBCA level, enhancing co-operation between Sarawak and West Kalimantan is another urgent priority. The specific objectives are (1) to strengthen sustainable management capacity of the TPA at the Government and local community levels and (2) To enhance conservation and research potentials of the TPA. Including trans-boundary initiatives with Indonesia. By the end of the phase, the objectives will be achieved, and long-term and more management plans for LEWS and BANP will be prepared and approved.

EXECUTING AGENCY FOREST DEPARTMENT OF SARAWAK

COOPERATING GOVERNMENTS ---

DURATION 24 MONTHS

APPROXIMATE STARTING DATE TO BE DETERMINED

BUDGET AND PROPOSED SOURCES OF FINANCE	Source	Contribution in US\$	Local Currency Equivalent (RM)
	ITTO	512,028	
	Gov't of Malaysia	405,204	1,499,255
	TOTAL	917,232	

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ABBREVIATIONS

SFD	Sarawak Forest Department
PM	Project Management
NPWD	National Parks and Wildlife Division
FSM	Field Station Manager
VDC	Village Development Committee
SWC	Special Wildlife Committee
SPC	Special Parks Committee
BANP	Batang Ai National Park
BKNP	Betung Kerihun National Park
LEWS	Lanjak Entimau Wildlife Sanctuary
KMNP	Kayan Mentarang National Park
PTNP	Pulong Tau National Park
DOA	Department of Agriculture
TAC	Technical Advisory Committee
PSC	Project Steering Committee
TPA	Totally Protected Area
EE	Environmental Education
SFM	Sustainable Forest Management
TBCA	Transboundary Biodiversity Conservation Area
SBC	Sarawak Biodiversity Centre
NREB	Natural Resource and Environment Board



PART I: CONTEXT

1. Origin

The project derives from a report by the ITTO Mission in Sarawak, 1989-1990, entitled "The Promotion of Sustainable Forest Management: A Case Study in Sarawak, Malaysia". The ITTO Commission concluded that the conservation of biological diversity in Sarawak was best served through the *in situ* preservation of the State's natural heritage. Measures recommended towards the accomplishment of this goal include preservation of:

- (a) A complete series of representative widespread habitats (various forest types, for example) to be accomplished by insuring that a full range of soil types and altitudes is included;
- (b) Examples of all unusual habitats or areas with rare or endemic species;
- (c) Viable populations of animals, especially large mammals and birds which require large home ranges;
- (d) Species that are naturally rare or endangered, or subject to intensive cropping, such as orchids.

These recommendations are consistent with the goals of the Sarawak Forest Department "to preserve areas of significant geological, biological or historical value for the benefit, education and enjoyment of present and future generations".

Lanjak Entimau Wildlife Sanctuary (LEWS), the largest sanctuary in the State, met with the above recommendations, and ITTO support was sought for its development into a Totally Protected Area (TPA) for biodiversity conservation.

The project is into its third phase, and is scheduled to end in August 2003. A number of significant achievements are noted:

- (a) It is the first ITTO project on biodiversity conservation and sustainable utilization and to involve active participation from the local communities;
- (b) It is the first Trans-boundary Biodiversity Conservation Area (TBCA) to be established in the tropical world together with Betung Kerihun National Park (BKNP) in West Kalimantan in 1994;
- (c) It is recognized among ITTO member countries as a model for trans-boundary co-operation and is also gaining international recognition;
- (d) The TBCA is an important sanctuary for the remaining orangutan populations and other rare and threatened species in Borneo.
- (e) Batang Ai National Park (BANP) adjacent to LEWS has been included into the TBCA;
- (f) The local people's changing perception towards conservation augers well for the sustainability of the sanctuary.

Lanjak Entimau is set to play a leading and critical role in the ecological and socio-economic processes within Sarawak as well as in the trans-boundary context with Indonesia. Among the recommendations by ITTO consultants in the ex-post evaluation of Phase I of the project in 2002 are the following:

- (a) Revise the management plan to conform to the need for a long-term comprehensive conservation management plan;
- (b) Enhance the intensity of bilateral negotiation and conciliation to tap the potential of trans-boundary co-management.

These recommendations emphasize the need to strengthen collaboration with BKNP in West Kalimantan and to establish permanent agreements for co-management and action. Owing to the recent decentralization of the government in Indonesia, the management of BKNP will come directly under the provincial or district government. Changes in policy and strategy for management are to be expected. Socio-political issues affecting the country in the past two years or so had disrupted on-the-ground activities and staff exchange programme planned during Phase III of the LEWS project.

2. Forest sector policies

The legal and institutional frameworks are in place for the State Government to implement sustainable forest management (SFM). These include policies for biodiversity conservation. Under SFM, the Government will be setting aside six million hectares of natural forest areas as Permanent Forest Estates (PFE) and another one million hectares as Totally Protected Areas (TPA) in the form of national parks, wildlife sanctuaries and nature reserves. The Sarawak Biodiversity Centre Ordinance (1997) and Sarawak Biodiversity Centre (Access, Collection and Research) Regulations (1998) provide the additional legal framework for the management and sustainable utilization of the State's biological resources.

Under the SFM concept, management of biological resources in The PFEs and TPAs will be integrated. Suitable and biodiversity-rich areas in the PFEs will be identified and set aside for ecosystem preservation. With the State Government's plan to develop 1 to 1.5 million hectares of forest plantations in the next 10 to 15 years including indigenous species, TPAs such as LEWS and BANP will play a very crucial function as potential gene banks for seed trees.

At the national and international levels, the Government is committed to promote biodiversity conservation through trans-boundary partnerships with neighboring countries such and Indonesia. The second trans-boundary biodiversity conservation area (TBCA) comprising Pulong Tau National Park (PTNP) in north Sarawak and Kayan Mentarang National Park (KMNP) in North Kalimantan will be established in the near future. Continuing support for trans-boundary initiatives at the landscape level will perpetuate and enhance the importance of LEWS and PTNP as two of Sarawak's largest TPAs for biodiversity conservation in the light of rapid development and industrialization in the forestry sector.

In Sarawak, forestry is the responsibility of the Ministry of Planning and Natural Resources. The Forest Department is responsible for the administration of the Forests Ordinance, National Parks and Nature Reserves Ordinance, Wildlife Protection Ordinance and Master Plan for Wildlife. The National Parks and Wildlife Division is directly in charge of the administration, protection and management of the national parks, wildlife sanctuaries and nature reserves.

3 Programmes and Operational Activities

Other than ITTO, there are several projects with international funding in support of conservation and sustainable development in the State. These are:

- Support for Wildlife Master Plan implementation (SWMPI) with DANIDA;
- Sustainable Management of Peat Swamp Forest in Sarawak with special reference to *ramin* (*Gonystylus bancanus*) with the Netherlands,
- Development and Management of Maludam National Park with the Netherlands,
- Conservation and Sustainable Use of Tropical Peat Swamp Forests and Associated Wetland Ecosystems financed by GEF/UNDP.

On-going ITTO projects in Sarawak are :

- PD16/96 Rev. 2(F): Development of Lanjak Entimau Wildlife Sanctuary as a Totally Protected Area, Phase III
- PD26/99 Rev. 4(F): Management Standards of Hill Dipterocarp Forests in Sarawak from a Watershed Management Point of View- Phase II
- PD12/99 Rev. 4(F): Model Forest Management Area, Phase II

PART II: THE PROJECT

1 Project Objective

1.1 Development Objective

The project will pursue the development of Lanjak Entimau Wildlife Sanctuary and Batang Ai National Park collectively into a model for biodiversity conservation and sustainable management of genetic resources for forestry, socio-economic advancement and research.

1.2 Specific Objectives

Specific Objective 1

To strengthen sustainable management capacity of the TPA at the Government and local community levels.

Specific Objective 2

To enhance conservation and research potentials of the TPA, including trans-boundary initiatives with Indonesia.

2. Achievements of the Previous Phase

The achievements, as outlined in the Project Completion Report, consisted of the following:

(a) Infrastructure

The headquarters complex at Nanga Bloh was completed at a cost of about US\$447,000. Funding was from the Malaysian Government. This complex, complete with an office cum exhibition hall, a field laboratory and a accommodation for staff and visiting researchers, will help to strengthen management presence in the field, promote collaborative research, and coordinate community-based activities at the local level. The complex will also be used as a permanent base for the Centre for Plant Research – a project that had been approved by the State Governments with the aim of promoting *in-situ* biodiversity research in LEWS, in collaboration with local and international scientific and research institutions. This will be one sure way to sustain research and community-related activities after the completion of the ITTO project.

(b) Research and Development (Special Objective 1, Output 1)

- Establishment of three gene bank plots for commercially important timber trees and species of non-timber value;
- Study on the habitat conditions, populations and distribution of Orangutan in LEWS and BANP to gain a better understanding of the social ecology of the animal;
- Fish resource inventory in selected areas of LEWS and BANP to ensure better management in an integrated manner;
- A pilot study on the selection and domestication of ornamental plants and other indigenous species of economic potential. Nursery facilities to support the study were developed.
- Vegetation typing and floral inventory of Batang Ai National Park to expand the database for the TBCA.

Findings from these studies have produced new and useful baseline data for management planning. The final reports for the above studies have been submitted to the ITTO Secretariat.

(c) Community Development (Specific Objective 2, Output 2)

Fish culture was extended to four new areas in Ulu Mujok, Nanga Bloh and Batang Ai buffer zones to benefit more participants. Altogether, 6 culturing cages (including one for the primary school at Nanga Delok), 2 new valley ponds and 2 concrete tanks were constructed for the local communities, and stocked with fries supplied by the Department of Agriculture. On-the-job training relating to plant propagation and nursery practice, fish culture and handicraft making was provided to gain hands-on experience. The Project also adopted the Nanga Delok Primary School of 72 pupils. Sustainability and efficiency in the monitoring was improved by including the Forest Department's field staff as a part of the management team.

(d) Collaborative management of the TBCA (Specific Objective 3, Output 3)

Members of the Joint Task Force have agreed to continue collaboration through exchanging information, cross visits, and joint research on topics of common interest. Progress has not been satisfactory due to a number of reasons concerning administrative procedures, security, a lack of coordination and funding. A more effective co-management comprising of permanent members from both sides has been proposed.

(e) Training

Opportunities for training were made a priority under the activities pertaining to vegetation survey and floral inventory, establishment of gene bank plots, orangutan study, fish resource inventory, nursery practice, planting of fruit trees and ornamental plants, fish culture, and handicraft making; benefiting ten research officers and rangers from the Forest Department and more than 50 participants and employees from the local communities. Some of the trained research officers, rangers and local participants have taken over the responsibilities of coordinating and managing the community-related activities.

(f) Exchange visits and study tour

A team of 12 members from the LEWS Project comprising researchers, rangers and community representatives went on a one-week study tour to BKNP. The return visit by the BKNP team comprising 14 members was made on 17 to 22 March 2004. They were able to exchange views and learn from each other the experience of managing the TPA and of involving the local people in the development of communal activities in the buffer zones. The need for increased participation of local communities in TBCA management was recognized.

