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PART 1

CONTEXT

1. Relevance to ITTO

1.1. *Compliance with ITTO objectives*

The Project will contribute to ITTO's objectives mainly in providing information on the current status of selected conservation areas within the Permanent Forest Estate of Sabah. This information is essential for prudent forest management planning, especially in formulating conservation strategies and reforestation activities.

In particular, the Project is related to the following ITTO objectives:

- a. To help research and development which will improve forest management and wood use;
- b. To encourage tropical timber reforestation and forest management;
- c. To encourage national policies which aim at sustainable use and conservation of tropical forests and their genetic resources, and at maintaining the ecological balance in the regions concerned.

1.2. *Compliance with ITTO criteria*

This Project directly relates to the areas of natural forest management, reforestation development, training of technical personnel, and national planning.

A comprehensive and strategic assessment of conservation areas in Sabah has never been carried out. Detailed information of the natural vegetation they represent and the conditions of these vegetation types are of great importance in conservation planning. Conservation areas are also very important sources of planting material for reforestation efforts. In addition, they provide indications of the type of species that would grow in specific habitats and/or site conditions. Therefore, the Project is directly relevant to the production and use of tropical timber, and will yield benefits to the tropical timber economy as a whole in both producer and consumer countries.

1.3. *Relationship to ITTO Action Plan*

This Project is directly in line with the ITTO Action Plan and priorities, as well as national policies and strategies towards sustainable forest management and biodiversity conservation. At the same time it also contributes to Malaysia's commitment to the International Convention on Biodiversity Conservation.

This Project will provide baseline information for forest conservation planning on a state-wide scale. It will help identify critical habitats for conservation as well as identify areas suitable as sources of planting material for reforestation.

2. Relevance to National Policy

Malaysia is fully committed to:

- Achieving sustainable forest management in accordance with the ' ITTO Guidelines for the Sustainable Management of Natural Tropical Forests (1992),
- Fulfilling her obligations stipulated under the International Convention on Biodiversity Conservation of which she is one of the signatories, and in
- Developing a National policy and Strategies for the conservation and sustainable development of biodiversity.

In this context, the Project is directly relevant to the following policies, more importantly the National Forest Policy and the National Policy on Biological Diversity.

2.1. Relationship to sectoral policies affecting tropical timber

National Forest Policy

The objectives of the Malaysian National Forest Policy as they relate to the Project are, briefly:

- (i) To dedicate as Permanent Forest Estate sufficient areas of forested land throughout the country in order to ensure:-
 - sound climatic and physical conditions of the country, the safeguarding of water resource, soil fertility, environmental quality, the preservation of biodiversity, and the minimisation of damage by floods and erosion to rivers and agricultural lands (designated as Protection Forests),
 - the supply in perpetuity of all forms of forest produce which can be economically produced within the country and are required for agricultural, domestic, industrial purposes and for export (designated as Production Forests), and
 - the conservation of adequate forest areas for recreation, education, research, and the protection of the country's unique flora and fauna (designated as Amenity Forests and Virgin Jungle Reserves).
- (ii) To undertake and support an intensive research programme in forest development aimed at achieving optimal yield from the Permanent Forest Estate;
- (iii) To undertake and support a comprehensive programme of forestry training at all level in the public sector in order to ensure an adequate supply of trained manpower to meet the requirements of forestry and wood-based industries;
- (iv) To manage the Permanent Forest Estate in order to optimise social, economic, and environmental benefits for the nation and its people in accordance with the principles of sustainable management;
- (iv) To establish forest plantations of indigenous and exotic species to supplement timber from the natural forest;
- (v) To provide for the preservation of biodiversity and the conservation of areas with unique flora and fauna;

- (vi) To undertake and support intensive research in forestry and forest products aimed at enhancing benefits from the forest;
- (vii) To undertake and support forestry training at all levels in the public and private sectors in order to ensure an adequate supply of trained manpower to meet the requirements of forestry and wood-based industries.

National Policy for the conservation of Biological Diversity:

- (i) To transform Malaysia into one of the world centres of excellence in conservation, research and utilisation of tropical biological diversity by the year 2020;
- (ii) To conserve Malaysian biological diversity and to ensure that its components are utilised in a sustainable manner for the continued progress and socio-economic development of the nation;
- (iii) To maintain and improve environmental stability for the proper functioning of ecological (life-support) systems;
- (iv) To ensure preservation of the unique biological heritage of the nation for the benefit of present and future generations;
- (v) To enhance scientific and technological knowledge, and educational, social, cultural and aesthetic values of the nation's biological diversity

The Project is directly relevant to the above-mentioned National Forestry Policy and the National Policy for the Conservation of Biological Diversity in at least, the following aspects:

- (i) Providing information on the current status of forest conservation in Sabah with respect to critical habitats, management constraints, and vegetation condition. Ultimately this will allow forest managers to evaluate the adequacy of our conservation areas in conserving Sabah's flora and fauna, and to formulate conservation strategies accordingly;
- (ii) Upgrading the management capabilities and providing training for forestry officers in vegetation assessment techniques;
- (iii) Identifying areas suitable to serve as sources of planting material, i.e. seeds and wildlings, for reforestation purposes;
- (iv) Adding to the documentation and knowledge of biodiversity and its distribution in Sabah.

2.2. Institutional and legal framework

The Sabah Forestry Department, as the lead agency, will mainly execute the Project in co-operation with other government agencies, institutes of higher learning, and a non-governmental organisation. The Forestry Enactment (1968) and the Cultural, Heritage, and Conservation Enactment (1997) provides the legal framework for the Project.

The Sabah Forestry Department. The Sabah Forestry Department (SFD) is a state government department responsible for the protection, management and optimisation of socio-economic values of forest resources within the Permanent Forest Estate (PFE). Forest management is governed by the provisions of the Forest Enactment 1968, the Forest Rules 1969 and subsequent amendments. The existing PFE of Sabah were legislated under the Forest (Amendment) Enactment 1984.

The SFD consists of 10 specialist divisions, all focussed to support efforts of the Department towards sustainable forest management. Two of these divisions will be involved in the implementation of this Project.

The Research and Development Division is based at the Forest Research Centre, Sepilok, Sandakan. It has more than 25 researchers, including 6 with experience in botanical and ecological research. The herbarium—known internationally as the SAN Herbarium—at the Department's Forest Research Centre in Sandakan houses more than 210,000 botanical specimens, making it the largest herbarium in Malaysia.

The Management Division, based at the Department's Headquarters, is well-equipped with Geographical Information Systems (GIS) and other mapping facilities that are required for the Project.

The co-operating Malaysian institutions are:

| | <u>Role</u> |
|--|--------------------|
| 1. The Sabah Agriculture Department | Advisory |
| 2. The Sabah Wildlife Department | Advisory |
| 3. The Sabah Lands and Survey Department | Aerial photographs |
| 4. The Forest Research Institute Malaysia | Advisory |
| 5. The University of Malaya | Advisory |
| 6. The World Wide Fund for Nature (Malaysia) | Advisory |

PART 2

PROJECT

1. Background

The Sabah Forestry Department (SFD) is responsible for the management of all forest reserves gazetted under the Forest Enactment 1968. The enactment provides for 7 categories of Forest Reserves (FRs), collectively referred to as the Permanent Forest Estate (PFE):

| | | |
|--------------|----------------|--------------|
| a) Class I | -PROTECTION | 342,216 ha |
| b) Class II | -COMMERCIAL | 2,685,119 ha |
| c) Class III | -DOMESTIC | 7,355 ha |
| d) Class IV | -AMENITY | 20,767 ha |
| e) Class V | -MANGROVE | 316,024 ha |
| f) Class VI | -VIRGIN JUNGLE | 90,386 ha |
| g) Class VII | -WILDLIFE | 132,653 ha |
| | Total area | 3,594,520 ha |

The PFE makes up about 48% of the state's total land area.

