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GLOSSARY

cm; cms	centimetres(s)
km; kms	kilometre(s)
ft	feet
ha	hectares
sp., spp.	species
ssp.	sub-species
Bukit; Bt.	Hill
G.; Gunung;	Mt., Mountain
Sungai, Sg.	River
Kg.; Kampung	Village
FMP	Forest Management Plan
FMU	Forest Management Unit
GFS	Gravity Feed (Water Supply) System
GPS	Global Positioning System
PFE	Permanent Forest Estate
SCS	Sabah Conservation Strategy
SFM	Sustainable Forest Management
SFR	Sipitang Forest Reserve
UPFR	Ulu Padas Forest Reserve
VJR	Virgin Jungle Reserve
DOA	Department of Agriculture
DID	Department of Irrigation and Drainage
IPPA	Identification of Potential Protected Areas
JKKK	Village Security and Development Committee
LSD	Department of Lands and Surveys
LUC	Land Utilisation Committee
MTED	Ministry of Tourism and Environmental Development
MOCET	Ministry of Culture, Environment and Tourism ¹
NGO	Non-governmental organisation
NRO	National Resources Office, Chief Minister's Department
PACOS	Partners of Community Organisations
SBCP	Sabah Biodiversity Conservation Project
SDAC	Sipitang District Action Committee
SFD	Sabah Forestry Department
SFI	Sabah Forest Industries Sdn. Bhd.
TRPD	Department of Town and Regional Planning
WWF	World Wide Fund for Nature, Malaysia
 <i>New abbreviations</i>	
MPDP	Matang-Pa Sia Development Plan
MPDPC	Matang-Pa Sia Development Planning Committee

¹ This is the new name of the Ministry of Tourism and Environmental Development which was adopted in 1998.

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Project activities carried out under this component has benefited from the cooperation and assistance of many government organisations; in particular Sabah Forestry Department, the Department of Irrigation and Drainage, the Sipitang District Office, the Department of Lands and Surveys and Sabah Forest Industries Sdn. Bhd.

In addition, participants at the Ulu Padas Development Planning Workshop in Sipitang on 20 November 1997 representing 20 different stakeholder groups and organisations, are thanked for taking time to provide input to the project and contribute to discussions.

Finally, the hospitality, support and active participation of the residents of Long Pasia and Long Miau in field studies, workshops and dialogues has been invaluable to the project, and is gratefully acknowledged.

1 INTRODUCTION

The Identification of Potential Protected Areas (IPPA) component of the Sabah Biodiversity Conservation Project (SBCP) was initiated as follow up to the Sabah Conservation Strategy (SCS 1992) to investigate several geographical zones and habitats considered to be inadequately represented or not present within Sabah's Protected Area system. Malaysia as a signatory to the international *Convention on Biological Diversity* has been a vocal supporter of biodiversity conservation and in 1998 launched its own *National Policy on Biological Diversity* (see *Appendix 1*). The *Policy* contains guiding principles for the conservation of natural ecosystems and the sustainable utilisation of biological diversity for the benefit of all sectors of society, both present and future.

This document and its Background Papers represent the final report on Ulu Padas, an area investigated under the IPPA. It contains an account of the IPPA activities carried out in Ulu Padas, the main findings of specialist studies and recommendations for biodiversity conservation and wise land use.

1.1 BACKGROUND AND BIODIVERSITY SIGNIFICANCE

Ulu Padas, in this report refers to an area of approximately 155,000 hectares in the south-western tip of Sabah, south of Maligan and Gunung Lumaku. The area is bordered by Sarawak and Kalimantan (**Maps 1 and 2**) and is one of the last regions containing extensive old growth forest in the State. Much of Ulu Padas occurs at elevations over 3,000 ft, with specific peaks exceeding 6,000 ft, such as Muruk Miau (6,835 ft) and Bukit Rimau (6,260 ft) (locally Bukit Senipong) (**Map 3**).

This mountainous area represents the headwaters of the Padas river, the largest river system on the western side of Sabah, the lower reaches of which are tapped to provide water supply to the Federal Territory of Labuan, and the Districts of Beaufort and Tenom, and hydroelectric power to the west coast of Sabah (**Map 4**).

Prior to the IPPA survey, there was very little botanical knowledge of Ulu Padas. The little existing information, mainly on orchids, suggested the existence of plant taxa unknown from other montane areas of Sabah.