LEWS also played host to a group of 12 officers, consultants, managers and scientists from Thailand and Cambodia who were involved in the ITTO trans-boundary biodiversity conservation Project PD 15/00 Rev. 2 (F). The visitors were impressed

with the achievements of the LEWS Project and the extent of community participation.

3. Lessons Learned

(a) Development Lessons

While the Executing Agency was committed to ensuring the Project's successful implementation and completion, tedious administrative procedures can often cause unnecessary delay in obtaining high-level decisions quickly on matters relating to the Project. A case in point was the acquisition of land that normally involves several Ministries and government agencies. The procedure could be simplified through direct liaison between the EA and the relevant ministries and agencies, as the Government is committed to ensuring the success of the ITTO project.

Success and sustainability are very much dependant the EA to set priorities to project implementation. Greater success in SFM and community development could have been attained with stronger management presence to supervise activities on the ground, and to provide the catalyst for more active local participation. Even after project completion, the need for the EA to develop a manpower resource of trained professionals with the desire and passion for conservation management is critical.

Although community-related activities were initiated in Phase II, many of the earlier participants still lacked the desire and confidence to manage their projects independently. They also lacked the financial resources to sustain the activities. A more effective way to achieve results has been introduced, by involving the Wildlife Rangers and field staff on a joint venture basis, with the latter providing the necessary management expertise and leadership to the local participants. This is working out satisfactorily, but success will depend on continued presence of Forest Department staff in the field.

Another challenge is for the EA and ITTO to facilitate and guide the local participants to change their attitude and mindset of the "subsidy syndrome", and to shift from their traditional lifestyles to modern economic activities. This can be achieved through sustainable use of the natural resources and eco-tourism (in BANP only).

On a positive note, a change in awareness towards conservation among the local people has become more obvious. During a recent workshop in September 2003, local community representatives from different areas in the buffer zones unanimously expressed their desire to help protect the TPA from illegal encroachment and poaching. They even made a suggestion to form local co-management units to be headed by the Park/Wildlife Wardens and Rangers. To meet this expectation, greater management presence on the ground is desirable.

The Project is thus at a critical stage where the local communities have begun to understand and accept the concept of conservation management, and are showing increased interest and enthusiasm in active participation. It is crucial that this newfound interest and enthusiasm are maintained. Greater human and financial inputs by the EA are essential. The proposed final phase of the Project should help to

strengthen co-management initiatives and guide the local communities towards adopting a new and more positive approach in SFM.

(b) Operational Lessons

Project organization and management had met with little problem, although fuller participation of the local counterparts was not forthcoming as the appointed officers were also involved in other office duties. Manpower shortage was another concern. The studies on gene banks and phenology were initially hampered by the non-availability of a full-time consultant. Weaknesses in data analysis and report writing were observed among a number of consultants and young research officers.

The project consultants were responsible for monitoring and evaluation during the contract periods. This duty was continued by the local counterparts and coordinated and supervised by the Project Leader. All the project activities were short-term lasting only six months. Planning, organizing and scheduling each activity in advance had helped to facilitate the work of the consultants most of whom were visiting LEWS and BANP for the first time.

Variations between planned and actual implementation had been largely due to the non-availability of local consultants at the time when the activities were scheduled. The delay, however, had not affected successful completion of the Project except for the late submission of several final reports that required much editing. Difficulties in recruiting local consultants had not been foreseen.

(c) Management Lessons

This relates mainly to the lack of sustainability in management presence in the field, especially after project completion. There has been increasing evidence from encroachment and poaching in the TPA. Enforcement must be strengthened through regular patrolling and working with the field staff. The proposed phase can play a constructive role by providing information and evidence on any illegal activities that the project staff has encountered. It is critical for the EA to make concerted effort to strengthen conservation management by improving the quality and quantity of its staff. Permanent presence at on-the-ground level is emphasized.

(d) Trans-boundary Biodiversity Conservation Area

Trans-boundary cooperation on biodiversity conservation had been a new experience for Malaysia and Indonesia. A Joint Task Force was appropriately formed to discuss, plan, and implement collaborative activities. The trans-boundary experience has revealed the following:

- (i) Administrative – Members of the Joint Task Force were not permanent, thus affecting continuity of planning and implementation. A permanent co-management committee was proposed as a result. There was also a need for the host governments and their respective agencies to recognize the need to follow up the activities endorsed by the Task Force. A management unit under each agency dealing specifically with TBCA matters would be ideal. Future co-management effort should concentrate on TBCA

- protection, increased local community participation in management awareness education, and providing opportunities for economic development.
- (ii) Social – The local communities on each side of the border differ in socio-economic background, and have different expectations and needs. Their cooperation and participation can only be sought through an effective permanent co-management committee with commitment from the relevant Government agencies. Many of the local communities are still heavily dependent on the forests. The local communities can stand to benefit from sustainable use of the resources but must be willing to collaborate with the EA.
 - (iii) Legislative – Different laws and regulations govern the stakeholders on each side, causing complications in law enforcement.
 - (iv) Continuing collaborative efforts – Joint activities on enforcement, staff and information exchange, and bilateral research should provide the necessary platform for continuing TBCA collaboration.
 - (v) Training – The lack of qualified management personnel is a great concern. More officers with specific interest in conservation must be recruited and trained.
 - (vi) Continuing ITTO presence – ITTO can continue to provide the catalyst, and to strengthen efforts in TBCA cooperation among its member countries.

4. Linkages between completed phase and proposed one

It can be seen from the above that there are still certain weaknesses in the Project, particularly with respect to TPA administration and management, community participation and the local people's expectations on the TPA, lack of awareness among the stakeholders, and TBCA management. The need for continued and smooth administration and management is crucial. As the Sarawak Forest Department (SFD) was privatized last year with the formation of the Sarawak Forestry Corporation (SFC), there are many administrative and technical problems that need to be sorted out. SFC has taken over the bulk of the operational activities from SFD, including TPA management. Although some SFD staff has joined SFC, many of the corporate and technical staff was new and unfamiliar with the project and its implementation. Conservation has to be acknowledged as a serious matter. The proposed Phase IV, which is to be the final phase, will provide the opportunity for the new staff to be directly involved in the project implementation and management, and receive multi-disciplinary training in their capacity as local counterparts.

Resulting from the activities of the previous phase, the perception of the local communities has changed from one of indifference and non-cooperation to a better understanding of the concept of conservation, and the potential long-term benefits that they will be able to derive through active participation. Communities from different areas of the buffer zones have unanimously expressed their willingness to actively assist in TPA protection; while more participants have started to embark on their own economic activities, particularly in fish culture and planting of fruit crops. They are therefore at a stage where further encouragement and guidance are still required. It is important to realize that, without ITTO participation, LEWS would not have got to the successful stage that it is in today, and the trans-boundary initiative would not have come into reality.

The lack of awareness among the stakeholders from the various sectors is still a concern. The EA should make a conscious effort to create awareness among them. The proposed final phase has included an output on environmental education that is targeted towards the stakeholders including the rural school children who, it is hoped, will help to impart the knowledge of conservation among their parents.

A significant development in 2004 is the approval of the Government to establish a Center for Plant Research and a Center for Orangutan Research in LEWS and BANP respectively. These initiatives will boost the positions of the two TPA in biodiversity research and conservation in the Borneo rainforests, both locally and internationally.

TBCA management is not easy as it involves cross-border cooperation between different governments with different administrative, legislative, social and political characteristics. For TBCA to be successful, there must be a total recognition of the importance and advantages of trans-boundary conservation, the potential benefits it can bring to the local communities, and the need for sustained enthusiasm and effort from both sides to actively implement joint activities for mutual benefits.

4.1 Trans-border Rainforest World Heritage of Borneo

Another important development from the previous phase was the proposal to jointly nominate Betung Kerihun National Park, Lanjak Entimau Wildlife Sanctuary, and Batag Ai National Park as a Trans-border World Heritage (TBWHS), called Trans-border Rainforest World Heritage of Borneo. The joint dossier by the governments of Indonesia and Malaysia was submitted to the UNESCO Secretariat in December 2003. A UNESCO assessment team will visit Indonesia and Malaysia sometime in November 2003. This proposal forms yet another important unifying force between Malaysia and Indonesia in the conservation front. With the proposed final phase, ITTO is set to play a vital and leading role in the strategic planning of the three TPA in the coming years, within the context of TBCA and A TBWHS.

Activities of the proposed final phase will focus on strengthening management capacity and training, continued involvement of the local communities, and TBCA management. This final phase will fill the gaps left by the previous phase, by firmly establishing a firm collaborative management for the TPA, enhancing active community participation, raising the income of the local participants through sustainable utilization of natural resources, and strengthening the foundation of TBCA cooperation.

5. Justification

5.1 Problem analysis

The 1989/1990 ITTO Mission to Sarawak recognized the need for a greater effort in biodiversity conservation in Sarawak, and recommended that conservation of biological diversity was best served through the *in-situ* preservation of the State's natural heritage. The State Government responded positively by initiating the project entitled "Development of Lanjak Entimau Wildlife Sanctuary as a Totally Protected Area" in 1993, with the help of ITTO. The previous three phases of the Project had

helped to identify and remove many constraints relating to the management of the TPA at the time. However, there are still related problems that are affecting the TPA. The main problems are:

- Sustainable management of the TPA (LEWS) has not been attained. The same is also true for the TBCA;
- The local communities still require further support and guidance, as they have begun to perceive the potential benefits of *in-situ* conservation;
- The stakeholders are generally indifferent on the issue of biodiversity conservation;
- The problems identified at the end of the previous phase cannot be fully addressed without extending the project.

Problems to be addressed

Several important issues were identified during Phase III and by the ex-post evaluation report of Phase I.

On the TBCA level

Sustainability of the TBCA must be maintained. The recent Project Steering Committee (PSC) meeting on the LEWS project on 12 December 2002 noted that TBCA collaboration was still weak. One way to strengthen collaboration is to formulate an MOU to elaborate on a more permanent agreement and action plan for implementation. Urgent issues to be tackled are protection and enforcement, increasing awareness among the stakeholders, especially the local communities, and increasing local community participation in management and sustainable utilization of forest resources. This can best be achieved by strengthening institutional and human resource capacities, and the cooperation of the local communities through realizing the importance of nature conservation.

The proposed Trans-border World Heritage Site forms another unifying force for co-management, to be effected through a common strategic plan. The two trans-boundary initiatives come with a full commitment from the host governments to ITTO and UNESCO to ensure success and sustainability in the projects.

On the community level

Through associations with the project in the past few years, the local people are beginning to realize the benefits of conservation and have developed a positive attitude towards the Government's efforts to protect the forest and its wild life. However, these local people have been using the forest resources for many generations and will continue to have an impact on the management processes of LEWS and BANP, unless there are alternative activities to supplement their income. Many are still active in shifting agriculture, hunting, fishing and gathering of forest produce. The buffer zones and part of wilderness zone areas are likely to remain heavy-user zones for at least another generation.