In reality, all forest reserves serve a conservation function to various extents. However, in the context of this Project Proposal, Conservation Areas (CAs) refer to the Class I, IV & VI Forest Reserves. These CAs are made up of 105 FRs covering a total of 453,369 ha, or approximately 6% of Sabah.

Class I - Protection FR. Protection FRs, occupying 4.6% of the state's land area, are conserved primarily for environment protection (e.g. water catchments) and biodiversity conservation. They are protected by law from any form of land conversion or timber exploitation. After the gazettelement of the PFE in 1984, a total of 44 Protection FRs were gazetted, the last being Maliau Basin in 1997.

Class IV - Amenity FR (AFR). Amenity FRs were established mainly to provide recreational opportunities for the general public. However, they have yet to be fully developed for their intended purpose.

Class VI - Virgin Jungle Reserve (VJR). VJRs are intended for research and biodiversity conservation. At present, there are some 50 VJRs throughout Sabah. Their sizes range from 3 ha to over 18,000 ha. Most of them are situated on the East Coast, on the Kinabatangan floodplain, and in the southeast, near Lahad Datu and Tawau.

2. Project Objectives

2.1. Development Objectives

The Project aims to contribute towards better forest management and conservation by providing baseline information that is vital to the decision-making process.

2.2. Specific Objectives

The specific objectives of the Project are:

- i) to establish an Information System of the CAs (CAIS) assessed,
- ii) to carry out surveys of the CAs, and
- iii) to publish the results of the assessment.

3. Justification

3.1. Problems to be addressed

The development and implementation of sustainable forest management and appropriate conservation measures for forest biodiversity in Sabah can only be possible if adequate and up-to-date knowledge of the forest resource is made available to forest planners and managers. A comprehensive and strategic assessment of conservation areas in Sabah has never been carried out. Below are some problems that need to be addressed:

- a) CAAs do not adequately represent all the various forest types in Sabah.

Many conservation areas were created to preserve their environmental protection functions (e.g. hills and steep slopes), and not necessarily to conserve vegetation diversity. Consequently, a network of CAs was created which does not adequately represent the various natural vegetation types found in Sabah. Therefore, an assessment of the types of vegetation the CAs represent, or inadequately represent, is of great importance in formulating a more effective conservation strategy.

- b) The current status of the CAs, especially in terms of vegetation quality, is largely unknown.

Various forms of disturbances, e.g. fire, illegal logging and cultivation, have affected the forests in some CAs. Prior to their reservation in 1984, many VJRs did not have the legal status of Forest Reserves, and, thus, have been logged. It is important for conservation planning to determine the extent of these disturbances and the quality or health of the vegetation in these CAs.

- c) Threats and constraints to the management of CAs have to be identified, e.g. logging, illegal encroachment by rural communities, fire risks, etc.

Before the 1984 reclassification, rural communities resided within some of the CAs. Their activities (e.g. burning, cultivation & livestock rearing) present a potential threat to the integrity of the CAs.

A number of FRs in Sabah have been badly affected by fires, especially during droughts caused by the El Niño phenomenon (Jan 98–May 98 & Jan 83–Jun 83). Land clearing by the slash-and-burn method is commonly practised during the dry seasons without regard to fire risks. Thus, fires spread to adjacent Forest Reserves. Fires are also a threat to the wildlife especially since most FRs in the East Coast are isolated forest fragments, surrounded by extensive oil palm estates. The populations of orangutans, elephants, proboscis monkeys, deer and other mammals are threatened in these small fragments.

Such information, to be collected during the assessment, is very relevant to the management of CAs.

d) *Difficulty in obtaining planting material for reforestation efforts.*

In order to ensure the success of any planting or rehabilitation program, the reliable supply of planting material is of great importance. CAs can serve as an important source of planting material, i.e. seeds and wildings. A vegetation assessment of the CAs will help determine the suitability of a CA as a source of planting material, as well as determine the kinds of species from which planting material may be available.

e) *Information on conservation areas is presently not readily available in a user-friendly format.*

This Project is a precursor to a complete account or profile of all conservation areas in the form of a publication and a CD-ROM. This would facilitate the rapid retrieval of information and, hence, prompt decision-making in forest management.

f) *Virtually all conservation areas have no proper management plans.*

Information derived from this Project would make a good basis for the formulation of management plans.

All the factors mentioned above, acting singly or in concert with the others have resulted in a network of CAs that are not fully protected and effectively managed. It is also often questioned whether this network is adequate in conserving and maintaining floral and faunal communities. For instance, there are other rare and localised forest types—e.g. *ramin* (*Gonystylus bancanus*) peat swamp forest, *Agathis* forest, *perupok* (*Lophopetalum* sp.) forest and *kapur merah* (*Dryobalanops beccarii*) forest—which are under-represented, or not included, in the present conservation area network. These forests are all very rare in Sabah.

In view of all the above, the Sabah Forestry Department recognises the need for a comprehensive assessment to identify management constraints and determine the values of CAs for plant biodiversity conservation, education and recreation. It is also

hoped that this assessment will be a catalyst for the future evaluation of other conservation areas (Mangrove FRs, Wildlife FRs, etc.).

3.2. Characteristic of region where Project will be located

Sabah, in northern Borneo, is located in the heart of the Indo-Malayan phytogeographical region extending from the Kra Isthmus of Peninsula Thailand to Papua New Guinea and the Solomons Islands. The moist, warm climatic conditions and the availability of diverse microhabitats resulting from past and recent geological history has contributed to the high species diversity found in Borneo.

They are at least 9 major types of forest formations, viz. mangrove forest, freshwater swamp forest, peat swamp forest, lowland and hill dipterocarp forest, limestone hill forest, *kerangas* forest, lower and upper montane forest, and forest on ultramafic soils. Each of these forest formations has its own unique botanical and ecological characteristics, and therefore also hold distinct ecological functions and offer different types of forest resources.

Timber harvesting began in Sabah in the 1920s. However, it was not until the mid-1950s that wide scale exploitation of the forests really began with the advent of modern logging techniques and equipment. At its peak, forestry activities contributed about US\$ 240–400 million or 70 % of the State's annual revenue, and up to 60% of the State's GDP. Forestry industries also provide jobs for more than 20,000 people. Today, the forestry industry still contributes to a significant portion of the economy.

3.3. Other relevant aspects of pre-Project situation

3.3.1 Eco-tourism

Malaysia is currently being promoted as an eco-tourism destination. Sabah is one of the states that has been identified as such. The tourism industry continues to be a major earner for the state. More efforts are being directed into identifying potential areas for both active and passive eco-tourism. In this respect, the nine main forest types in Sabah offer many opportunities for eco-tourism. Undisturbed, they can provide a major source of income to the State. Hence, the status of the CAs needs to be assessed to assist towards the conservation of these areas for the future.

3.3.2 *Assessment of VJRs in Peninsula Malaysia.*

The Peninsular Malaysia Forestry Department has received a grant from the German Government to carry out a similar Project to assess the status of VJRs in the Peninsular. This effort complements the Sabah Forestry Department's proposed assessment of CAs in such a way that, ultimately, a nation-wide assessment will be carried out.

3.3.3 *Reforestation.*

Virtually all the Commercial Forest Reserves (Class II) have been logged extensively. Due to this, timber production in Sabah is rapidly declining. Forest rehabilitation by silvicultural means and reforestation is becoming increasingly important.