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[insert map 1 - location]

[insert map 2 - location of ippa study area]

1.2 INTERNATIONAL SIGNIFICANCE

Ulu Padas forms part of the mountainous heartland of Borneo along with adjoining areas in Kalimantan and Sarawak. Both neighbouring states have taken steps to conserve these rich forests. In Sarawak, the proposal to establish the Pulong Tau National Park has been approved in principle, while in Kalimantan, the Kayan Mentarang National Park of over 1 million hectares has been established, making it one of the largest protected tropical forest areas in the world.

Ulu Padas completes this eco-region of species-rich, largely undisturbed hill dipterocarp and montane forests, and is a significant cultural heritage area containing archaeological remains which record the early history of the people of Central Borneo. The Sabah Museum has carried out preliminary surveys to map the distribution of rock carvings, tombs, megaliths and crocodile mounds in the area.

1.3 LAND STATUS

1.3.1 Forest Reserves

Most of the Ulu Padas study area is Commercial Forest Reserve and is available for commercial timber extraction. Approximately 29,500 ha of the Ulu Sungai Padas Forest Reserve (UPFR) is located at the south-western tip of Sabah bordered by Kalimantan and Sarawak. The southern section of the Sipitang Forest Reserve (SFR) occurs within the Ulu Padas area, and extends towards Sipitang town.

Under licensing agreements signed with Sabah Forest Industries Sdn Bhd. (SFI), it is understood that most of SFR is potentially available for conversion to industrial tree plantations to supply the SFI paper mill, while sections of SFR and all of UPFR are understood to be proposed for timber harvesting. Specific details of the forest management plan have not been made available to the IPPA study.

Three Virgin Jungle Reserves, Maligan VJR (9,240 ha), Basio VJR (213 ha) and Agathis VJR (200 ha) are located in the northern part of Ulu Padas.

1.3.2 State land and village area

A second category of land in Ulu Padas is the State land and village area, of approximately 12,300 ha. This refers to the areas surrounding the villages of Long Pasia and Long Miao, and those flanking the upper Matang river that are enclosed by the UPFR and SFR boundaries. Most of this area is under application for land title.

The delineation of the State land/village area and Forest Reserve areas was carried out in the 1980s prior to the establishment of SFR with heavy reliance on aerial photographs and without detailed local level consultation.

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[insert map 3 - TOPOGRAPHY]

[insert map 4 - DRAINAGE]

1.4 VALUING THE ULU PADAS AREA

In the pursuit of balanced development, it is important for States to carefully manage their natural resources. In many cases, this involves accurately appraising additional values linked to these resources. In mountainous regions such as Ulu Padas, forested areas must be viewed as more than a source of marketable commodities or raw materials, and acknowledged for their role in assuring the supply of water, preventing soil erosion, controlling floods and supporting the generation of hydro-electric power. Many of these factors are seldom quantified but make a substantial economic contribution. Any disruption in the provision of these services will have an impact on the State economy.

Increasing domestic and international interest in visiting pristine forested areas has led to nature and adventure tourism becoming one of the fastest growing sectors in the region and an important growth area for the State (Sabah Tourism Master Plan 1996). The loss of large areas of undisturbed forest to fires in 1983 and 1998 in other parts of the State has further raised the significance of the few remaining examples of old growth forest. The tourism potential of Ulu Padas is a value which may contribute to development and the diversification of the State economy.

Many diverse values can be accorded to the Ulu Padas forests. Appropriate management of forest resources involves evaluating and prioritising these values and use options according to State interests. Inevitably, certain values are likely to be so vital to the welfare of the State that they must precede others.

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2 OBJECTIVES

The overall objective of the IPPA component is to assist the Government of Sabah in implementing activities relating to the conservation of biodiversity in the State.

Ultimately, the component aims to contribute to the changing economy of Sabah from being one based on exploitation and minimal local downstream processing of natural resources, to alternatives which incorporate the sustainable use of goods and services provided by natural forests.

The immediate objectives of the project component are to:

- I. Provide background for management and policy decisions to improve the network of protected areas in Sabah.
- II. Provide recommendations to the State government on expanding the system of terrestrial biodiversity conservation areas in Sabah.
- III. Provide a foundation for future biodiversity conservation measures in Sabah.
- IV. Contribute towards the socio-economic welfare of Sabahan society by conserving natural resources and providing incomes and ecological services to local people and the State as a whole.

The role of the IPPA studies in Ulu Padas is to provide information to facilitate careful consideration of land uses for biodiversity conservation as well as the long-term development goals of Ulu Padas residents, the south-western districts of Sabah and the State as a whole.

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3 STUDY APPROACH & METHODS

IPPA studies in Ulu Padas have involved primary research and information gathering to provide advice on biodiversity conservation in relation to land use management for the area. The views of relevant government and non-governmental, private sector and community stakeholders have also been sought in order to assess support for conservation in Ulu Padas.