One way to divert their attention from hunting and fishing is to apply the concept of "eco-tourism for conservation", applicable for BANP. This concept is derived from the experiences of three longhouse communities in the Batang Ai area. The communities in Spaya and Timang used to enjoy a good regular income from tourism a few years ago. However, the industry is now totally dead, because the Engkari River where tourists used to visit had become polluted due to logging activities in the vicinities.

In another unspoiled river system of the Ai River, the longhouse communities of Nanga Sumpa are making a regular annual income of RM 100,000.00 to 150,000.00 (USD 26,500.00 to 39,800.00) by providing services and selling handicrafts to tourists. Through their conscious effort to protect the wildlife for tourists to see, animals including the orangutan can frequently be seen in the jungle trails close to the longhouse. These examples demonstrate that eco-tourism can be an innovative and effective way to promote conservation in BANP. Limited eco-tourism activities can also be considered for LEWS. Clean water and wildlife are two great tourism assets that the two TPA possess.

On the ecosystem management level

A significant development in 2002 was the inclusion of BANP into the TBCA, to be followed by the nomination for TBWHS in 2003. BANP covers an area of 24,024 ha and is contiguous with LEWS in the south. Although this park was constituted as early as 1990, resource inventories have largely been confined to preliminary studies of a few fauna groups including the orangutan. Little is yet known of its vegetation and flora. LEWS and BANP are one large and contiguous ecosystem separated only by a common boundary. They are best managed as a single ecological entity for wildlife through the development management plans that are complimentary to each other, to enable a holistic approach to managing the natural resources of the two TPA. To do this, inventories to baseline data for the vegetation and flora in BANP need to be completed.

Management of the buffer zone and wilderness zone remains a challenge and will become a key focus of the final phase. Apart from traditional use, these zones are also affected by development outside the buffer areas, such as logging, plantation development and hunting etc. Wide-ranging animal species such as orangutan, hornbills and wild boar do not confine themselves to within the boundaries of the TPA. As they wander outside into farms and fruit orchards they become vulnerable to hunters and poachers. Although this problem is not new to the wildlife managers it has tended to be overlooked as attention is focused on wildlife inside the protected areas. A survey to assess disturbance and loss of forests and wildlife habitats in the buffer zone areas is envisaged. Impact on the water quality and aquatic fauna will also be examined.

On the international level

The success of the TBCA project is a reflection of the commitments of the governments of Malaysia and Indonesia and the effort and support ITTO in promoting trans-boundary biodiversity conservation issues at the landscape level. This is in line with the concept of sustainable forest management (SFM) of tropical forest areas. The initiatives of Malaysia and Indonesia have been emulated by other ITTO member countries in establishing their own TBCA for biodiversity and for promoting peace and friendship. The need to continue and extend trans-boundary co-operation in the tropical world was reiterated during the recent IUCN/ITTO TBCA workshop in Ubon Rachathani in Thailand from 17- 21 Feb. 2003.

The proposal to nominate the TBCA as a TBWHS is further international recognition of the importance of the three TPA as a common area for trans-border biodiversity conservation in the humid tropics. The newly approved Centers for Plant Research and Orangutan Research will further boost the image of LEWS and BANP at the international level.

For the TBCA, bi-lateral research and other collaborative management activities by scientists and managers from the host countries should be aggressively pursued. Efforts to enhance and strengthen these activities will determine the success of the TBCA as a model to promote conservation at the global thematic level.

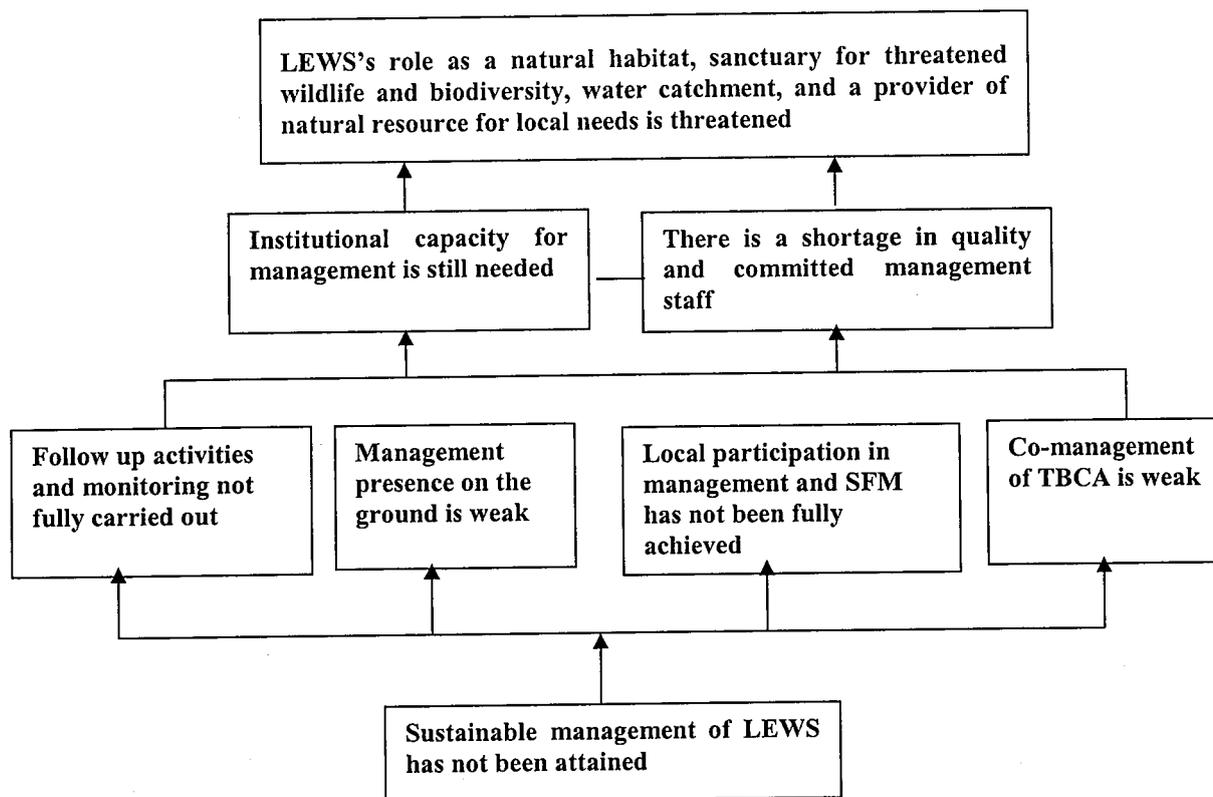
The following have been identified as the root causes of the threats:

- (a) LEWS and BANP have a greater abundance in wildlife as they are not directly affected by logging, plantation development, and uncontrolled hunting and fishing activities that are occurring in the surrounding forests and concession areas. Hunters and fishermen from down rivers are tempted by the abundance of wild boar, deer and fish inside the TPA;
- (b) There is still a great demand for wild meat although the government banned its sale several years ago. Wild boar meat is the favourite among the Iban communities;
- (c) Wild meat and fish are an easy source of cash income among the local communities;
- (d) New evidence of illegal hunting and collection of jungle produce has been detected near the borders;
- (e) The local people are generally still slow to embark on economic activities that can bring about better and more regular cash income. There is also a tendency for many to depend on the government and the project for support in initiating such activities;
- (f) Control of illegal activities in the TPA is not effective as the area is too large and access is very difficult;
- (g) Eco-tourism is a volatile business that is sensitive to environmental change.

Community-related activities initiated during the previous phase require further monitoring and follow-up attention by the EA. The planted fruit trees are beginning to set fruit and data on growth and productivity needs collected. The fish cultures in valley ponds, concrete tanks and cages also require further input in data collecting and monitoring before they can be handed over to the local participants. There is a need to conduct ecological surveys in BANP for base line data. Continued ITTO involvement is essential to ensure full project completion.

The Problem Tree

From the problem analysis above, the following problem tree is developed. The analysis has identified the lack of sustainability in management by the EA as the key problem that needs to be attended to urgently. The main related issues are human resources, institutional capability, environmental, and social, cultural aspects. Failing to tackle the problems and fill the gaps will be at the great expense of losing the integrity of LEWS as a TPA for conservation and sustainable management, and its status as an integrated component of the TBCA.



5.2 Intended situation after project completion

The intended situation after completion of Phase IV or final phase is as follows:

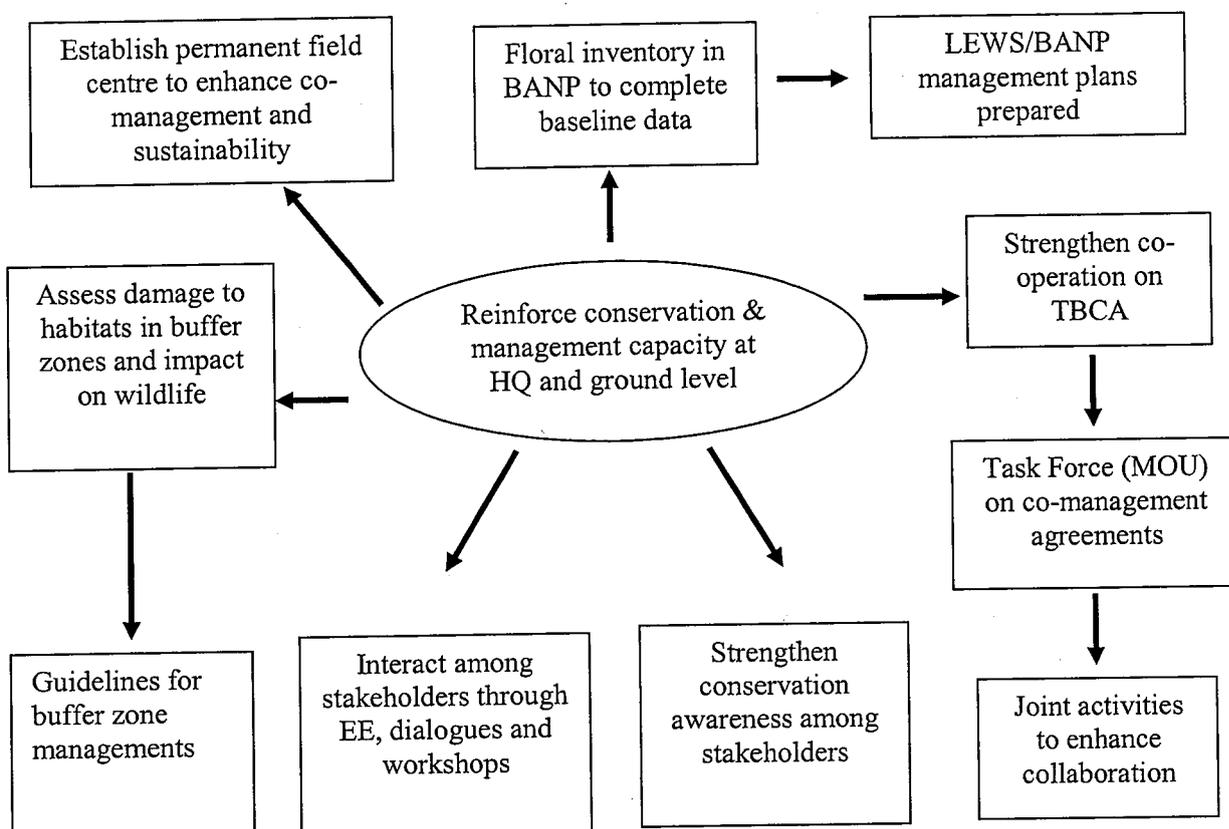
- Capacity for TPA management will be strengthened;
- Protection and management of the buffer zone's sensitive areas will be assured;
- Long-term and comprehensive management plans will be prepared for LEWS and BANP, either jointly or separately;
- The environmental education (EE) programme targeting at the school children to promote long-term conservation goals will be operational and sustained by the EA;
- There will be greater awareness and understanding of environmental conservation and trans-boundary issues at the local, district, national and international levels;
- The community-based field centre will be operational as a base for training, coordinating and sustaining co-operative efforts between the EA and the local people;
- The local communities will be able to establish and manage entrepreneurial activities on their own;
- A more permanent co-operative agreement for the TBCA will be approved and operational, including the co-management of shared resources;
- Eco-tourism for conservation in BANP will be implemented.