3.4. *Intended situation after Project completion*

At the completion of the Project, the following situations are anticipated:

- a) interested parties involved in forest management and conservation (e.g. Forestry Department staff, non-governmental organisations, etc.) will acquire a better understanding and awareness of the current status of the CA network in Sabah.
- b) recommendations will be made:
 - for the management of the CAs,
 - to propose, if any, the protection of forest habitats or types, which are insufficiently represented by the system of Forest Reserves and Parks in Sabah.

3.5. *Target beneficiaries*

The main beneficiaries of the Project results will be:

- a) The Sabah Forest Department and other public and private agencies related to forestry and wood-based industries in the country.
- b) Department of Wildlife and State Parks.
- c) Public and private agencies involved with the eco-tourism industry.
- d) Institutions of higher learning.
- e) Other Forestry Research and Development Institutions.

3.6. *Project Strategies*

3.6.1. Reasons for selection

Sabah was chosen for the following reasons;

- It is in line with the Sabah Forestry Department's plan to fully implement sustainable forest management by the year 2000.
- As a part of Borneo, Sabah plays an important role in the conservation of tropical forest diversity.

- Policies, legislation and establishment of a network of protected forest habitats and their biodiversity requires further improvement and refinement.

3.6.2. Lessons drawn from past evaluation

This Project is a new undertaking by the Sabah Forestry Department. As such, there is no previous work whereby this Project could be pre-evaluated.

3.6.3. Technical and scientific aspects

In general, this Project can be divided into three main work components. These components will be implemented in series although there may be some overlapping and parallel phase activities in the overall work schedule. Below is a brief description of each component:

a) Surveys.

Aerial and ground surveys will be carried out in series. Aerial survey is chosen mainly due to labour and time constraints, and the difficulty in accessing certain areas. The aerial survey of all CAs requires a total flying time of approximately 50 hours in a chartered helicopter. This survey aims to verify, amend and add new information to the CAIS. CAs of interest that require ground surveys will also be selected during the aerial survey.

CAs that warrants ground surveys should;

- i) possess interesting floristic compositions (e.g. rare and localised forest types),
- ii) have signs of unnatural disturbance, e.g. illegal logging or encroachment by rural communities,
- iii) be reasonably accessible by road,
- iv) be suitable for development of recreational & educational sites, and
- v) have other interesting aspects.

b) Collation of data.

This will involve procuring, extracting, interpreting and storing all relevant information on the CAs. The sources for this information are maps, aerial photographs, departmental reports and other relevant materials. The information derived will provide base-line knowledge of every CAs such as;

- vegetation types,
- floristic composition and structure,
- status of the vegetation,
- precise locations of the CAs and their respective boundary posts,
- land area (if there is any change),
- topography,
- soil associations,
- surrounding land-use,
- accessibility, and
- signs of illegal encroachment.

c) Data entry to Information System of Conservation Areas (CAIS).

This component will run, to some degree, concurrently with the previous two components. New information is processed soonest possible to up-date the CAIS. Reports, memos or notes are forwarded to those involved with the Project. This will subsequently assist decision-making processes from the sub-stage planning level to the inter-stage planning of the Project.

3.6.4. Economic and environmental aspects

The decreasing availability of timber resources, the declining environmental quality, and the threat to biodiversity conservation arising from the unsustainable exploitation of forest resources in Sabah have triggered concern among the Malaysian public and other concerned foreign parties. The Project is intended to address the pressing problems by providing the necessary information to assist the decision-making process in the government's aim towards sustainable forest management.

3.6.4.1. *Economic aspects.* The socio-economic importance of the forest resources of Sabah is a reality. In the past few decades, the contribution of forestry and wood-based industries towards export earning and the GDP has been second only to the petroleum-based industries. To maintain this contribution, it is important that forest resources be managed on a sustainable basis. Only recently, the government has realised the contribution of the eco-tourism industry to the state.

The Project, when completed, will be able to provide the necessary knowledge and basic scientific data instrumental to the development and implementation of a sustainable forest management.

3.6.4.2. *Environmental aspects.* Forest ecosystems and its diversity, and the natural life-support processes within are crucial elements for maintaining the heat balance, hydrological cycle, energy-flow, and the ecological equilibrium of a particular region. Information and knowledge from the Project will enable planners, managers, and decision-makers concerned with forest resources to formulate appropriate policies pertaining to the conservation of biodiversity and the maintenance of the physical environment quality. It will also promote public awareness in the importance of protecting the forest of Sabah.

3.6.5. Managerial aspects

The Sabah Forestry Department (SFD) at Sandakan will be the implementing agency for the Project. The Project will be directly under the supervision of a Project Steering Committee (PSC), to be headed by the Director of the Department.

3.7. *Reasons for ITTO support*

The Project will provide essential botanical and ecological knowledge instrumental for the achievement of many goals formulated by the Guidelines of ITTO Action Plan (1990) and Conservation of Biodiversity in Tropical Production Forests. It is particularly related to sustainable forest management, conservation of forest

biodiversity, development of research capability, and enhancement of public awareness on the environmental importance of tropical rain forests.

3.8. *Risks*

Since this is a relatively straightforward Project, and that the necessary logistic and physical facilities of the Project are well established, the technical risks of executing the Project are minimal. The Forestry Department also has sufficient skilled personnel to implement the Project.

4. Output

4.1. *Specific Objective I:*

Establishment of an Information System for Conservation Areas (CAIS).

In the first 9 months of Year I, all available information concerning the CAs will be collected and entered into a CAIS. This CAIS will be the main reference for planning surveys. It will continuously be up-dated with information gathered from every survey done in Year I and II. After completion of the Project, information on this CAIS will be interpreted and published in report form. A computerised version will be kept for reference and up-dating by the FRC. Copies for interested government agencies may be made.

4.2. *Specific Objective II:*

Survey of the CAs.

About 18 months in Year I, II and III, aerial and ground surveys of the CAs will be carried out. Firstly, newer information from the aerial surveys of all CAs will confirm and rectify the information in the CAIS that were collated earlier. Secondly, ground surveys will be carried out on selected CAs. This will require most of the allocated time for this objective. The CAIS will constantly be up-dated with information gathered after every survey trip.

4.3. *Specific Objective III:*

Publication of Project results.

In the final 9 months in Year III, after finalisation of the preliminary reports of every Forest Reserve assessed and the CAIS format, three main reports—each on a different class of Forest Reserve— will be prepared based on the preliminary reports and published incorporating all available information on the assessed CAs.

5. Activities and Inputs

5.1. *Output I:*

Establishment of an Information System (IS) for the CAs.

Activities and Inputs

1. *Appointment of Project personnel.*
Six officers from the Sabah Forestry Department will be assigned to implement, co-ordinate and manage the Project; to organise and lead surveys of CAs; and to prepare and submit progress, annual and other reports required. Due to other job commitments, these 6 officers may not be able to devote full-time attention to the project. Therefore, two contract officers and one contract clerical assistant will be recruited to assist these officers. Budget (incl. salaries, honoraria and other benefits) – US \$ 442,800.
2. *Purchase of Project office equipment.*
To equip Project staff with adequate basic equipment comprising of computers, printers, a scanner, software and accessories, etc. – US \$ 14,000.
3. *Computerised CAIS design.*
A computer database designer will be commissioned to design CAIS for the information procurement needs of the Project. It must be designed to be user-friendly and incorporate Web-style windows. This CAIS, after data has been entered and frequently up-dated, will be the main reference for the CAs during the course of the Project. Budget (incl. training of relevant Project Staff in GIS) –US \$ 13,000.
4. *Procurement of information sources.*
Information in the form of maps, aerial photographs, departmental reports, etc. will be collated from various forest district offices/ divisions/ branches in the Sabah Forestry Department, and other government agencies and NGOs. These will be interpreted and information entered into the CAIS. Budget (incl. transport and allowances) – US \$ 10,000.
5. *Acquisition and Interpretation of new aerial photographs.*
New aerial photographs of all CAs will be acquired and interpreted by the Forest Mapping Unit. This will be done to get the latest status of vegetation, boundaries, adjacent land uses, disturbances, etc. for the CAs.