Stakeholder consultation relating to the Ulu Padas commenced in February 1997 beginning with briefings on the project to the Sipitang District Office and Sabah Forest Industries Sdn. Bhd. Meetings have been held with the Department of Lands and Survey (Assistant Director, KK; District Surveyor, Beaufort), Department of Irrigation and Drainage (Senior engineer, Hydrology Division, Inanam; District engineer, Beaufort) and the Sabah Forestry Department (District Forestry Officer, Sipitang; Regional Forestry Officer, KK) and Borneo Endeavour as a tourism stakeholder with interest in Ulu Padas. A briefing was also given to the Chief Executive Officer of Sabah Forest Industries at Menara Lion in Kuala Lumpur in August 1997.

Specialist studies were carried out as part of investigations of Ulu Padas, several with the participation and assistance of the Ulu Padas community. A field survey of forest types and plant biodiversity was carried out in June 1997 with assistance from Sabah Parks. Prior to the botanical survey, aerial photographs were analysed and a helicopter survey was carried out by the Chief Technical Advisor (CTA), Component Team Leader and project botanists to identify suitable sites for groundwork to be carried out. Sites were selected so as to cover the greatest variety of vegetation types and soils within the constraints of time and limited access to most of the area. During this period, a survey was also made of an old foot-trail into Sarawak from Long Pasia by the CTA.

Herbarium identifications were carried out mainly at the Sepilok Herbarium with assistance from the Forest Research Centre (FRC). Where necessary, selected specimens which could not be identified locally (mainly orchids, shrubs and herbs), were sent to the Kew Herbarium, United Kingdom. Additional ethnobotanical information was gathered with the assistance of officers from the 'People and Plants' project (*Background Paper 1*).

Hydrology and soil assessments were made to provide information on the environmental processes within the Ulu Padas region (*Background Papers 2 and 3*). The studies involved site visits and analyses of available literature on geology, climate and hydrology. Traverse lines were cut to verify soils, and soil samples were analysed.

A socio-economic assessment was commissioned from an anthropologist who had been conducting research in Long Pasia. An economic assessment was commissioned to represent in monetary terms, the value of Ulu Padas to the State using economic modelling and Total Economic Valuation (TEV) methods. (see *Background Papers 4 and 5*).

In order to better understand community use of resources in Ulu Padas and to record local plans for development, a Community Planning Workshop was held in Long Pasia on 8-9 November 1997 (*Background Paper 6*).

Other community activities under IPPA in 1997 included a study tour for six representatives from Ulu Padas to other natural areas in Sabah to provide exposure on issues relating to environmental conservation, alternative economic activities and the role of land use planning in rural development.

The final activity for 1997 was the Ulu Padas Development Planning Workshop held in Sipitang on 20 November 1997. The workshop, organised jointly with the Sipitang District Office, involved more than 21 different stakeholder groups including representatives from Long Pasia and Long Miau. The discussions proved fruitful at eliciting some of the main concerns and issues arising from land use change in Ulu Padas. A report with recommendations has been compiled in *Background Paper 6*. A listing of some of the main activities carried out under the IPPA in 1997/1998 for the Ulu Padas area is presented in *Appendix 2*.

Follow up has been carried out with several main stakeholders to continue discussions initiated. In January 1998, a presentation of IPPA findings was given to the Acting Director and officers of the Sabah Forestry Department at its Sandakan headquarters. Further meetings have been held with Sabah Forest Industries and the District Forestry Officer in 1998. A joint survey of the foot-trail from Long Pasia to the Sarawak border was undertaken in April 1998.

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4 FINDINGS

4.1 AN OUTSTANDING SITE OF BOTANICAL DIVERSITY

Botanically, Ulu Padas has been little explored mainly due to its remoteness and inaccessibility. Plant collections made under the IPPA (**Map 5** and *Background Paper 1*) are among the most extensive to be carried out in the area to date, and have produced records of rare rhododendrons, orchids, gingers and pitcher-plants among many others. Many of these are species found nowhere else in Sabah, while several are endemics that have only been collected from Ulu Padas. These findings distinguish Ulu Padas as an important centre of plant biodiversity in Sabah.

4.1.1 *Varied forest types*

The Ulu Padas region contains a variety of different forest types, including hill dipterocarp forest, montane oak/chestnut forest with *Agathis*, stunted montane mossy forest and an unusual high-level swamp forest. No other swamp or heath forest is known to occur in Sabah at similar high altitudes.