5.3 Project Strategy

At the recent TBCA workshop in Ubon Ratchathani, the State Government of Sarawak reiterated her strong supported to increase TBCA network in the State as a necessary tool to promote biodiversity conservation at the landscape level. The second trans-boundary co-operation between PTNP and KMNP will soon become a reality. This calls for the need to re-enforce the conservation and management capacities of the relevant authorities in order to prepare for the greater task ahead. A new unit responsible for TBCA management was proposed.

The implementation process is summarized in the flow chart in Figure 1.

Figure 1: Flow Chart to show implementation process.



The project objectives will be fulfilled through the following strategic approaches:

- Forest Department Sarawak, through the SFC, will strengthen its management capacity as the project's Executing Agency. The permanent field centre at Batang Ai will boost management presence on the ground, while stationing more rangers in the field. The field centre could not be established during Phase III due to a delay in land acquisition. The centre will function as a venue for interaction among the relevant stakeholders, for training, dialogues and local workshops, and as a site for demonstration plots and fish culture. It will serve both LEWS and BANP and will become the office for the Special Wildlife Committee (SWC) and Special Park Committee (SPC) for LEWS and BANP respectively. It will be located close to the border between Sarawak and Kalimantan and will also be used as a base for cross-border exchanges and communications with BKNP;
- LEWS and BANP are two TPA sharing a contiguous topography, ecosystems, flora and fauna. The orangutan moves across the borders freely as they do not recognize boundaries. For conservation purposes, both TPA will be managed as one large ecosystem and habit. Studies to determine the role of the buffer zones in wildlife management and water pollution will further ensure safety and health of the environment for humans and animals.
- Strengthening co-operation with Indonesia on the TBCA is one of the top priorities. Co-operative action plans will be pursued to secure continuous involvement at policy-

makers, scientific and technical levels, as well as activities on the ground. Useful activities will include joint border patrol, information exchange, cross-visits, joint eco-tourism promotion (between BKNP and BANP), co-management of shared resources and bilateral research. The need for a permanent co-operative agreement will be further examined;

- Another priority is to revise the management plan of 1996 for LEWS and to include one for BANP. This is necessary because:
 - (a) A lot of new baseline data has been collected in LEWS during Phases II and III;
 - (b) There is a need to expand the plan to include long-term programmes taking into consideration cross-border collaborations with BKNP. Co-management of shared resources will be incorporated;
 - (c) Joint management planning with the adjacent BANP may be necessary as explained earlier.
- Conservation awareness is to be continued and strengthened. This effort will include the rural school children as a prime target, to make them “young ambassadors in conservation”. These children will learn and appreciate the value of conservation and at the same time impart their knowledge to their parents. This awareness campaign should be expanded to cover a wider region due to increasing incidents of poachers from areas outside the buffer zones. The EE module will target the school teachers and trainers, the students, special interest groups and the longhouse communities; and will include regular village dialogues, workshops, talk shows and radio and audio-visual programmes.
- The EA will ensure that the Centres for Plant Research (CPR) and Orangutan Research (COR) are fully operational as soon as possible, so that collaborative research activities can be initiated.

5.4 Target beneficiaries

With the incorporation of BANP into the project, the main beneficiaries will be extended to include:

- The TPA protect two main watersheds covering four minor drainage blocks that drain into four administrative districts in the south-western part of the State, benefiting several hundred thousand people and protecting their properties;
- The local communities from direct and indirect involvement in management and training (survey techniques, implementing environmental education programme, knowledge on flora and fauna and capacity to initiate entrepreneurial activities). The people in the buffer zone of BANP from eco-tourism activities in the park;
- The SFD with the opportunity to expand its manpower and financial resources and enforce the TPA’s protection through a new field centre;
- The State Government enjoying political and international recognition (at the state, national and international levels) as an ardent supporter of biodiversity conservation;
- The TBCA from co-management of shared resources;
- Scientists, public institutions and NGOs who have a stake in biodiversity conservation. The scientists will be able to enjoy the research facilities provided by the CPR and COR.

5.5 Technical and Scientific Aspects

The final phase will contribute to the successful completion of the activities of Phase III and help to put in place the management machinery. The local people will acquire further technical competence and guidance, particularly in the development of fish culture, crop cultivation, eco-tourism, and other economic activities to enhance their entrepreneurial skills.

The project will take advantage of the inclusion of BANP to elaborate on conservation and management at the landscape level. It will assess the importance of the buffer zones in management, so that habitat health for wildlife there can be maintained.

An effective mechanism for co-management between the relevant authorities and the local people should be satisfactorily realized especially with the existence of the new field centre. In addition, the scientific value of the TPA will be enhanced by the CPR and COR. With continued political and financial support from the host governments, research activities can be expanded into the entire TBCA. In both these efforts, ITTO can provide the catalyst to make it a reality.

5.6 Economic aspects

The socio-economic studies in Phase II identified a total of 102 longhouses with a combined population of over 12,000 who have in one way or another benefited from the TPA. The level of education remains largely at the primary and lower secondary levels; poverty and malnutrition are common among some of the groups. Out migration among the younger age groups in search of employment is common.

Opportunities for economic development are generally not constrained by the shortage of land. Traditionally, shifting cultivation supersedes all other economic activities that can supplement cash income. Farmers have found it difficult to sell their products due to the remoteness of their longhouses from the nearest towns. The forests remain the supplier of their daily needs for protein and vegetables.

Opportunities to secure regular income through employment are limited. Those who are more enterprising have developed their own business by culturing fish, running canteens and village shops, and involving in limited eco-tourism activities in buffer zone of BANP. The project will continue to encourage more people to participate. The activities will be jointly organized and managed by the wildlife rangers and the local participants, with the former providing the leadership, as well as assisting in the marketing and sale of the products. The participants will share the profits from the sale. Finance will be managed through the Village Development Committees (VDC).

5.7 Environmental Aspects

The importance of LEWS and BANP extends far beyond their popular functions in protecting the flora and fauna and their habitats. Water from its catchments is directly discharged into the hydro-dam at Batang Ai to generate electricity for the whole State. Its drainage network extends into four of the nine Administrative Divisions in Sarawak comprising up to 35 % of the total area. Any severe disturbance to the catchments will have far-reaching effects on the livelihoods, safety and health of several hundred thousand inhabitants.

The boundary of the TPA has been cut and maintained to discourage encroachment. Although there has been no serious encroachment or damage to the TPA to-date, traditional activities around the buffer zone areas will continue. Increasing damage can come from the populations living outside the buffers who have no privilege to enter the TPA. Incidents of illegal activities (hunting and fishing) have been detected and enforcement must be intensified. The public in the nearby districts is generally aware of the involvement of ITTO in the Sanctuary and the various activities being implemented. This will help to raise the image of the Sanctuary and the Park as important protected areas.

The final phase will emphasize the increasing need for effective management and environmental protection, and will complement the effort of the SFD to initiate a more aggressive awareness campaign to ensure that socio-economic activities are not harmful to the environment.

5.8 Risks

The successful implementation of the previous three phases of the project is an indication of the strong political support of the Government and commitment of the Sarawak Forest Department as the Implementing Agency. During the recent TBCA workshop at Ubon Ratchathani, the Chief Minister of Sarawak had reiterated, through his representative, that the State Government would continue to support ITTO activities in Sarawak, particularly on trans-boundary conservation issues.

He also indicated the need to reinforce the human and technical resources of the Forest Department to manage trans-boundary projects if necessary. There is no risk that this commitment will be withdrawn. Management of the project and TBCA will remain the jurisdiction of the SFD.

To ensure successful implementation and sustainability, the Executing Agency must:

- (i) Strengthen its manpower resources to manage the TPA and TBCA projects, preferably with the creation of new management units;
- (ii) Focus on ecosystem protection through awareness campaign and regular enforcement;
- (iii) Attend to the social and economic needs of the local people by encouraging the development of community-related activities to benefit the communities as a whole, and where necessary, to provide assistance in transportation and marketing of their products.

Another challenge will be reinforcing co-operation with the government of West Kalimantan to strengthen collaborative management of the TBCA. This can be undertaken through the formulation of a permanent co-management agreement to focus on common issues affecting the integrity of the TBCA, through sustained joint management and research activities.

6. Outputs

6.1 Specific Objective 1

To strengthen the sustainable management of the TPA at Government and local community levels.

Output 1.1: Capacity for conservation and management strengthened.

At the Government level, the EA through the SFC as its new management tool, will recruit the necessary management and research staff to ensure smooth and effective operations at all levels. Opportunities for training will be available during the final phase for those who are involved as local counterparts. At the community level, the community-based field centre in the buffer zone will serve both LEWS and BANP to facilitate contact with the local people, implement field activities and training. It will play the crucial role of soliciting support in conservation management from the local stakeholders residing both inside and away from the buffer zone. A field manager will be appointed to head the center, assisted by a team of support staff. Facilities for training will include, for the purpose of demonstrations: three plots for indigenous crops, ornamentals and medicinal plants, one valley pond, one concrete pond, and at least six cages for indigenous fish culture; and for handicraft making and eco-tourism. Suitable candidates from the local longhouses will be recruited and trained.

Output 1.2: Participatory process of the local communities strengthened.

The local people will directly participate in management and decision-making through their appointment as members of the SWC for LEWS and SPC for BANP. Membership will also include representatives from the private sector. The SWC and SPC will operate at the TPA level. In addition, residents of the respective longhouses will be encouraged to initiate their own village or longhouse development committees (VDC, the local acronym is JKKK) on issues relating to the TPA and their livelihoods. These committees will also be collectively responsible for the implementation and management of joint community-based activities, to be coordinated by the respective park and wildlife wardens and rangers.

Output 1.3: Environmental Education Unit (EDU) established and programme implemented.

The unit should preferably be field-based with its headquarters at Nanga Delok, with a branch at Nanga Bloh. The unit will consist of a biologist and two technicians active in EE and interpretation work. They will be responsible for preparing an EE module in consultation with local agencies involved in environmental education, such as Forestry Department, SFC, Agriculture Department, Natural Resource and Environmental Board (NREB), Sarawak Biodiversity Centre (SBC), and the private sector. Regular awareness programmes such as the radio and AV shows will be organized.