These graphic interpretations will then be digitised and stored using GIS at the Forest Information and Management Unit. The maps are then sent to the Project Officers at the Forest Research Centre. (Besides providing a basis for the main assessment work, this step will also serve to up-date the present Forest Management Information System of the SFD. This Unit is also responsible for producing digitised maps during the duration of the Project.)

The Project Officers then interpret the maps and further information will be entered into the CAIS. These maps will also help in the preparation and planning of the aerial and ground surveys of the CAs. Budget – US \$ 17,200.
6. *Information capture.*
Preliminary reports will be prepared for every CA to be assessed. This will include information such as:
 - ❖ location, land area, topography,
 - ❖ vegetation status,
 - ❖ forest types,
 - ❖ previous forest management history,

- ❖ other signs of disturbances to the vegetation,
- ❖ intactness of boundaries,
- ❖ adjacent land-uses and road access,
- ❖ signs of encroachment into the CAs,
- ❖ other relevant information.

A corresponding digitised map will accompany each report. All these will be stored in the CAIS.

5.2. *Output II:*

Surveys of the CAs.

Activities and Inputs

1 *Purchase of field equipment.*

To purchase the necessary field equipment such as camping gear, GPS handsets, field binoculars, compasses, etc. Budget US \$ 10,000.

2 *Planning of surveys.*

To plan for aerial and ground surveys. This includes:

- ❖ Planning routes for the aerial and ground surveys,
- ❖ preparing data collection forms for use with the new CAIS,
- ❖ training of Project Officers in resource inventory methods,
- ❖ preparing field maps of CAs to be surveyed,
- ❖ preparing data sheets and schedules for ground surveys,
- ❖ organising managing support staff, booking of vehicles, logistics of surveys, etc.
- ❖ carry field reconnaissance prior to main surveys

3 *Execution of surveys.*

Aerial surveys will be carried out for all CAs. During the surveys, verification of the preliminary aerial photo interpretations of all CAs and other information will be done. Vegetation status and forest types interpreted from aerial photographs will be confirmed or rectified. Other important details on the CAs will be noted down.

Once the aerial surveys are completed, all information gathered will again be interpreted and entered into the CAIS for up-dating. Planning for the ground surveys will begin at this stage.

During the ground surveys, the field teams will:

- ❖ confirm accessibility,
- ❖ confirm forest types,
- ❖ determine floristic composition, including dominant plant families or species,
- ❖ carry out wildlife surveys,
- ❖ identify areas or features of special interest, especially for potential recreational development,
- ❖ carry out a brief socio-economic evaluation of nearby settlements, and
- ❖ gather other relevant information.

After the completion of every ground survey, all information gathered will again be interpreted, documented and used to up-date the CAIS. Other special surveys, when needed, will be sub-contracted out.

As soon as the latest information is available, a detailed description of the CA will be prepared in the form of a CA status report. In this fashion, the preparation of reports follow closely with the ground surveys. Budget (both surveys) approximately US \$ 200,000.

5.3. **Output III:**

Publication and dissemination of Project's results.

Activities and Inputs

1 *Finalisation of CAIS.*

A computer software consultant will be appointed to rectify any problems in the CAIS and to design a read-only disk that will be made available to interested parties as a companion to the publications. Budget US \$ 2,000.

2 *Preparation and editing of manuscripts.*

A scientific editor will be appointed for Scientific and Technical editorial services, i.e. text editing, proof reading, typesetting, design layout, etc. Budget – US \$ 4,000.

3 *Printing and publication.*

A printer will be appointed to print 3 reports at 200 copies per report of the Project results. Budget – US \$ 12,000.

4 *Dissemination of publication.*

Funding agencies will receive 20 copies of each report published. FRC will keep 20 copies of each report for review, exchange and documentation. The balance will be distributed to the public and to other beneficiaries. A seminar will be organised to present the project's results, highlighting the status of the CAs and the recommendations for their conservation.

6. Logical Framework Worksheets

| Project Elements | Objectively Verifiable Indicators | Means of Verification | Important Assumptions |
|---|---|--|--|
| <p><i>Development Objective:</i></p> <p>Contribution towards better forest management and conservation strategies by providing baseline information vital to the decision-making process.</p> | <ul style="list-style-type: none"> • Establishment of a CAIS as a reference centre for information on the CAs assessed in this Project. • Publication of Project results. | <ul style="list-style-type: none"> • Hard copies or diskettes will be submitted to ITTO. • Copies will be submitted to ITTO. | <p>The Project will contribute to ITTO's objectives mainly in providing information on the current status of selected CAs within the PFE of Sabah. This information is essential for prudent forest management planning, especially in formulating conservation strategies and reforestation activities. It is also vital in developing appropriate policy and legislation for the conservation and protection of forest biodiversity.</p> |

| Project Elements | Objectively Verifiable Indicators | Means of Verification | Important Assumptions |
|---|--|---|--|
| <p><i>Specific objective:</i></p> <p>1. Establishment of an Information System on the Conservation Areas (CAIS) assessed.</p> | <p>The CAIS will be in 2 forms:</p> <ul style="list-style-type: none"> • a computer database in which all digitised maps, documents, tables, etc. will be stored and easily accessed. • a traditional filing system where all original or copied maps, documents, tables, etc. relating to the CAs will be stored. | <ul style="list-style-type: none"> • Hard copies or diskettes will be submitted to ITTO. | <p>After the Project, interested parties may need to derive more information concerning the CAs through manipulating data on a database program, or need to view maps or text. This CAIS would act as a reference centre for the assessed CAs.</p> |
| <p>2. Survey of CAs.</p> | <p>Aerial and ground surveys will be carried out in series.</p> | <ul style="list-style-type: none"> • Progress reports. | <p>The surveys will provide an up-to-date information on the plant diversity, ecology, conservation status and potential uses of the CAs.</p> |
| <p>3. Publication and dissemination of Project results.</p> | <p>A series of 3 reports containing the complete results of the Project.</p> | <ul style="list-style-type: none"> • Copies will be submitted to ITTO. | <p>This 3-report series provides essential information for prudent forest management planning, especially in formulating effective conservation strategies and reforestation activities.</p> |

| Project Elements | Objectively Verifiable Indicators | Means of Verification | Important Assumptions |
|---|--|---|---|
| <p>Outputs:</p> <p>1. Establishment of an Information System of CAs (CAIS).</p> <p>2. Survey of the CAs.</p> <p>3. Publication and dissemination of Project's results.</p> | <ul style="list-style-type: none"> • Year I, month 1 to month 9. • Year II, month 10 to Year III, month 21. • Year III, month 22 to month 36. | <ul style="list-style-type: none"> • Hard copies or diskettes will be submitted to ITTO. • Progress reports. • Copies will be submitted to ITTO. | <ul style="list-style-type: none"> • Provided the computerised CAIS is well-designed and ready for information input. • Provided maps digitised from aerial photo interpretations are ready. • Provided a proper schedule for surveys is drawn up. • Provided the surveys and updating of the CAIS are progressing well. • Providing the reports are edited and published. |