Oak-chestnut forest is dominant and is estimated to cover about 70 percent of the area. Several sub-types of oak-chestnut forest occur; these vary in terms of species content but all generate an abundance of acorns and chestnuts which attract barking deer, wild boar and other wildlife.

4.1.2 *Species richness*

All forest types appear to have high levels of plant diversity and are rich in species that are either endemic to Ulu Padas or form part of the Sarawak element within the flora. These Sarawak elements are plants that are more commonly recorded from northern Sarawak, and which, in Sabah occur only in Ulu Padas and occasionally in Maliau Basin ².

Out of the 35 rhododendron species (Ericaceae) recorded from Sabah, 17 are found in Ulu Padas. This rivals the 18 species recorded from Mt. Kinabalu. In Sabah, four are recorded only from Ulu Padas, though they also occur in Sarawak; another five are found only within the Ulu Padas/G. Lumaku/Maliau Basin area in southern Sabah (two of these occur in Sarawak). Among these is one new undescribed species.

Another family, the Casuarinaceae has four recorded species in Borneo. What is probably a new fifth species, *Gymnostoma (Casuarina)* sp., previously recorded only from Maliau Basin and possibly the Dulit Range in Sarawak, was collected here for only the second time in Sabah and remains undescribed.

Gingers also appear to have a high endemism with at least three of those collected during the survey thought to be undescribed. In addition, a new (undescribed) species of *Nepenthes* (pitcher-plant) is so far, recorded only from the Ulu Padas region, G.Lumaku in Sabah, and G.Murud in Sarawak.

² Although it is not a specific activity of the project, records of faunal diversity were made during fieldwork; these and records from previous surveys are listed in *Appendix 7*.
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[INSERT MAP 5 - BOTANICAL RESEARCH AREAS]



Endemism among the orchids is particularly high. In the Bulbophyllum genus alone, 115 of the 220 species recorded for Borneo occur in Ulu Padas, more than half the Borneo species. Eight species have been found nowhere else but Ulu Padas. If this can be extended to other plant genera, this makes the Ulu Padas one of the richest centres of biodiversity in Borneo.

Another genus of orchids, *Dendrochilum* is yet to be fully investigated. Nevertheless, at the time of writing, at least six species are recorded as endemic to Ulu Padas. Many more orchids, (several collected on the present survey) are thought to be new and endemic but will have to be studied further before they can be described.

4.1.3 Conclusion

The botanical assessment of Ulu Padas clearly establishes the area as an immensely rich site of plant biodiversity. The survey merely provides a glimpse of the biodiversity present within the area. Further exploration is expected to uncover many more species not found elsewhere in Sabah, including several that are expected to be undescribed.

With its unusual forest types, high floral diversity - rich in Sarawak elements, and unusually high species endemism, Ulu Padas forms a distinct floristic region within Sabah's forest estate, which has been unrecognised until now. Based on evidence obtained to date, as a hotspot for biodiversity in Borneo, Ulu Padas can be considered second only to Mt. Kinabalu.

Because many of the forest types within Ulu Padas are not found elsewhere in the State, and because of the high level of species endemism in the area, the scope of potential species loss likely to arise from failing to conserve Ulu Padas's forests is substantial. The existing Maligan, Basio and Agathis VJRs are inadequate to conserve the botanical diversity present within the area.

There is an urgent need to extend protection to additional areas of botanical significance in Ulu Padas to ensure that Sabah safeguards this region which contains outstanding examples of its rich natural heritage.

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4.2 HYDROLOGICAL IMPORTANCE OF ULU PADAS

A predominantly mountainous region with high rainfall, Ulu Padas is believed to contribute a disproportionately high percentage of water to the Padas river. This is demonstrated by the *dendritic density* (length of stream channels per unit area) of the Ulu Padas drainage system which is estimated as 2-2.8 km/km², in contrast with 1.6km/km² for Maliau Basin, an area of similar elevation (*Background Paper 2*). This reflects very high rainfall and the availability of vast amounts of water as an erosion agent. The upper Padas catchment is believed to strongly influence the hydrological characteristics of the Padas River, which represents the second largest drainage system in Sabah. The total Padas River catchment is the largest of the ten priority catchments requiring Catchment Management Plans, as ranked within the Sabah Water Resources Master Plan (1994) (see *Appendix 6*).