Implementation of the EE in schools will involve the teachers, trainers and community leaders on the module application and its usage. School children will be trained as “young ambassadors in conservation”. It will include the adoption of schools to promote conservation at the local level.

Output 1.4: Eco-tourism activities in BANP organized.

Eco-tourism in nearby areas has benefited several longhouse communities but has so far not been very active in the Batang Ai area to bring similar benefits to the communities there. Resources that can be potentially developed to promote and attract tourists are the new nursery of local ornamental plants and herbal, the ornamental and herbal garden, handicrafts, culture and jungle trekking, swimming and picnicking. Conducted nature tours will be organized for school children and special interest groups.

For BANP, eco-tourism development can be taken beyond its traditional concept and understanding to reflect the scientific contributions that it can potentially bring, especially in relation to the conservation of the orangutan, the main attraction to the park. The programme, to be jointly organized by the SPC for BANP and the VDC of the longhouses concerned, will be operational by the second year. The promotion will in due course involve the local tour agents. The feasibility of a joint promotion with BKNP will be examined in due course.

6.2 Specific objective 2: To enhance conservation and research potentials of the TPA, including trans-boundaries activities with Indonesia.

Output 2.1: Ecological and baseline studies for flora in BANP carried out and results published.

BANP is a new addition to the TBCA. However, scientific information and baseline data especially on the flora are still incomplete. Current knowledge on the vegetation and flora is largely confined to one study in the hill forests. Studies on the economic potentials of the non-timber species also need to be intensified. For TBCA management, a comprehensive set of baseline data is necessary to complement that already available for LEWS and BKNP. The information is especially essential for the preparation of a management plan for the Park, possibly jointly with LEWS.

A related study in LEWS will examine the impact of habitat disturbance in the buffer zones and parts of the wilderness zone, on the animals that use the forests there. These two areas are most sensitive and susceptible to human interference. Human activities occur both outside the boundaries, involving timber extraction, plantation development and farming; and inside involving hunting, fishing and gathering of jungle produce. The study will identify and describe the disturbed habitats, conduct resource surveys of keystone species such as birds, fish, reptiles and amphibians and plants that will serve as indicators to the health of the edge habitats, and make appropriate recommendations for their management.

The Executing Agency can consider contracting the studies to local scientific agencies and institutions to cut cost. The Project Manager will be directly responsible for planning and coordinating the studies. Counterparts will be provided by the EA. Appointed consultants will be responsible for carrying out the surveys and collecting all necessary data (physical, ecological and biological), to be entered into a GIS database with the SFD/SFC.

Output 2.2: Collaborative activities with BKNP pursued under the TBCA initiative.

With the LEWS and BKNP projects being implemented concurrently, there will be opportunities for collaborative research on topics of common interest. Exchange of research personnel is also a possibility. Indonesian researchers will be able to make use of the facilities at the Centres for Plant and Orangutan Research in LEWS.

Another activity will be community-based, and will concentrate on offering technical and management training to the local communities across the borders on the sustainable utilization of non-timber resources. If necessary, assistance will be provided to construct facilities for fish culture, and for the cultivation of indigenous crops to interested participants. Commercial cultivation of fruit trees for the Indonesian communities living near the international borders is believed to be economically feasible because, in recent years, several species of indigenous fruits, in particular durian and langsung (*Lansium domesticum*), have been brought to Sarawak for sale in the major towns. The langsung is especially popular because of the superior (sweeter) quality of the fruits. The local participants in LEWS have acquired the necessary knowledge and skills to assist their counterparts across the borders if needed. This should constitute a firm base for cross-border cooperation.

Output 2.3: Memorandum of Understanding (MOU) for collaborative management adopted.

This is an administrative initiative that must necessarily be put in place before trans-boundary cooperation can be made effective. A more permanent agreement in the form of MOU is suggested to secure long-term commitments from the host governments and relevant authorities towards trans-boundary conservation issues. A permanent committee is believed to be essential to replace the existing Task Force in planning and operation. Co-management agreements will state the guiding principles, common policies and plans of actions, and propose programmes for implementation. It will secure the endorsement of relevant authorities and accountability among stakeholders. The success will depend on the continuing political and financial commitments of the host governments.

Output 2.4: Management plans developed and approved.

The ex-post evaluation of Phase I of the project in March 2002 recommended the development of a more comprehensive and action-oriented management plan incorporating new information and data collected in Phase II and Phase III. The plan will consider the feasibility for a joint management between LEWS and BANP as a single ecological entity separated only by a common boundary. It will also elaborate on strategies for long-term co-operation and collaborative activities with BKNP under the TBCA partnership.

7. Activities and Inputs

7.1 Specific Objective 1

No.	Activity	
Output 1.1 – Capacity for management, training and field coordination strengthened		
A 1.1.1	To implement project activities, establish a field centre with a management unit, the PSC and Project Technical Committee (PTC)	<p>ITTO contribution</p> <ul style="list-style-type: none"> - Project Manager, 24 pm @ 6,500-/m - Local support staff -Administrative Officer, Secretary, 1 Clerical assistant, 24 pm @ 2,500.-/m - 4 PSC meetings and 4 PTC meetings @ 500.-/meeting - Office supplies for the project, 24 mm @ 500.-/m - Computer 1 unit @ 1,500.- - Meetings, travels and cost, local & international @ 10,000.- <p>Malaysian contribution</p> <ul style="list-style-type: none"> - Project Co-Manager, 24 pm @ 2,500.-/m - Field Manager, 24 pm @ 1,500.-/m - 1 mechanic, 24 pm @ 300.-/m - 2 outboard drivers, 24 pm @ 300.-/m - 1 carpenter, 24 pm @ 300.-/m - 4 Wildlife & Park Rangers, 24 pm @ 500.-/m - 2 landcruisers @ 66,000.- - 2 generators (30 kw) @ 20,000.-/ - 2 freezers, 2 refrigerators @ 3,000.- - 2 radio telephones @ 2,000.- - Land acquisition @ 80,000.- - Construction of field centre @ 150,000.- - 4 cell phones @ 1,000.- - Field office equipment @ 5,000.-
A 1.1.2	To develop facilities for training and demonstrations at the field centre	<p>ITTO contribution</p> <ul style="list-style-type: none"> - Horticultural specialist, 6 pm @ 3,500-/m - Fisheries specialist, 3 pm @ 3,500.-/m - 1 technical assistant, 12 pm @ 600.-/m - 2 local assistants, 12 mm @ 250.-/m - Travel and cost @ 3,000.-

		<p>Malaysian contribution</p> <ul style="list-style-type: none"> - 3 consultants, x 18 pm @ 1,500.-/m - 1 training officer, 18 pm @ 600.-/m - 1 horticultural assistant, 24 pm @ 600.-/m - 1 fisheries assistant, 24 pm @ 600.-/m - 4 Wildlife & Park Rangers x 12 pm @ 500.-/m - 1 3-ton pickup truck @ 23,000.- - 2 x 15hp outboard engines & boats @ 2,600.- - Computers, 2 units @ 3,500.- - Cell phones, 4 units @ 1,000.- - Transport & traveling @ 20,000.- - Facilities for field center @ 80,000.- - 1 unit 30 kw generator @ 10,000.- - Fish ponds & cages @ 10,000.- - Nursery facilities @ 10,000.-
Output 1.2 Participatory process of the local communities strengthened		
A 1.2.1	SWC, SPC and 3 village development committees established and operational	<p>ITTO contribution</p> <ul style="list-style-type: none"> - 2 local coordinators, 12 pm @ 250.-/m - Travel and cost @ 2,000.- <p>Malaysian Contribution</p> <ul style="list-style-type: none"> - 1 Counterpart Manager, 24 pm @ 1,500.-/m - 2 Wildlife & Park Rangers 24 pm @ 500.-/m - 2 field assistants, 24 pm @ 300.-/m - Transport & Traveling @ 10,000.- - Miscellaneous expenses @ 5,000.-
A 1.2.2	Joint community-based activities with local rangers developed (indigenous food crops, ornaments, fish culture)	
A1.2.3	Meetings and dialogues in longhouses @ 1,000.-	
Output 1.3 EE unit established and programme implemented		
A 1.3.1	To establish one EE unit	<p>ITTO contribution</p> <ul style="list-style-type: none"> - EE Specialist, 3 pm @ 3,500.-/m - EE Officer, 12 pm @ 800.-/m - 1 technician, 12 pm @ 500.-/m
A 1.3.2	To source and produce EE materials and establish nature trails	

A 1.3.3	To implement EE module in 3 rural schools	<p>- 3 workshops each with 20 participants - Field equipment (30 binoculars, 30 life jackets, 30 field kits, 2 digital cameras, 2 video cameras, 2x29" TV, 2 VCD players</p> <p style="text-align: right;">@ 2,000.-/ @ 5,000.-/</p> <p>Malaysian contribution</p> <ul style="list-style-type: none"> - 1 biologist, 18 pm @ 1,500.-/m - 2 technicians, 18 pm @ 600.-/m - 2 counterparts, 18 pm @ 1,000.-/m - 4 Rangers, 18 pm @ 500.-/m - Office equipment (2 photocopiers, 2 laminators, 2 book binders, 2 desktops, 2 laptop computers, 2 LCD projector, 2 slide projectors etc. @ 20,000.- - 6 x 20 hp outboard engines & boats @ 12,000.- - Fuel & spare parts @ 50,000.- - Transport & traveling @ 20,000.-
Output 1.4 Eco-tourism activities in BANP organized		
A 1.4.1	Survey to identify sites for culture, adventure and nature	<p>ITTO contribution</p> <ul style="list-style-type: none"> - Eco-tourism specialist, 1 pm @ 3,000.-/m - Handicraft specialist, 1 pm @ 1,000.-/m - Field assistant, 3 pm @ 400.-/m <p>Malaysian contribution</p> <ul style="list-style-type: none"> - Tourism officer, 24 pm @ 1,000.-/m - Biologist, 12 pm @ 500.-/m - 4 Park Rangers, 24 pm @ 1,000.-/m - Training (eco-tourism, handicraft, etc) @ 10,000.-/
A 1.4.2	Prepare final report and make recommendations Eco-tourism packages developed and approved	

7.2 Specific Objective 2

Output 2.1 Ecological and baseline studies carried out and results published		
A 2.1.1	To conduct forest ecological and floral baseline studies at BANP, including uses of non-timber species	ITTO contribution - Forest ecologist, 5 pm - Biologist, 5 pm - Technical & field coordinator, 12 pm - Database operator, 3 pm
A 2.1.2	To assess impact of wildlife habitats in buffer zone and wilderness zone	
A 2.1.3	To organize survey and planning workshop	- 1 day meeting, 30 participants
A 2.1.4	To organize evaluation workshop	- 1 day meeting, 30 participants
A 2.1.5	To publish results of studies	- 500 copies and their distribution - Slides/photos library
		@ 3,500.-/m @ 3,500.-/m @ ,600.-/m' @ 600.-/m @ 500.- @ 500.- @ 15.-/copy @ 2,000.-