| Project Elements | Objectively Verifiable Indicators | Means of Verification | Important Assumptions |
|--|---|--|---|
| <p>Activities: for Output I:</p> <ul style="list-style-type: none"> • Appointment of Project Personnel. • Purchase of office equipment • CAIS design. • Procurement of information sources. • Acquisition of new aerial photographs. • Information capture. | <ul style="list-style-type: none"> • 1 Project Co-ordinator and 4 Project Officers will be assigned. 2 contract officers and 1 clerical staff will be recruited. • An office with adequate basic facilities and equipment will be set up. • CAIS will be functional for input. • Information will be procured from various sources within the Forestry Department and other agencies. • A contractor will be appointed to take extra B/W (mostly) and colour aerial photos of certain CAs. • Information will be interpreted and entered into the CAIS. | <ul style="list-style-type: none"> • Preliminary work on the first objective will begin. • Office space will be provided by FRC. • Design of computer database ready for data entry. • Input of information into the CAIS. • Photos will be available for interpretative works. • Maps from aerial photo interpretation will be digitised and available for surveys. • Other information entered into the CAIS. | <ul style="list-style-type: none"> • Provided the Officers are willing to join the Project Personnel team. • Provided there is sufficient space available. • Provided that the consultant is able to design the database to proper specifications. • Provided useful information is collected. • Provided the aerial photos have been taken and sent to FRC. • Provided the staff at the FIM Unit have sufficient time and manpower. • Provided newly acquired information is available. |

| Project Elements | Objectively Verifiable Indicators | Means of Verification | Important Assumptions |
|--|---|--|---|
| <p>Activities: for Output II:</p> <ul style="list-style-type: none"> • Purchase of field equipment. • Planning of aerial and ground surveys. • Aerial surveys. | <ul style="list-style-type: none"> • Essential field equipment ready before surveys. • Schedules for aerial and ground surveys will be drawn up. • Discussion with helicopter pilot on flight routes held. • Reports on all surveyed CAs will be written up and CAIS updated. • CAs selected for ground survey made. | <ul style="list-style-type: none"> • Equipment will be used during surveys. • Pre-survey maps and reports on CAs will be available. • Up-dated vegetation maps and reports. New information will be entered into the CAIS. | <ul style="list-style-type: none"> • Provided the equipment are available locally. • Provided the aerial photo interpretation and digitising works are done in time. • Provided the information gathered during the surveys is properly documented and reported. |
| <p>Activities: for Output III:</p> <ul style="list-style-type: none"> • Finalisation of CAIS design. • Review & editing of manuscripts. • Printing & publication of reports. • Dissemination of report. | <ul style="list-style-type: none"> • CAIS format finalised. All design flaws will be rectified. • Manuscripts will be edited. • Manuscript will be sent to printer. • Reports will be available for sale to interested parties and the public. | <ul style="list-style-type: none"> • Final CAIS ready for use. • Manuscripts ready for printing. • A total of 600 copies of the 3 reports will be published. • 20 copies of each report will be submitted to ITTO. | <ul style="list-style-type: none"> • Provided data storage is well organised. • Provided manuscripts are edited. |

7. Work Plan

| Outputs/Activities | Responsible Party | Schedule (in months) | | | | | | | | | | | |
|--|--|----------------------------|-----|-----|-------|----------------------------|-----|-----|-------|----------------------|-----|-----|-------|
| | | Year I | | | | Year II | | | | Year III | | | |
| | | 1-3 | 4-6 | 7-9 | 10-12 | 1-3 | 4-6 | 7-9 | 10-12 | 1-3 | 4-6 | 7-9 | 10-12 |
| <p><u>Output I:</u> Establishment of an Information System for CAs (CAIS). <i>Activities:</i> To appoint and assign Project Personnel, purchase office equipment, procure information, acquire new aerial photographs, and interpret information, etc.</p> | <ul style="list-style-type: none"> Project staff Contract staff Sub-Contractors | XXXXXXXXXXXXXXXXXXXXXXXXXX | | | | XXXXXXXXXXXXXXXXXX | | | | XXXXXXXXXX | | | |
| <p><u>Output II:</u> Surveys of CAs. <i>Activities:</i> To purchase field equipment, and to plan & execute surveys.</p> | <ul style="list-style-type: none"> Project staff | XXXXXXXXXXXXXXXXXX | | | | XXXXXXXXXXXXXXXXXXXXXXXXXX | | | | XXXXXX | | | |
| <p><u>Output III:</u> Publication & dissemination of Project results. <i>Activities:</i> To finalise CAIS design, review manuscript, print, publish and disseminate report.</p> | <ul style="list-style-type: none"> Project staff Editors & printer. | | | | | | | | | XXXXXXXXXXXXXXXXXXXX | | | |

8. Arrangements for Project execution

8.1. Management structure

The Director of Forestry, through a Project Steering Committee (PSC), will head the proposed Project. He will be assisted by a Project Co-ordinator. The key Project staff are all from the Sabah Forestry Department (SFD). This arrangement provides reasonably convenient access to the utilisation of experienced technical and support staff. The PSC will convene twice yearly to oversee the proper implementation of the Project.

Listed below are the members of the Project Steering Committee:

- Director of the SFD (Chairman)
- Head, Forest Research Centre (FRC)
- Head, Natural Forest Division, FRC
- Head, Management, Planning and Operations Division, SFD Headquarters
- Head, Planning and Monitoring Division, SFD Headquarters

Key staff

Mr. Daniel Khiong,
Acting Director,
Sabah Forestry Department.

Dr. Sining Unchi,
Head,
Forest Research Centre.

Mr. Robert C. Ong,
Head,
Natural Forest Division,
Forest Research Centre.

Mr. Yahya Awang,
Head,
Management, Planning & Operations Division,
SFD Headquarters.

Mr. Dimeh Koyopo,
Head,
Mapping Unit,
SFD Headquarters.

Ms. Rosila Anthony,
Head,
Forest Information Unit,
SFD Headquarters.

Mr. Reuben Nilus,
Head,
Ecology Section,
Forest Research Centre.

Mr. John B. Sugau,
Botanist,
Botany Section,
Forest Research Centre.

Mr. Joseph W. Tangah,
Head,
Conservation Section,
Forest Research Centre.

8.2. *Future operation and maintenance*

Upon completion of the Project, the FRC will manage the CAIS and dissemination of information materials.

9. Prior obligations and prerequisites

This proposed Project has no prior obligations and prerequisites.

10. Possible future actions

On completion of the Project, the CAIS procured could be further used in future assessments of the remaining forest reserves and other forested areas in Sabah. Ultimately, a comprehensive vegetation map of Sabah could be produced, possibly in CD-ROM as referencing in this digital format is fast.

To achieve the objectives of the said future actions, sufficient funding from national and international agencies will be solicited.

PART 3**MONITORING, REPORTING AND EVALUATION****1. Arrangements for reporting****1.1. Annual reports**

Three annual reports will be prepared and submitted to ITTO in the month of December each year for the duration of the Project.

1.2. Progress reports

Progress reports will be prepared and submitted to ITTO at least four weeks before each ITTO monitoring visit and at such other times as ITTO may require.

1.3. Project completion report

A Project Completion Report will be prepared and submitted to ITTO within three months of the completion date.

2. Arrangements for ITTO monitoring and review

The Project will be subject to monitoring by representatives of ITTO at least once every 12 months. The first monitoring mission will visit the SFD and the Project location within 12 months of the Project start-up, on a date to be jointly agreed.

3. Evaluation

3.1 Monitoring missions will decide whether a mid-term evaluation is necessary. The date of any such evaluation will be agreed between ITTO and the Project Steering Committee, and its Terms of Reference formulated jointly by the monitoring mission and the Project staff, for the consideration by ITTO.

3.2 No *ex-ante* or *ex-post* evaluation is foreseen given the small size and relative uncomplicated nature of the Project, and given that no environment impacts are expected.