4.2.1 Rain capture, storage and supply

The forests of Ulu Padas absorb heavy rainfall and channel it into the ground. Water stored in the ground may then be released gradually into streamflow, ensuring a steady supply of water, particularly during dry seasons. The **mossy forest**, sometimes called **cloud forest**, which occurs at elevations above about 4,000 ft also makes a significant contribution to the moisture-capturing potential of the Ulu Padas forests (Abdul Rahim Nik 1996; Studtmuller 1987; Buijnzeel 1990). Vegetation in these forests is able to strip moisture from low-lying clouds (a process of *occult* or *horizontal precipitation*). The full role of cloud forest in the hydrological regime is not yet fully understood; however it is expected that converting cloud forests to other uses will directly affect total water yield and seasonal water regime within the Ulu Padas area, as well as downstream.

4.2.2 Preventing soil erosion and flooding

Forest cover on the steep topography of Ulu Padas helps mitigate excessive stormwater flows, and limits the extent of soil erosion. Even with the upper catchment still largely under forest, floods have been experienced in the Ulu Padas villages, and have affected parts of Beaufort and Tenom districts. Studies in Peninsula Malaysia have shown that sediment yields from logged catchments can be up to 50 times greater than from unlogged catchments (Lai *et al* 1996). Any significant reduction in forest cover in Ulu Padas would be expected to increase the magnitude and the frequency of floods in downstream areas and contribute to erosion, siltation and the deterioration of the quality of riverwater and the aesthetics of the rivers. Siltation raises the level of the riverbed and increases the area affected by flooding (Greer *et al*, 1996).

4.2.3 Conclusion

The hydrological assessment concludes that logging in any part of Ulu Padas by methods and practices conventional to Sabah is expected to lead to a higher risk of flooding and increased flood magnitude. These impacts would not be restricted to the two Ulu Padas villages, but would affect the whole Padas river basin.

As the Padas river is the main source of water supply for Tenom, Beaufort and Labuan, agricultural activities would be adversely affected if sediment levels in the Padas River were to increase. Increases in sediment content would also increase treatment costs needed to make the water fit for human consumption.

Given the sensitive nature of land in Ulu Padas, land use changes involving land clearing and forest disturbance would adversely impact downstream areas in the south-western part of the State. For these reasons, the assessment strongly advises that all areas of Ulu Padas above the altitude of 3,500 ft (Map 6) be given full protection similar to that accorded to the headwaters of other major rivers in Sabah.

Despite limitations placed on land use in the area, several economic activities have been suggested as being potentially compatible with protection of the upper catchment. Parts of the area, such as alluvial areas with flat and very gentle topography may be suitable for temperate vegetable farming. Steeper land should not be used for vegetable cultivation, as the infertile soils would require high inputs of fertiliser, which would adversely affect water quality. Provision should however be made to retain natural forest cover in areas immediately adjacent to the rivers. The tourism potential of Ulu Padas is significant, and is closely associated with the scenic aspects of the Padas drainage system such as its waterfalls and rivers.

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INSERT MAP 6 - LAND BELOW 3,500 FT

4.3 SOIL CAPABILITY AND LIMITATIONS

The geomorphology of Ulu Padas is mainly influenced by its underlying geology. Since sandstone and conglomerates dominate the area, a major portion of the area forms steep ridges with narrow valleys. The only areas with gentle slopes consist of the river valleys of the larger rivers such as the Pa Sia which consists of recent alluvium, and some upland areas covered with heath forest.

4.3.1 Erosion risk

In investigating the land use capabilities of the soils within the State land/village area of approximately 12,300 ha, the soil assessment (*Background Paper 3*) concludes that the steep topography (predominantly 12 - 30 degrees, at 1:50,000 scale) and the high erodibility of soils pose major limiting factors to land use in Ulu Padas. Previous studies of erosion have suggested that even under forested conditions, 47 percent of the sediment in the Padas river at Tenom (1 million tonnes/year) originates from the upper catchment (Murtedza 1987). Overall, the risk of surface soil erosion in this area is classified as high or very high, in excess of 100 tonnes of soil loss per hectare/year if forest and ground cover are removed (See *Erosion Risk Map* in *Background Paper 3*).

4.3.2 Limited areas for agriculture

Only the alluvial soils along the river valleys, occurring on a total area of approximately 1220 ha (approximately 10 percent of the State land area), are expected to be able to support permanent agriculture. Some of the lower slopes of hills close to the village area could be planted with tree crops such arabica coffee and tea, if ground cover is maintained and slopes are gentle. The majority of remaining areas are of low fertility and are expected to be marginal for agriculture and are best maintained under permanent forest cover (See *Soil-crop Suitability Map* in *Background Paper 3*).