Output 2.2 Collaborative activities with BKNP pursued under the TBCA initiative		
A 2.2.1	To develop a strategic plan for joint management of orangutan in the TBCA	<p>ITTO contribution</p> <ul style="list-style-type: none"> - 1 primatologist 2 pm @ 3,500.-/m
A 2.2.2	To provide training in community-related activities and help develop facilities in BKNP	<ul style="list-style-type: none"> - 1 training specialist, 6 pm @ 1,800.-/m
A 2.2.3	To implement 2 cross-visits and staff exchange with BKNP	<ul style="list-style-type: none"> - Transport, traveling, accommodation @ 3000.-/
A 2.2.4	To organize 2 joint cross-border patrols	<ul style="list-style-type: none"> - Transport, traveling, per diem @ 3,000.-/
A 2.2.5	To organize a 2-day technical workshop at Batang Ai for information exchange for 20 participants	<ul style="list-style-type: none"> Transport, air fares, logistics, allowances for Indonesian participants @ 10.-/ each @ 3,000.-/
Output 2.3 MOU for collaborative management of TBCA adopted		
A 2.3.1	Co-management agreements formulated and approved	<ul style="list-style-type: none"> - 2 meetings to Jakarta (airfares, accommodation, per diem) for 2 persons @ 2,500.-/
A 2.3.2	Preparation of co-management agreements	<ul style="list-style-type: none"> - 1 consultant plus printing cost for 50 copies @ 3,000.-/
Output 2.4 Management plans for LEWS and BANP prepared and published		
A 2.4.1	To compile LEWS & BANP databank for SFD's GIS	<ul style="list-style-type: none"> - GIS specialist, 3 pm @ 2,500.-/m - Data operator, 3 pm @ 500.-/m
A 2.4.2	To prepare thematic maps	<ul style="list-style-type: none"> - GIS maintenance, 6 pm @ 300.-/m
A 2.4.3	To prepare management plans	<ul style="list-style-type: none"> - Consultant, 2 pm @ 3,500.-/m - Production & distribution, 500 copies @ 10.-/copy

8. Logical Framework

Project Elements	Indicators	Means of Verification	Assumption
<p>Development Objective To pursue development of LEWS and BANP for conservation & SFM</p>	<p>Increased conservation area to include 23,850 ha extension of LEWS and 31,000 ha of BANP; TBWHS with West Kalimantan established. Sarawak Government submitted budget under 9th Malaysian Plan to develop CPR & COR to promote biodiversity research. Site-management and enforcement strengthened.</p>	<p>Extension of LEWS & inclusion of BANP finalized. 9th Malaysian Plan budget approved for years 2006-2010. Operational management teams and research plans for CPR & COR developed each with 1 centre manager, 3 researchers and 6 research assistants. Research activities planned & implemented with participation of local & international scientists; reports & documents, forest type maps prepared; management plan prepared; joint operational management teams for TBCA & TBWHS formed. Community-based activities extended in buffer zones of LEWS & BANP covering 7 longhouses in ulu Kanowit, 3 longhouses at Ng Sumpa and 4 longhouses in ulu Engkari.</p>	<p>Sustainability of finance assured through 9th Malaysian Plan; EA strengthening R & D through HR development & training. Increasing support from local stakeholders towards conservation is assured.</p>
<p>Specific Objective 1 To strengthen sustainable management of the TPA at Government and local community levels</p>	<p>Management capacity of EA strengthened and sustainability achieved through long-term R & D programmes of CPR & COR and community-based activities to promote sustainable utilization of non-timber resources.</p>	<p>Permanent operational management teams for CPR & COR established as indicated above; new village development committees (VDC) for community-based activities formed in 7 longhouses in ulu Kanowit, 3 in Nanga Sumpa and 4 in ulu Engkari, each headed by longhouse chief and coordinated & advised by Wildlife & Park rangers. Special Wildlife Committee (SWC) & Special Park Committee (SPC) operational.</p>	<p>Sustainability of finance assured through 9th Malaysian Plan. Priority is given to SFM activity involving the local communities. Desire of local communities to accept new challenges & improve livelihood</p>
<p>Specific Objective 2 To enhance conservation and research potentials of the TPA including TBCA activities with Indonesia</p>	<p>Long-term research secured through CPR & COR and TBCA framework. Research will involve local and international scientists/specialists. Topics will include studies on sustainable utilization of forest resources for socio-economy advancement & biotechnology. Joint permanent operational management team for TBCA will concentrate on protection and biodiversity conservation. TBCA will be deemed as an important center for orangutan conservation and research in Borneo. Staff exchange, cross visits, bilateral research & training on a regular basis annually will continue</p>	<p>Specific strategic plans & budget for CPR & COR made under the 9th Malaysia Plan. The CPR & COR with their planned research activities will guarantee sustainability at the end of the ITTO project. Research plots established in selected forest types to study rainforest biology and forest dynamics; identifying key stone species for monitoring. Project progress reports, research reports & recommendations. Bilateral research activities with Indonesia to include socio-ecology of orangutan, establishing cross-border community spirit in natural resource management & utilization through bilateral community-based activities, training and knowledge exchange and joint awareness programmes launched.</p>	<p>Sustainability of funding for LEWS & TBCA and consolidated efforts by the governments of Sarawak and Indonesia to promote TBC initiatives. Continuing support and intervention from ITTO</p>

Project Elements	Indicators	Means of Verification	Assumptions
<p>Output 1.1 Capacity for conservation and management strengthened</p>	<p>Community-based field centre constructed with facilities for SFM, training & demonstrations; increased local management & decision making in running of the center.</p> <p>Site management presence enhanced with construction of ranger stations to strengthen enforcement and expansion of community-based activities. Awareness/education programmes launched in the buffer zones.</p>	<p>Field center established at Ng Delok with one manager, 2 rangers and 6 local staff in the management team. Centre's facilities will include 3 demonstration plots of 1 ha each for indigenous crops, 2 ponds & 6 cages for fish culture; 3 local trainers appointed for handicraft making; eco-tourism training. For sustainable utilization, one ranger station to be established at ulu Kanowit and one at ulu Ngemah, Awareness programmes launched in ulu Katibas, Batang Ai, ulu Mujok, ulu Kanowit and ulu Ngemah. Project progress reports.</p>	<p>Institutional and human capacities improved, commitments to project assured. Budget and manpower for the center requested under 9th Malaysian Plan. EA to acquire 50 ha of land in the buffer zone near Batang Ai NP.</p>
<p>Output 1.2 Participatory process of local communities strengthened</p>	<p>Participation through SWC & SPC in planning, and management, employment, new skills in development of community-related activities and entrepreneurship, help train counterparts in BKNP, active involvement in patrolling and enforcement</p>	<p>Local representatives appointed as members of SWC and SPC and Hon. Wildlife Rangers. Community-related activities extended to 3 areas in the ulu Kanowit buffer zone and ulu Engkari buffer zone; 3 local patrolling teams formed, project progress reports. Implementation of community-based activities improved through the Village Management Committee (VDC) involving participants and rangers.</p>	<p>Commitment of local communities to active participation, strong leadership and commitment by EA, good community spirit and effective community leadership</p>
<p>Output 1.3 EE unit established and programmes implemented</p>	<p>EE unit set up at Sanctuary HQ and Park HQ; EE materials sourced and produced; nature trails established. Nature education will be promoted through the CPR & COR.</p>	<p>Teachers & students from 3 rural schools adopted for EE programme & trained on module application and usage of field camps to be organized during holidays each year; regular awareness programmes through local media; EE materials prepared & distributed; 2 nature trails established in LEWS and BANP. Permanent camps for nature education established and operational (one each in ulu Katibas, ulu Kanowit and Batang Ai)</p>	<p>Need for EE and activities to create awareness realized by the relevant authorities. Multi-stakeholder participation.</p>

Project Elements	Indicators	Means of Verification	Assumption
<p>Output 1.4 Eco-tourism activities in BANP organized</p>	<p>Eco-tourism resources identified and tour packages organized; eco-tourism development and promotion plans prepared.</p>	<p>Local tour operators identified and endorsed by EA; networking with travel agents formed; active involvement of EA in developing facilities, organizing training, monitoring tourism activities, and providing scientific and technical outputs and other assistance; project progress reports. Three longhouses identified for home stay programme for tourists, one each in ulu Katibas, Batang Ai, ulu Mujok</p>	<p>Park authority to play active and leading role as providers in realizing homestay programmes in BANP using existing successful module from nearby longhouses</p>
<p>Output 2.1 Ecological and baseline studies for flora in BANP carried out and results published</p>	<p>A complete database on forest ecology and flora for BANP; forest typing, human impact on sensitive habitats in buffer zones identified and assessed.</p>	<p>Vegetation zoning maps for BANP prepared; important areas for wildlife management in buffer zone and wilderness zone identified and recommendations for management prepared; monitoring programme operational; project progress reports, field reports. LEWS and BANP will be managed as one ecological entity for biodiversity conservation.</p>	<p>Full-time involvement of SFD/SFC staff in project's strategic planning and implementation .</p>
<p>Output 2.2 MOU to permanent collaborative management adopted</p>	<p>MOU and co-management structures developed; collaborative activities drawn up and operational; regular meetings of joint coordinating committee.</p>	<p>MOU will comprise of formal and informal agreements. The existence of permanent operational management team will ensure sustainability in cross-border cooperation Cross-border awareness programmes launched. Minutes and Project progress reports.</p>	<p>Commitment and funding for TBCA is sustained.</p>
<p>Output 2.3 Management plans developed and approved</p>	<p>Baseline data and maps available; decision is made to prepare plans for LEWS and BANP, either joint or separately. Zoning for BANP proposed.</p>	<p>The Management plans prepared with strategies for managing LEWS and BANP at the landscape level for effective protection of threatened species such as the orang utan and hornbills. Project progress reports, final report.</p>	<p>Continued support by stakeholders and consolidation through long-term R&D programmes via the CPR & COR.</p>

9. Work Plan

Output/Activity	Responsible Party	Month from starting date																								
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
Output 1.1	SFD/SFC PM, SFD, SFC, FSM																									
A 1.1.1																										
A 1.1.2																										
Output 1.2	SFD, SFC, FSM PM, SFC																									
A 1.2.1																										
A 1.2.2																										
A 1.2.3	PM, SFD, FSM																									
Output 1.3	PM, SFD, SFC, FSM PM/EE Specialist																									
A 1.3.1																										
A 1.3.2																										
A 1.3.3	PM, SFC, EE Specialist, FSM																									
Output 1.4	PM, SFC, Tourism Specialist, FSM Tourism Specialist, SFC, FSM																									
A 1.4.1																										
A 1.4.2																										
Output 2.1	PM, SFC, Ecologist Biologist PM PM PM, SFC, FSM																									
A 2.1.1																										
A 2.1.2																										
A 2.1.3																										
A 2.1.4																										
A 2.1.5																										
Output 2.2	Primatologist SFC, PM PM PM																									
A 2.2.1																										
A 2.2.2																										
A 2.2.2																										
A 2.2.3																										
Output 2.3	SFD, PM SFD, PM																									
A 2.3.1																										
A 2.3.2																										
Output 2.4	PM, SFC / GIS PM, SFC PM, SFC																									
A 2.4.1																										
A 2.4.2																										
A 2.4.3																										