4. Schedule

The preliminary monitoring and reporting schedule indicates the following time allocation for visits to the executing agency:

| <u>Description</u> | <u>Suggested time</u> |
|-----------------------------------|--|
| a) First disbursement request | One month before start of Project |
| b) First Project Progress Report | End of Year I |
| c) First Monitoring Mission | Month 9, Year I |
| d) Second Project Progress Report | End of Year II |
| e) Project Completion Report | Three months after Project's completion. |

PART 4**PROJECT BUDGET****1. Project Budget for 3 years.**

The proposed Project will require a total of US \$807,400 (based on exchange rate US \$1 = RM 3.5). This amount, in US \$, will be utilised during the duration of the Project as follows:

1.1. Project personnel

| | | |
|-------|----------------------------------|----------------|
| 1.1.1 | Project Officers (salaries) | 270,000 |
| 1.1.2 | Clerical Assistants (salaries) | 27,000 |
| 1.1.3 | Project Officers (honoraria) | 54,000 |
| 1.1.4 | Contract Officers (salaries) | 79,200 |
| 1.1.5 | Contract Clerical Staff (Salary) | 12,600 |
| | Sub-total | 442,800 |

1.2. Sub-contracts

| | | |
|-------|---|---------------|
| 1.2.1 | GIS Training | 6,000 |
| 1.2.2 | Scientific and Technical Editorial Services | 4,000 |
| 1.2.3 | Digital map production | 14,000 |
| 1.2.4 | Aerial photographs | 17,200 |
| 1.2.5 | Computerised database design | 7,000 |
| 1.2.6 | Printing & publication of reports | 12,000 |
| 1.2.7 | Special surveys | 10,000 |
| | Sub-total | 70,200 |

1.3. Duty travel

| | | |
|-------|----------------------------------|----------------|
| 1.3.1 | Field and out-station allowances | 93,600 |
| 1.3.2 | Transportation | 99,800 |
| | Sub-total | 193,400 |

1.4. Capital Items

| | | |
|-------|--------------------------|---------------|
| 1.4.1 | Project office equipment | 14,000 |
| 1.4.2 | Project field equipment | 10,000 |
| | Sub-total | 24,000 |

1.5. Consumables

| | | |
|-------|------------------|---------------|
| 1.5.1 | Office supplies | 8,000 |
| 1.5.2 | Spare parts | 2,500 |
| 1.5.3 | Utilities | 6,500 |
| | Sub-total | 17,000 |

1.6. Miscellaneous

Organising of internal workshops & seminars, etc.

| | |
|------------------|--------------|
| Sub-total | 5,000 |
|------------------|--------------|

1.7. ITTO monitoring, evaluation and administration

| | | |
|-------|---|---------------|
| 1.7.1 | Monitoring and evaluation | 21,000 |
| 1.7.2 | Administrative and Programme Support Cost | 20,416 |
| | Sub-total | 41,416 |

| | |
|--------------|----------------|
| Total | 793,816 |
|--------------|----------------|

2. Contributions by Different Agencies

Funding for the execution of the Project is not solicited from other sources. However, the Malaysian Government's contribution to the Project, through the Sabah Forestry Department (SFD), will amount to US\$ 402,200.

A breakdown of the Malaysian Government's contribution is shown below.

Table 2.1. Contribution by the Malaysian Government in US \$.

| Components | Amount |
|--|----------------|
| 10. Project Personnel | |
| ♣ Project Officers (salaries for 6 persons × US\$1,250*/ month × 36 months) | 270,000 |
| ♣ Clerical Assistants (salaries for 3 persons × US\$ 250*/ month × 36 months) | 27,000 |
| * Approximation only. Differences in gross salaries (basic salary + various allowances + annual increment, EPF contributions, etc.) apply. | |
| Subtotal | 297,000 |
| 30. Duty Travel | |
| ♣ Field and out-station allowances | |
| • Daily subsistence | 33,600 |
| ♣ Transport | |
| • Rentals | |
| -Chartered vehicles** | 55,000 |
| -Chartered boats | 1,600 |
| • Fuel & maintenance | 4,000 |
| *Average cost. Various rates accounted for. **From State Government-approved company | |
| Subtotal | 94,200 |
| 40. Capital items | |
| i) Project Office equipment | |
| • Desktop computer & accessories (× 1) | 2,000 |
| • Colour laser printer (× 1) | 2,000 |
| Subtotal | 4,000 |
| 50. Consumables | |
| ♣ Office supplies (printing paper, toners, films, diskettes, stationery, etc.) | 3,000 |
| ♣ Spare parts | 1,000 |
| ♣ Utilities (postage, fax, telephone, e-mail, water, electricity, etc.) | 3,000 |
| Subtotal | 7,000 |
| Total | 402,200 |

3. Request to the ITTO

The total requested amount from the ITTO contribution is US \$ 391,620. The breakdown of the fund utilisation, including the ITTO and the Malaysian Government's contributions, is shown in the following tables.

Table 3.1. Overall Project Budget By Components in US \$.

| Components | ITTO | Malaysian Government |
|--|----------------|----------------------|
| 10. Project Personnel | | |
| ♣ Project Officers (salaries for 6 persons × US\$1,250*/ month × 36 months) | | 270,000 |
| ♣ Clerical Assistants (salaries for 3 persons × US\$ 250*/ month × 36 months) | | 27,000 |
| ♣ Project Officers (honoraria for 6 persons × US\$250 / month × 36 months) | 54,000 | |
| ♣ Contract officers (salaries × 2 persons) | 79,200 | |
| ♣ Contract clerical staff (salary × 1 person) | 12,600 | |
| * Approximation only. Differences in gross salaries (basic salary + allowances + annual increment, EPF contributions, etc.) apply. | | |
| Subtotal | 145,800 | 297,000 |
| 20. Sub-contracts | | |
| ♣ GIS training | 6,000 | |
| ♣ Scientific and Technical editorial services | 4,000 | |
| ♣ Digital map production | 14,000 | |
| ♣ Aerial photographs | 17,200 | |
| ♣ Computerised database design | 7,000 | |
| ♣ Printing & publication of reports (US\$20 / report × 200 copies × 3 volumes) | 12,000 | |
| ♣ Special surveys (e.g. wildlife surveys) | 10,000 | |
| Subtotal | 70,200 | Nil |
| 30. Duty Travel | | |
| ♣ Field / out-station allowances | | |
| • Daily subsistence (13 field staff × US\$ 20/ man day* × 120 days/per year × 3 years) | 60,000 | 33,600 |
| ♣ Transport | | |
| • Rentals | | |
| -Chartered vehicles** (2 4WD vehicles at US\$ 1000/ month/ vehicle × 30 months) | 5,000 | 55,000 |
| -Chartered helicopter (30 flying hours @ US\$ 580/hr) | 17,400 | |
| -Chartered boats (approx. US\$ 40/day × 30 days/year × 3 years) | 2,000 | 1,600 |
| • Fuel & maintenance | 6,000 | 4,000 |
| • Airfares | 3,000 | |
| *Average cost. Various rates accounted for. | | |
| **From State Government-approved company | | |
| Subtotal | 99,200 | 94,200 |

| Components | ITTO | Malaysian Government |
|---|----------------|----------------------|
| 40. Capital items | | |
| i) Project Office equipment | | |
| • Desktop computers & accessories (× 3) | 4,000 | 2,000 |
| • Colour laser printers (× 2) | 1,000 | 2,000 |
| • Scanner (× 1) | 1,000 | |
| • Computer software | 1,000 | |
| • Digital cameras (× 2) | 2,000 | |
| • Filing cabinets | 1,000 | |
| ii) Project Field equipment | | |
| • Camping gear | 1,000 | |
| • Cameras (× 2) | 2,000 | |
| • Field binoculars (× 5) | 2,000 | |
| • GPS units (× 4) | 2,000 | |
| • Compasses (× 10) | 1,000 | |
| • Field stereoscopes (× 2) | 2,000 | |
| Subtotal | 20,000 | 4,000 |
| 50. Consumables | | |
| i) Office supplies (printing paper, toners, films, diskettes, stationery, etc.) | 5,000 | 3,000 |
| ii) Spare parts | 1,500 | 1,000 |
| iii) Utilities (postage, fax, telephone, e-mail, water, electricity, etc.) | 3,500 | 3,000 |
| Subtotal | 10,000 | 7,000 |
| 60. Miscellaneous items | | |
| Organising internal workshops and seminars | 5,000 | |
| Subtotal | 5,000 | Nil |
| 70. ITTO monitoring, evaluation and administration | | |
| i) Monitoring and evaluation 3 years @ 7000 | 21,000 | |
| ii) Administrative and Programme Support Cost | 20,416 | |
| Subtotal | 41,416 | Nil |
| Total | 391,616 | 402,200 |
| Grand Total | 793,816 | |