4.3.3 Conclusion

The assessment finds that the soil and slope conditions of most of Ulu Padas make the area so sensitive to disturbance that it is imperative that the area is not subjected to any land clearing, unplanned road construction or logging. Removal of forest, and disturbance to ground cover would contribute to severe soil erosion, siltation, landslips and flooding which will damage the Ulu Padas village area and areas further downstream. The assessment advises that most of Ulu Padas, particularly areas exceeding the 20 degree (38%) slope limit, should remain under undisturbed permanent forest cover for purposes of watershed protection.

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4.4 COMMUNITY PERSPECTIVE

4.4.1 Background

The Ulu Padas community mainly resides in two villages, Long Pasia and Long Miau which are located along the banks of the Padas tributaries. The community belongs to the Lun Dayeh ethnic group and the combined population of both villages is estimated at 500 - 600 people from about 76 households. The number present in the villages at any one time varies mainly according to the number of young men and women in employment elsewhere. Although there is some labour migration from the villages, retirees and young families also return to settle in the area and this helps stabilise the population.

The two villages share a primary school which is located in Long Pasia. Children of secondary level have to board in towns to continue their education. Long Pasia is served by a weekly air service from Lawas airport, although flights are often cancelled due to unfavourable weather. In April 1997, a logging road was extended to Long Pasia from Long Miau by SFI's logging contractor. This has since improved access to the area, although heavy rains and flooding sometimes make the road impassable.

4.4.2 Local agricultural system

The main activity in the Ulu Padas villages is subsistence farming which is usually a combination of both wet (irrigated) and dry (rain-fed) rice farming. Dry rice fields also support other crops such as maize and vegetables. Coffee and tobacco are also planted as cash crops. The upland agriculture practiced by the Lun Dayeh is a system of cycling fallow fields. By allowing fields to revert to secondary forest for a prescribed length of time (an optimum of 10-15 years, or more), the soil is able to rest, and the fertility of the land is renewed. Very old secondary forest and areas with large trees are seldom cleared because they are usually far away. Clearing these areas is considered to waste the timber resource and is too labour intensive.

This forest-land management system incorporates five types of forest land utility: (1) dry rice field; (2) phase one regeneration (1-2 years regrowth); (3) phase two regeneration (5-10 years regrowth); (4) phase three regeneration (secondary forest over 10 years); and (5) old matured undisturbed forest. These distinctly recognisable areas exist in a process of recycling secondary forest into agricultural land and vice-versa (*Background Papers 3 and 4*).

Agriculture in Ulu Padas has now achieved a stage where the build up of regenerating secondary forest is large enough to sustain rice production without the need to clear primary forest.

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4.4.3 Reliance on forest resources

Beyond this zone of regenerating forest lies uncleared primary forest which is part of the total system of resource management: forests are the 'source' of wild meat, edible plants, medicines, firewood and timber for constructing boats and houses. Wild plants are gathered from the forest for food, while certain plants are reputed to possess curative properties. Some of these are collected and sold in towns. Large trees are selectively harvested for house and boat building, and other wood is collected for firewood and general construction.

Wild meats, in the form of wild boar, deer and others are an important source of protein to the community in Long Pasia. A study by Bennett, E., Nyaoi and Jephte (1995) reported that wild meat was the main source of protein in 39.1 percent of local evening meals in this village. Hunting is supported by the existence of primary forest close to the village and sufficient densities of wild boar and deer. Oak forests produce an abundance of acorns and chestnuts that seasonally attract large numbers of bearded pig (*Sus barbatus*). Large montane streams are also a source of 'pelian' and other freshwater fish which make up more than half of evening meals in Ulu Padas. These fish are intolerant of pollution and sedimentation and are abundant only in rivers in undisturbed montane areas (*Background Paper 6*).

The ability of Ulu Padas residents to obtain many basic needs without cash expenditure is dependent on the continued existence of forest resources available to the community as a whole. At present no reserves have been set aside for community access to forest resources, particularly timber trees for house building.

4.4.4 Water supply

The assurance of a continued supply of clean water for agricultural and domestic use is of paramount concern to Ulu Padas residents, particularly as future water supply stands to be affected by land use decisions made within the southern section of Sipitang Forest Reserve which includes the catchment of the Pa Sia river (main supply for Long Pasia)³ and Sg. Miau and Padas (main supply for Long Miau).

Both villages do not have easily accessible alternative sources of water aside from those mentioned above. Damage to catchment areas will reduce water quality for their daily needs. Permanent sources of village water supply need to be urgently identified, and their catchment areas protected for the long-term welfare of the Ulu Padas community.

4.4.5 Local support for conservation

In addition to understanding the resource needs of Ulu Padas residents, one of the objectives of the socio-economic assessment was to elicit local community views towards conservation in Ulu Padas.