SFD = Sarawak Forest Department
 SFC = Sarawak Forest Corporation
 PM = Project Management

FSM = Field Station Manager
 NPWD = National Parks & Wildlife Division
 FSM = Field Station Manager

10. Budget

10.1 ITTO Budget By Activity

Output / Activities	Budget Components, US\$						Total	Year
	Project Personnel	Subcontracts	Duty Travel	Capital items	Consumable items	Miscella- neous		
Output 1.1	156,000	107,700	10,000	1,500	12,000	4,000	291,200	1
A 1.1.1	156,000	60,000	10,000	1,500	12,000	4,000		
A 1.1.2		47,700						
Output 1.2	-	8,000	-	-	-	-	8,000	1
A 1.2.1		8,000						
A 1.2.2								
A 1.2.3								
Output 1.3	-	26,100	-	5,000	-	2,000	33,100	1
A 1.3.1								
A 1.3.2		26,100						
A 1.3.3				5,000	-	2,000		
Output 1.4	-	5,200	-	-	-	-	5,200	2
A 1.4.1		3,000					-	
A 1.4.2		2,200					-	
Output 2.1	-	44,000	-	-	9,500	1,000	54,500	1
A 2.1.1		17,500						
A 2.1.2		26,500						
A 2.1.3						500		
A 2.1.4						500		
A 2.1.5					9,500			
A 2.1.6							-	
Output 2.2	-	17,800	9,000	-	-	-	26,800	1
A 2.2.1		7,000						
A 2.2.2		10,800						
A 2.2.3-2.2.5			9,000					
Output 2.3	-	3,000	2,500	-	-	-	5,500	1
A 2.3.1			2,500					
A 2.3.2		3,000						
Output 2.4	-	16,000	-	-	1,800	5,000	22,800	2
A 2.4.1		9,000						
A 2.4.2					1,800			
A 2.4.3		7,000				5,000		
TOTAL	156,000	227,800	21,500	6,500	23,300	12,000	447,100	

10.2 Yearly ITTO Budget

Budget headings		Total	Year 1	Year 2
10	Personnel			
	10 Project Manager	156,000.00	78,000.00	78,000.00
	19 S/Total	156,000.00	78,000.00	78,000.00
20	Sub-contracts			
	201 Local Support Staff	60,000.00	30,000.00	30,000.00
	202 Horticultural Specialist	21,000.00	21,000.00	
	203 Fisheries Specialist	10,500.00	10,500.00	
	204 Technical / Field Assistant	17,400.00	8,700.00	8,700.00
	205 Local Co-ordinators	21,800.00	21,800.00	
	206 EE Specialist / Officers	20,100.00	20,100.00	
	207 Eco-tourism Specialist	4,200.00	4,200.00	
	208 Handicraft Specialist	1,000.00	1,000.00	
	209 Forest Ecologist	17,500.00	8,750.00	8,750.00
	210 Biologist (mammals, birds, etc.)	17,500.00	8,750.00	8,750.00
	211 Primatologist	7,000.00	7,000.00	
	212 Biologist (Ecological Surveys)	-	-	
	213 Training Specialist	10,800.00	10,800.00	
	214 GIS Specialist	9,000.00		9,000.00
	215 Consultant Management Plan	15,000.00		15,000.00
	29 S/Total	232,800.00	152,600.00	80,200.00
30	Duty Travel			
	31 MOU for collaborative meeting with BKNP	13,000.00	13,000.00	
	32 Drafting collaborative activities	-	-	
	33 Co-ordinator strengthened PSC & PTC	6,000.00	3,000.00	3,000.00
	39 S/Total	19,000.00	16,000.00	3,000.00
40	Capital items			
	412 Field Equipment	5,000.00	5,000.00	
	413 2 Computers	1,500.00	1,500.00	
	49 S/Total	6,500.00	6,500.00	-
50	Consumables			
	51 GIS maintenance	1,800.00		1,800.00
	52 Publication ecological studies	9,500.00		9,500.00
	53 Office supplies	12,000.00	6,000.00	6,000.00
	54 Information material	-		
	59 S/Total	23,300.00	6,000.00	17,300.00
60	Miscellaneous			
	601 3 EE - Workshops	2,000.00		2,000.00
	602 Survey - planning workshop	500.00		500.00
	603 PSC & PTC meetings	4,000.00	2,000.00	2,000.00
	604 Evaluation workshop	500.00		500.00
	605 High level TBC meeting	2,500.00	1,250.00	1,250.00
	69 S/Total	9,500.00	3,250.00	6,250.00
	S/Total	447,100.00	262,350.00	184,750.00
80	Monitoring, eval., adm.			
	81 Monitoring cost	12,000.00		
	82 Evaluation cost	15,000.00		
	S/Total	474,100.00		
	83 Administrative cost (8% of Sub-total)	37,928.00		
	89 S/Total	512,028.00		
100	Grand Total	512,028.00		

10.3 Yearly contribution of Malaysian Government to the project budget

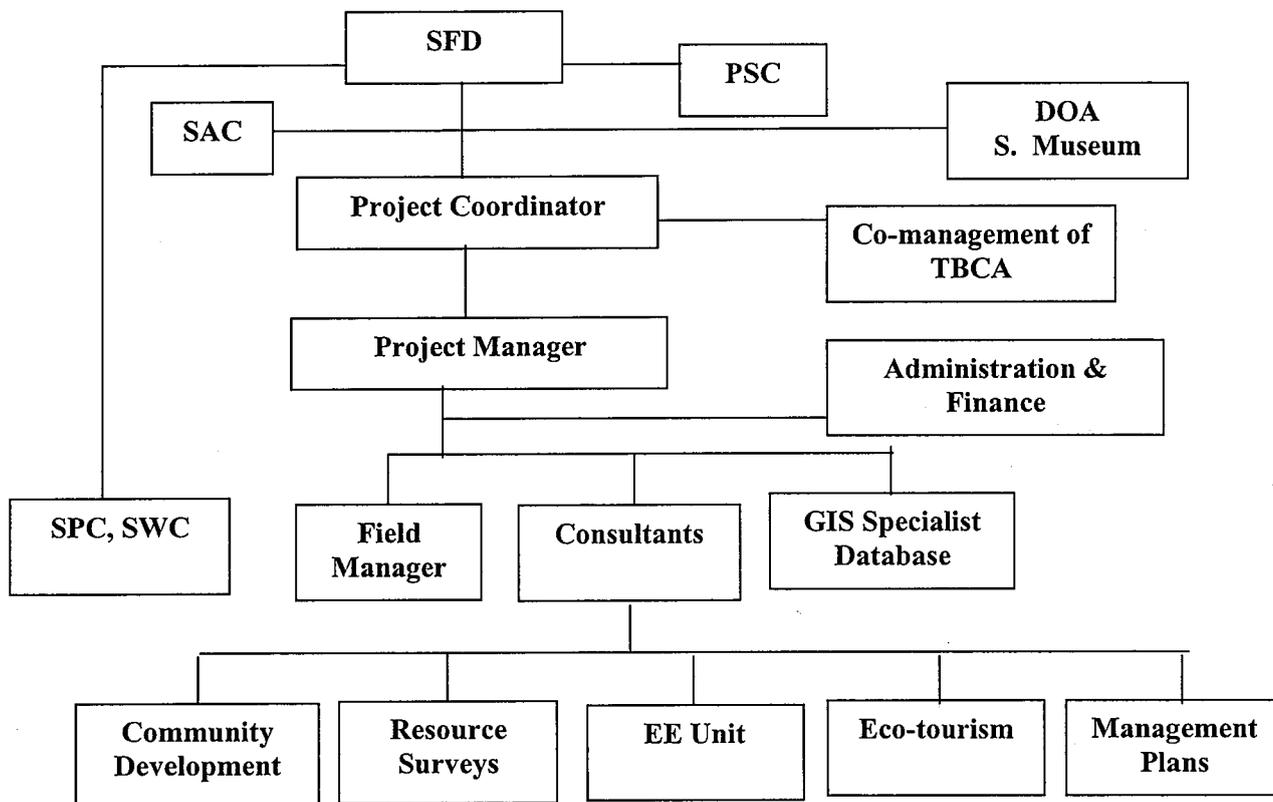
Budget headings		Total	Year 1	Year 2
10	Project Personnel			
	11 Project Co-Manager	60,000.00	30,000.00	30,000.00
	12 Field Manager	36,000.00	18,000.00	18,000.00
	13 Technical personnel (Mechanic o/b driver, carpenter etc)	136,000.00	68,000.00	68,000.00
	14 Consultants	129,000.00	64,500.00	64,500.00
	15 Forest rangers	168,000.00	84,000.00	84,000.00
	16 Tourism officer	24,000.00	12,000.00	12,000.00
	17 3 Enforcement officers	43,200.00	21,600.00	21,600.00
	19 S/Total	596,200.00	298,100.00	298,100.00
30	Duty Travel			
	31 Air travel within Malaysia	20,000.00	10,000.00	10,000.00
	32 Daily subsistence allowance	40,000.00	20,000.00	20,000.00
	39 S/Total	60,000.00	30,000.00	30,000.00
50	Capital items			
	51 Land acquisition	80,000.00	80,000.00	
	52 Construction of field centre	230,000.00	230,000.00	
	53 2 land cruisers / 3 ton-pick up	89,400.00	89,400.00	
	54 Outboard engines & boats	64,600.00	64,600.00	
	55 Generators 3 units	30,000.00	30,000.00	
	56 4 Freezers & refrigerator	12,000.00	12,000.00	
	57 2 Radio telephones	2,000.00	2,000.00	
	58 4 cell telephones	2,000.00	2,000.00	
	59 Computers 2 units	3,500.00	3,500.00	
	60 Field equipment	25,000.00	25,000.00	
	61 Office equipment	20,000.00	20,000.00	
	69 S/Total	558,500.00	558,500.00	-
80	Miscellaneous			
	81 Community socio development programme	89,000.00	44,500.00	44,500.00
	89 S/Total	89,000.00	44,500.00	44,500.00
	SUB-TOTAL	1,303,700.00	931,100.00	372,600.00
	Adminstration cost 15%	195,555.00		
	TOTAL	1,499,255.00		

PART III – OPERATIONAL ARRANGEMENT

1 Management Structure

The SFD will be responsible for implementing the project and to ensure that the outputs and objectives are achieved. The SFD will appoint a Project Coordinator to oversee its overall execution. The project management team will comprise qualified counterparts, a field manager, wildlife and park and wildlife rangers from the SFD, to be headed by the Project Manager. The team will be assisted by the SPC for BANP and SWC for LEWS.