ITTO Budget

| | |
|---------------------|----------------|
| To Executing Agency | 350,200 |
| ITTO M&E | 21,000 |
| | ----- |
| | 371,200 |
| ITTO 5.5% | 20,416 |
| | ----- |
| TOTAL | 391,616 |
| Malaysia | 402,200 |
| | ----- |
| GRAND TOTAL | 793,816 |

Table 3.2. Project Budget by Annual Requirement (in US \$)

| Components | Year I | Year II | Year III | Total |
|--|--------|---------|----------|---------|
| 10. Project Personnel | | | | |
| ♣ Project Officers (salaries for 6 persons × US\$1,250*/ month) | 90,000 | 90,000 | 90,000 | 270,000 |
| ♣ Clerical Assistants (salaries for 3 persons × US\$ 250*/ month) | 9,000 | 9,000 | 9,000 | 27,000 |
| ♣ Project Officers (honoraria for 6 persons × US\$250 / month) | 18,000 | 18,000 | 18,000 | 54,000 |
| ♣ Contract officers (salaries × 2 persons) | 24,000 | 26,400 | 28,800 | 79,200 |
| ♣ Contract clerical staff (salary × 1 person) | 3,600 | 4,200 | 4,800 | 12,600 |
| * Approximation only. Differences in gross salaries (basic salary + allowances + annual increment, EPF contributions, etc.) apply. | | | | |
| 20. Sub-contracts | | | | |
| ♣ GIS training | 6,000 | — | — | 6,000 |
| ♣ Scientific and Technical editorial services (text editing, proof reading, typesetting, layout, etc.) | — | — | 4,000 | 4,000 |
| ♣ Digital map production | 7,000 | 7,000 | — | 14,000 |
| ♣ Aerial photographs | 17,200 | — | — | 17,200 |
| ♣ Computerised database design | 7,000 | — | — | 7,000 |
| ♣ Printing & publication of reports (US\$20 / report × 200 copies × 3 volumes) | — | — | 12,000 | 12,000 |
| ♣ Special surveys (e.g. wildlife surveys) | — | 10,000 | — | 10,000 |
| 30. Duty Travel | | | | |
| ♣ Field / out-station allowances | | | | |
| • Daily subsistence | 30,000 | 45,000 | 18,600 | 93,600 |
| ♣ Transport | | | | |
| • Rentals | | | | |
| -Chartered vehicles** | 15,000 | 35,000 | 10,000 | 60,000 |
| -Chartered helicopter | 8,000 | 15,200 | — | 23,200 |
| -Chartered boats | 1,100 | 2,500 | — | 3,600 |
| • Fuel & maintenance | 2,000 | 7,000 | 1,000 | 10,000 |
| • Airfares | 1,000 | 1,000 | 1,000 | 3,000 |

Table 3.2. (continued)

| Components | Year I | Year II | Year III | Total |
|---|----------------|----------------|----------------|---------------------------------|
| <i>40. Capital items</i> | | | | |
| i) Project office equipment (computers, printers, scanners, digital cameras, filing cabinets, etc.) | 14,000 | — | — | 14,000 |
| ii) Project field equipment (camping gear, cameras, field binoculars, GPS units, compasses, field stereoscopes, etc.) | 10,000 | — | — | 10,000 |
| <i>50. Consumables</i> | | | | |
| i) Office supplies | 3,000 | 2,000 | 3,000 | 8,000 |
| ii) Spare parts | 500 | 1,000 | 1,000 | 2,500 |
| iii) Utilities | 500 | 3,000 | 3,000 | 6,500 |
| <i>60. Miscellaneous items</i> | | | | |
| Organising internal seminars and workshops | 2,000 | 2,000 | 1,000 | 5,000 |
| <i>70. ITTO monitoring, evaluation and administration</i> | | | | |
| i) Monitoring and evaluation | 7,000 | 7,000 | 7,000 | 21,000 |
| ii) Administrative and Programme Support Cost | 6,808 | 6,808 | 6,800 | 20,416 |
| Total | 282,708 | 292,108 | 219,000 | Grand total: 793,816 |

4. Financial Administration

The administration of the ITTO funds will be carried out by the Accountant of the Sabah Forestry Department in accordance with prevailing regulations set out by the Malaysian Government and integrated with the ITTO Financial Administration Procedures. For each Financial Year, a financial report will be prepared and incorporated into the Annual Report to be submitted to the ITTO.

Sandakan, 22nd March 1999 (Revision),
Prepared by the Forestry Department of Sabah,

.....
Daniel Khiong
Acting Director
Sabah Forestry Department
Locked Bag 68
90009 Sandakan
Sabah
Malaysia.

APPENDIX A

Curriculum vitae for Project Personnel

Name: DANIEL K. S. KHIONG

Date & place of birth: 15th April 1948; Sabah, Malaysia.

Nationality: Malaysian

Institution of graduation: BSc, Australian National University, Australia.

Field: Forestry.

Position: Acting Director, Sabah Forestry Department.

Relevant work undertaken in the past 3 years:

1. Overall responsible for advising the State Government on forestry policy and the implementation of sustainable forestry practices in Sabah.
 2. Responsible for forestry related activities in the Sandakan region, including implementation of forestry management plans.
-

Name: ROBERT C. ONG

Date & place of birth: 29th January 1964; Sabah, Malaysia.

Nationality: Malaysian

Institution of graduation: BSc, Northern Arizona University, USA.

Field: Forestry.

Institution of graduation: MSc, Virginia Polytechnic Institute and State University, USA.

Field: Forest Biology.

Position: Head, Natural Forest Branch, FRC.

Head, Silviculture Section, FRC.

Relevant work undertaken in the past 3 years:

1. Forest management planning. Member of management planning team responsible for the technical development and formulation of forest management units. These included:
 - Development of procedures for silvicultural planning and implementation.
 - Training of forestry officers for silvicultural planning and field implementation.
 - Yield regulation.
2. Aerial photo interpretation and mapping. Familiar with the use of aerial photographs for vegetation assessments and silvicultural planning.
3. Vegetation assessment. Completed 3 assignments in the last 1 year, which involves the vegetation assessments of kerangas forests, peat swamp forests and mixed dipterocarp forests.

Curriculum vitae for Project Personnel (cont.)

Name: DR. SINING UNCHI

Date & place of birth: 12th May 1958; Sabah

Nationality: Malaysian

Institution of graduation: BSc, Universiti Pertanian Malaysia, Malaysia.

Field: Forestry.

Institution of graduation: MSc., Universiti Pertanian Malaysia, Malaysia.

Field: Wood Industry Technology.

Institution of graduation: PhD, Universiti Pertanian Malaysia, Malaysia.

Field: Wood Science.

Position: Head, Forest Research Centre, Sabah Forestry Department.

Relevant work undertaken in the past 3 years:

Co-ordinating research directions in the FRC.