³ Long Pasia has a Gravity Feed System which obtains water from Sg. Lelayo, a tributary of the Pa Sia. However, this river has long been considered inadequate for the future needs of the community. Between February and April 1998, the stream completely dried. During dry seasons like this, villagers of Long Pasia obtain their daily water needs from the main Pa Sia River.

The socio-economic assessment concluded that residents of Ulu Padas favour conservation as they believe that it will help them maintain aspects of their lifestyle that they value highly. This includes securing the potential of the forest and rivers to supply many basic needs and resources (Background Paper 4).

However, local support for biodiversity conservation exists with the condition that:-

- i) Ulu Padas residents are not unreasonably restricted from accessing important forest resources.
- ii) Conservation initiatives are complemented with sustainable development activities which can help improve infrastructure and economic opportunities within the area.

The joint objective of conservation and sustainable development is therefore viewed by the community as a strategy to maintain valued aspects of the community's lifestyle, while improving others.

4.4.6 Development Planning

Historically, the main factors influencing development in the Ulu Padas villages have been its remoteness from urban areas, lack of a reliable transport system and the commercial exploitation of forests in the District. In the past, logging activities were seen as the only opportunity to gain a road link to the village. Selling rights to timber on titled land was also viewed as one of few available means to obtain money in Ulu Padas.

However with the recent completion of a road, the majority of Ulu Padas residents are keen to explore new ways of generating cash incomes. Local residents are confident that positive changes in access to the villages and improvements to the local economy will encourage family members in urban areas to return to the area.

Generally, logging is perceived by many, as an industry which offers mainly short-term benefits and is unable to provide opportunities for sustained economic development. Tourism is understood by local people to have the potential to generate long-term incomes. It may also create a market for local produce, and contribute to the improvement of infrastructure and services. In addition, the development of tourism business is seen to provide an incentive to retain forest that will continue to be available for local resource needs.

At present, Bukit Rimau is popular with tourist groups, but many other potential attractions have been identified by the community (*Background Paper 6*). The Village Development Cooperative of Long Miau recently completed construction of a guesthouse along the upper Padas river (**Map 9**). The Cooperative members expect to build at least three others, one at the location of an upland lake on Bt. Rimau, and two near waterfalls along Sg. Miau. In Long Pasia, a tourist house already exists in the village. There are plans to build a larger guest house along the upper Padas river. Both villages are seeking funding support and assistance from various government and development agencies for developing tourism in Ulu Padas. There is concern that disturbances to the Ulu Padas forest arising from logging activities will irreversibly undermine the development initiatives of the two villages.

4.4.7 Conclusion

Uncertainty regarding future changes and the absence of an integrated planning process raises doubts about the long term future of the community specifically, and of the land, natural environment and local economy in general. For these reasons, the community has proposed the development of a land and forest management plan which would protect sensitive areas important to the State, while sustainably managing forest resources and tapping their development potential (see TABLE 1 for components of the proposed development plan, and *Appendix 4*). Good road communication, secure water supply and the establishment of community forest reserves for local extraction of housing timber and hunting are vital factors to be considered in planning.

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TABLE 1 COMPONENTS OF THE LAND USE AND DEVELOPMENT PLAN PROPOSED BY THE ULU PADAS COMMUNITY.

The following needs and recommendations have been identified by Ulu Padas residents to be taken into account in devising a suitable land and forest management plan: -

1. Protection of forest in sensitive areas.
2. Special reserves for water catchment protection.
3. Protected source areas of local water supply.
4. Protected/managed areas for tourism and recreation activities.
5. Protected/restricted areas for biodiversity conservation and research.
6. The establishment of community reserves accessible to the two villages for continued access to natural resources.
7. Commercial forestry to be restricted only to suitable areas, and to be carried out with appropriate techniques and technology.
8. Coordinated assistance from relevant government agencies for rural development.
9. Enhanced linkages with urban markets.

Source: Ulu Padas Community Planning Workshop,
Long Pasia 8-9 November 1997.

4.5 ECONOMIC ASSESSMENT

4.5.1 *Importance of properly valuing natural areas*

Forested upland catchments represent vital sources of water to supply agricultural areas, industry and households both in rural areas and concentrated urban settlements. By acting as a sponge, forested highlands absorb excessive rainfall and help to mitigate the occurrence of floods and soil erosion, but ensure the availability of water in dry weather (Davison 1996). The contribution of forests to the economy cannot be denied. Despite this, traditional financial and economic analyses have tended to grossly underestimate the value of forest resources, contributing to policy biases favouring logging or forest conversion.