The following is the organization chart for the project:



The Project Steering Committee (PSC) to be appointed by the Implementing Agency shall comprise members from the following:

- Federal Ministry of Primary Resources;
- State Ministry of Resource and Management Planning;
- ITTO;
- State Planning Unit;
- Department of Agriculture (DOA);
- Sarawak Museum;
- Malaysian Nature Society;

The Project Manager will play a key role in ensuring successful implementation of the project and achievement of objectives. Besides having the necessary qualifications and experience (Ph.D. or M.Sc.) he must be field-oriented as he will be responsible for establishing and maintaining co-operation and friendship between the SFD project staff, the project consultants, the local communities and the private sector at the TPA level. His responsibilities to the PSC will be to present annual work plans, progress reports and budgets.

A Scientific Advisory Committee (SAC) is proposed to advise the SFD on the scientific aspects of the project's implementation, to exchange information, and to discuss sustainable management and utilization of the resources within the TPAs. The views of the local communities and the private sector will be represented by the SPC and SWC respectively.

2. Monitoring, Reporting and Evaluation

The Project Manager will prepare an inception report at the beginning of the project implementation and before the first PSC meeting. The report will comprise detailed proposal of the Work Plan for the first 12 months. The Implementing Agency will submit a progress report to ITTO Secretariat every six months in March and September in accordance with the "ITTO Manual for Project Monitoring, Review and Evaluation".

A final report will be prepared and submitted to ITTO not later than three months after project's completion. ITTO will organize monitoring missions to carry out standard project implementation monitoring based on the logical framework, ITTO rules and procedures and any relevant decisions of the PSC.

3. Future Operation and Maintenance

The SFD will ensure sustainability after project completion based on the recommendations of the management plans to be prepared at the end of the project. It will also continue to collaborate closely with the relevant authorities in West Kalimantan in co-management of the TBCA. Through the SWC and SPC, the mechanism for field management for LEWS and BANP will be in place, with fuller participation from the local stakeholders.

PART IV – THE TROPICAL TIMBER FRAMEWORK

1. Compliance with ITTA's 1994 Objectives

The project assumes a significant role in promoting biodiversity conservation and sustainable forest management in the light of current deforestation trends. It also comes in support of conservation at the trans-boundary level through its partnership association with BKNP in West Kalimantan. With a combined area of 192,782 ha, the watersheds of LEWS and BANP are critical in maintaining the environmental health and the socio-economic well-being of several hundred thousand residents in the south-western region of Sarawak, as well as the hydro-electric dam at Batang Ai, the main source of electricity supply throughout the State. They must be protected at all cost.

The project is in compliance with ITTA 1994 and meets the following objectives of its Article 1:

- (c) To contribute to the process of sustainable development;
- (i) To encourage members to develop national policies aimed at sustainable utilization and conservation of timber producing forests and their genetic resources and at maintaining the ecological balance in the regions concerned, in the context of tropical timber trade.

In promoting co-operation for trans-boundary biodiversity conservation between Malaysia and Indonesia, the project meets Article 27 paragraph 2(a) as follows:

The Committee on Reforestation and Forest Management shall:

- (a) Promote co-operation between member as partners in development of forest activities in member countries in forest management, *inter alia* in the following areas....:

- (iii) Forest management

As a member of ITTO, Malaysia has committed itself to achieving sustainable management of its natural forest resources by achieving the Year 2000 objective. In 1993, ITTO members identified 4 key areas for action towards sustainable forest management in compliance with that Objective. This project idea is in relevant to the following three of them:

- Security of forest resources and prevention of unplanned deforestation;
- Production of optimal mix of goods and services;
- Improvement of the social and political environment concerning forest management.

2. Compliance with ITTO Yokohama Action Plan

The project is in compliance with the priorities defined under the following goals:

Goal 1 – “Support activities to secure the tropical timber resource base” of the Committee on Reforestation and Forest Management outlined in the ITTO's Yokohama Action Plan as specified in the following:

- (1) Action 2: Support networking and the exchange of information with relevant international organizations to maintain the integrity of the resource base, including protected area networks;

Goal 2 – “Promote sustainable management of tropical forest resources”, as specified under Action 10:

- * Establish areas dedicated to biodiversity conservation in accordance with ITTO guidelines, including trans-boundary conservation areas, in close collaboration with other relevant organizations and bodies. Establish areas dedicated to biodiversity conservation in accordance with ITTO guidelines.

The project is also in compliance with ITTO Guidelines for Sustainable Management of Natural Tropical Forests, Principal 7, as follows:

- The different categories of land to be kept under permanent forest are: land to be protected; land for nature conservation; land for production of timber and other forest products; and land intended to fulfill combinations of these objectives.

Appendix 1 of these Guidelines describe categories of forestland including “forest set aside for plant and animal species and ecosystem preservation”.

Finally, by establishing large areas of undisturbed forests for conservation the project also meets the ITTO Guidelines on the Conservation of Biological Diversity in Tropical Production Forests.

ANNEX I – TERMS OF REFERENCE FOR THE PROJECT STAFF

1 Project Manager

The Project Manager will report to the Director of Forests and through him, the PSC, in the execution of the project. He will be responsible for:

- Administration and technical orientation of all project activities;
- Preparation and implementation of annual project plans of operation;
- Relations with SFD and other government agencies and institutions;
- Supervising the selection of consultants;
- Giving guidance to consultants, supervising their work and controlling quality of results;
- Participating in ecological and floral studies and preparation of final reports
- Collaborating with SFD and providing advice to the functioning of the SPC and SWC;
- Contributing to the co-management of the TBCA and implementation of approved plans through active participation;
- Monitoring progress of project activities towards achieving the project objectives;
- Preparing all reports required by ITTO.

2 Administrative Officer

- Office administration;
- Maintaining ITTO budget and ledger book, preparing accounts and payments;
- Assisting in organizing PSC and other meetings and workshops.

3 Office Secretary

- Secretarial duties in ITTO office, and office of the Project Manager and Project Coordinator;
- PR with other offices and departments;
- Assisting in organizing meetings and workshops
- Maintaining office library.

4 Clerical Assistants

- Typing and data processing;
- Assisting in accounting;
- Maintaining office equipment and photo library;
- Store keeping.

5 Horticultural Specialist

- Design and supervision of the construction of a nursery with facilities for propagation, soil propagation, potting and watering;
- Design and development of herbal gardens for medicinal plants and ornamentals;
- Indigenous crop cultivation among the local communities, and maintenance and monitoring of planting plots;
- Recommending suitable species for planting;
- Train the local people on horticultural techniques;
- Preparing manuals for nursery practice, cultivation and maintenance and final reports.

6 Fisheries Specialist

- Design and supervision of construction of valley ponds, fish tanks and cages for fish culture;
- Recommending suitable high value species for culture;
- Where necessary, supervising the collection of fish fries for culture;
- Consulting and liaising with the Fisheries Section of DOA on the techniques and methodology for fish culture
- Training the local people in fish culture;
- Preparing a manual for fish culture and reports.

7 Technical Assistant

- Organizing and coordinating community-related activities including training
- Assisting in organizing joint training activities with BKNP
- Supervising field staff and monitoring of activities
- Collecting field baseline data for reports

8 Local Assistants

- Assisting consultants in field activities
- Maintaining of field facilities
- Supervising field workers
- Storekeeping

9 EE specialist

- Establishing an EE unit;
- Preparing an EE module for implementation;
- Organizing EE programmes for teachers, school children and other interest groups;
- Preparing EE materials such as pamphlets, persons and audio visuals;
- Training EE staff in the use of the module and preparing reports.

10 EE Officer

The officer will assist the EE specialist in:

- Establishing the EE unit and managing the unit;
- Sourcing and preparing material for EE module;
- Implementing programmes in schools;
- Preparing pamphlets and posters;
- Maintaining field office and equipment, boats and outboard engines;
- Preparing reports.

11 EE Technicians

- Assisting in EE programmes in the field
- Maintaining of audio-visual and photographic equipment
- Helping to organize dialogues and discussions
- Helping to organize nature programmes

12 Eco-tourism Specialist

- Compiling information on eco-tourism resources in the park;
- Recommending facilities for eco-tourism development;
- Developing tour packages targeting visitors locally and abroad;
- Preparing reports.

13 Handicraft Specialist

- Designing and organizing training programmes for local participants
- Acquiring materials for training
- Conducting training in field centers and longhouses
- Assisting in the sale of handicraft

14 Field Assistants

- Assisting the Eco-tourism and Handicraft Specialists in field surveys and data collecting
- Organizing field trips to TPA and longhouses

15 Forest Ecologist

- Identification and mapping of forest types in BANP;
- Establishing ecological sample plots to study species composition and diversity in each forest type;
- Preparing voucher specimens for herbarium and identifying specimens collected;
- Analyzing results of findings and preparing reports.

16 Biologist

- Assessing human impacts on wildlife habitats in the buffer zones;
- Developing appropriate methodologies for the surveys;
- Compiling and analyzing results;
- Entering data into the SFD's GIS;
- Preparing reports with recommendations for management and monitoring.

17 Technical and Field Coordinator

- Coordinating field surveys and inventories by forest ecologist and biologist
- Collecting and compiling baseline data
- Assisting in species identification
- Organizing dialogues and meetings among local communities

18 GIS Specialist

- Working with team members to enter data in SFD's GIS in Kuching;
- Continuously updating the data;
- Preparing and implementing public information systems on LEWS and BANP;
- Assisting in developing AV programmes for public information;
- Liaising with relevant information services and the media.

19 Data Operator

- Collecting and compiling data from GIS specialist
- Entering data into computer
- Assisting in preparation of database and maps

20 Consultant for Management Plan

- Analysing all existing baseline data and relevant information by consultants
- Preparing management plan for LEWS, taking into consideration the feasibility of joint management with the adjacent BANP
- Management plan to include short term and long term plans for implementation and management
- Recommend strategic plans for joint implementation with BKNP

ANNEX IIA – Recommendations of the 29th Expert Panel

Specific Recommendations

- 1. The revised proposal must be presented in accordance with the ITTO Manual for Project Formulation Section 5.1 and 5.2 must be put in one section;**
- 2. Improve the logical framework matrix by using measurable indicators and realistic assumptions;**
- 3. Enhance the trans-boundary initiative by implementing diverse collaborative activities along the border of the protected areas;**
- 4. Use only US dollar currency in budget presentation**
- 5. Use reasonable unit cost by the Inputs on pages 20 to 22 and recalculate the ITTO's Programme Support Costs accordingly; and**
- 6. Include an annex that shows the recommendations of the 29th Panel and the respective modifications in tabular form.**

ANNEX II B – Table showing modifications

- 1. The format has been revised putting sections 5.1 and 5.2 in one section.**
- 2. The Logical Framework has been improved to make the indicators more measurable and assumptions more realistic. The EA has given priority to the sustainability of the LEWS project by submitting a substantial budget in the 9th Malaysia Plan for the development and promotion of research and community participation through the Centre for Plant Research (CPR) and Centre for Orangutan Research (COR).**
- 3. A number of cross border activities has been proposed that is believed to be realistic and implementable. Cooperation from BKNP is critical.**
- 4. This has been noted.**
- 5. The cost has been further reduced, the revised budget is believed to be a realistic one and is minimum required for the project's successful implementation. The unit cost is considerably lower compared to that of the previous phase of the project.**