Name: DIMEH KOYOPO

Date & place of birth: 27th October 1951; Sabah, Malaysia.

Nationality: Malaysian

Institution of graduation: Dip., the Netherlands.

Field: Resource Survey Technology

Position: Head, Forest Mapping Section.

Relevant work undertaken in the past 3 years:

1. Involved in aerial photo interpretation and mapping for more than 10 years.
2. Involved in remote sensing and GIS applications in environmental & natural resource management and monitoring.

Curriculum vitae for Project Personnel (cont.)**Name:** JOHN BAPTIST SUGAU**Date & place of birth:** 24th June 1969; Sabah, Malaysia**Nationality:** Malaysian**Institution of graduation:** BSc, Universiti Kebangsaan Malaysia, Malaysia.**Field:** Botany.**On-going training:** MSc, Universiti Malaysia Sabah, Malaysia.**Field:** Plant Taxonomy.**Position:** Research Officer, Botany Section, Forest Research Centre.**Relevant work undertaken in the past 3 years:**

1. Plant taxonomy revisions. Contributed taxonomic revisions of tree families and genera for the *Tree Flora of Sabah & Sarawak Project*.
 2. Overall responsible for the smooth operation of the SANDAKAN herbarium.
-

Name: JOSEPH W. TANGAH**Date & place of birth:** 27th September 1968; Sabah, Malaysia.**Nationality:** Malaysian**Institution of graduation:** BSc., Universiti Kebangsaan Malaysia, Malaysia.**Field:** Zoology.**On-going training:** MSc., Durham University, UK.**Field:** Conservation.**Position:** Head, Conservation Section, FRC.**Relevant work undertaken in the past 3 years:**

1. The maintenance and research development of Sepilok Arboretum, FRC.
2. Development of the Arboretum's public awareness facilities - the Rainforest Interpretation Centre, Orchid Garden & Bamboo Hut.
3. Preliminary survey of Protection Forest Estates.
4. Preliminary survey of ultramafic flora in the Tawai Plateau, Sabah.

Curriculum vitae for Project Personnel (cont)

Name: REUBEN NILUS

Date & place of birth: 18th September 1970.

Nationality: Malaysian

Institution of graduation: BSc, Universiti Malaya, Malaysia.

Field: Botany.

Position: Head, Ecology Section, FRC.

Relevant work undertaken in the past 3 years:

1. Forest ecology studies. Structure & composition of mixed dipterocarp & *perupok* swamp forests.
2. Autecological studies of selected indigenous tree species for use in rehabilitation of degraded forests.
3. Vegetation assessment. Completed 3 assignments in the last 1 year, which involves the vegetation assessments of kerangas forests, peat swamp forests and mixed dipterocarp forests.
4. Vegetation surveys. Describing general vegetation cover and land-use in order to high-light potential conservation areas.

Name: ROSILA ANTHONY

Date & place of birth: 20th September 1968, Sabah, Malaysia.

Nationality: Malaysian

Institution of graduation: BSc., Universiti Kebangsaan Malaysia, Malaysia.

Field: Zoology.

Position: Head, Forest Information & Management Unit.

Relevant work undertaken in the past 3 years:

Involved in setting up and operating the Geographical Information System in the Forestry Department.

APPENDIX B

Summary of Amendments, including Justifications

The Proposal has been amended based on the recommendations of the Seventeenth Panel. All amendments are highlighted in light grey. They are summarised as follows:

A) *Details of methodology of data gathering and analyses.*

It was recommended by the Seventeenth Panel that this Proposal provide further explanations on the details of methodology of data gathering and analyses, as well as how these would be utilised as a tool in forest management.

Additional details of the methodology of data gathering and analyses are given in *Chapter 5, Activities and Inputs*, page 17–19.

How will the Project results be relevant to forest management?

State-wide Conservation Strategy

The final reports will present a profile of each Conservation Area (CA) in a readily accessible form. This statewide assessment of CAs will ultimately provide us with information to answer questions such as:

1. What vegetation types are represented in each CA?
2. How much area do these vegetation types cover?
3. Are all vegetation types sufficiently represented by conservation or protected areas?

The answers to these questions will, in turn, translate to recommendations for a more effective conservation strategy for the state of Sabah.

Management Plans

The information gathered for each CA will also serve as a basis for the formulation of management plans for the area.

Seed Production Area

The Sabah State Government is presently intensifying forest rehabilitation efforts. However, the procurement of sufficient amounts of planting material presents a great problem. This assessment of the CAs will help identifying suitable areas which may serve as seed production areas.

B) *The Malaysian Government's contribution.*

In the original Proposal, the Malaysian Government's contribution was not included in the Project Budget. It was recommended that this Proposal specify the Government's contribution to the Project and the particular items to be covered by the Government.

This amended Proposal has incorporated the Government's contribution into the overall Project Budget. Please see **Part 4, Project Budget (pg 30-35)**.

The total Project budget is US \$ 793,820. The Malaysian Government's contribution will be US \$ 402,200 while the amount requested from the ITTO is US \$ 391,620. Consequently, all budget-related text or tables in the Proposal have been amended to incorporate the changes.

C) *Review of Budget*

It was also recommended that the Project Budget be reviewed with the intent of reducing the costs of some items such as *Duty travel* and *Consumables*.

The Budget was revised and the costs of certain item were reduced where possible. Thus, the total amount requested from the ITTO was reduced to US\$ 391,620.

The Government's contribution for the item *Duty Travel* (see in Table 3.1, page 32-33) amounts to US \$ 115,600. The budget requested from the ITTO has been reduced from US \$ 113,200 to US\$ 99,200. It could not be reduced further for the following reasons.

The Project relies heavily on fieldwork and ground surveys, and the importance of this is shown in the Budget where a total of US\$ 193,400 is needed. The austerity drive imposed by the Malaysian Government due to the current economic downturn in the country has resulted in drastic budget cuts for all Government departments and this is expected for the next few years.

With limited funds, the Sabah Forestry Department—particularly the Forest Research Centre—is committed to maintain current research priorities that are fieldwork-intensive. Therefore, for the Department to fund this project, other on-going projects would have to be delayed or suspended.

However, it is the Department's view that these high priority projects should not be compromised and delayed due to these difficult times if the Department's overall goal towards achieving Sustainable Forest Management in the state is to be realised. Therefore, it is hoped that external funds will be available to bear the cost of the fieldwork in this Project so that other on-going projects may continue without any financial obtrusions.

Concerning the item *Consumables* (see page 33), the request to ITTO is reduced from US \$ 15,000 to US \$ 10,000. The Government will further contribute US \$ 7,000 toward this item.

Concerning the costs of *two contract officers* (under item *Project Personnel*) to be borne by the ITTO, no changes have been made in the budget because of the following reason:

In 1998, the Malaysian Government has frozen all appointments of new personnel in view of the current economic downturn in the

country. Six Sabah Forestry Department research officers will participate in this proposed Project. However, due to other work commitments, they may not be able to devote full-time attention to the Project. Therefore, the Project will require two contract officers to work full-time on the project and to serve as the secretariat to the Project.

D) *Terms of Reference for the Consultants*

The Panel noted that the TORs for the *GIS training* and *Editor* consultants, under item *Project Personnel*, should be provided in the Project Proposal.

Upon reconsideration, it is felt that these services are more appropriately placed under item *Sub-contracts*. These services can easily be contracted to the relevant companies available in the country. (The term Editorial Expertise was also changed to Scientific and Technical Editorial Services.) The budget of these remained unchanged (US \$ 10,000).

E) *Change of Director*

A new Director of the Sabah Forestry Department, Mr. Daniel K.S. Khiong, was appointed in mid-February 1999. This amended version of the Proposal has included his name.