4.5.2 *Representing the Actual Value of the Ulu Padas area*

Watersheds like Ulu Padas would stand to be viewed solely as a source of timber, wood fibre for paper production, or land for the establishment of industrial tree plantations. These land-forest use scenarios would significantly alter the forest landscape of Ulu Padas, and affect *indirect use values* such as the provision of ecological functions that are regarded as 'free services'.

*If valuable services provided by forested areas are undervalued, **actual costs** likely to be imposed on public, private and government sectors in connection with impacts on this resource are not evaluated in making policies affecting land and resource management. The IPPA specialist studies evaluating hydrology, soils, biodiversity and socio-economic welfare all strongly indicate that a lack of careful planning in Ulu Padas could lead to environmental damage which would be difficult to control, costly to repair and in some cases, impossible to reverse.*

For example, the shortage of water arising from the loss of a forested catchment, could undermine the productivity of agricultural and industrial activities and the generation of hydro-electric power for west Sabah, while the inability of deforested land to absorb excess rainfall could cause extensive damage to property or facilities. In Beaufort District, the flooding of the Padas river in June and December 1996 incurred damages to agriculture, public infrastructure and public services totalling of RM9.56 million. In Tenom District, flood damage was costed at RM5.13 million (*Appendix 3*).

While it is impossible to directly link previous flood events in downstream areas to road building and logging activities in the watershed area, the hydrologist assessment highlights a strong likelihood that any forest disturbance in Ulu Padas would lead to increased occurrence and frequency of floods. Flood mitigation investments should also be considered as extra expenses incurred. Under the 7th Malaysia Plan RM4.76 million has been allocated to mitigate floods in Beaufort and Klias Peninsula (*Appendix 3*).

Analysing the wide scope of values and services linked to highland forests in economic terms would be likely to engender a more cautious approach to determining land use in sensitive areas such as Ulu Padas.

Under the IPPA, a Total Economic Valuation (TEV) analysis was conducted to illustrate the values of the Ulu Padas forest and to contrast the changes in the total values derived from the exploitation of this resource under several possible development scenarios (*Background Paper 5*).

4.5.3 Direct Use Values from the Ulu Padas forest

Field interviews with Ulu Padas residents revealed that, with an investment of time and energy, they are able to access basic resources from nearby forests which are significant in monetary terms. For example, wild meats obtained annually by residents is estimated to be worth close to RM187,000 at Sipitang market prices. Similarly, fish caught in Ulu Padas rivers and consumed locally may be valued at over RM191,000 per annum. Assorted wood products such as timber for house and boat building, material for fencing and general construction, and fuelwood have been valued at RM28,500 a year. Weaving materials and rattan for handcrafted items such as baskets and mats has been valued at over RM1,200 per year. *Jerangau*, a medicinal root collected from Ulu Padas, is sold in nearby towns and earns a single collector an estimated RM12,000 a year (*Background Paper 5*).

These figures indicate that the monetary value of the resources obtained by Ulu Padas residents from the forest is substantial, and possibly even outstrips the average incomes of other rural communities. Forest loss would present severe difficulties to the two Ulu Padas villages as residents would be forced to:-

- i) Seek these resources in forests at greater distances, with greater investments of time and energy.
- ii) Purchase them with money, which is difficult to obtain in Ulu Padas .
- iii) Bear the additional cost of transporting goods from Sipitang.

4.5.4 Untapped development potentials

It has also been mentioned that Ulu Padas residents are seeking to develop local nature and community based tourism products. More than 20 sites of historical, cultural and scenic value within both the State land and Forest Reserves of Ulu Padas have been identified by the Lun Dayeh as having tourism value (*Background Paper 6*). With a comprehensive development plan, Ulu Padas has the potential to become one of the State's premier tourism destinations. However, the success and sustainability of tourism is dependent on the ability to retain the attractiveness of its forests and rivers. If compromised by logging or forest clearance, the potential gains from this sector would instead be benefits foregone.

4.5.5 Conclusion

In the analysis of hypothetical development scenarios, three were evaluated in relation to the current baseline scenario, in which the area is mainly under forest cover with subsistence activities, they are: CONVENTIONAL LOGGING, REDUCED IMPACT LOGGING and finally TOTAL PROTECTION with permitted economic activities. Using *Total Economic Valuation* all three scenarios were valued in money metric to make them amenable to comparison.

The findings indicate that CONVENTIONAL LOGGING would initially yield high returns from the sale of timber and wood products (although this may be affected by declining market prices for montane timber). Most of these benefits would go to the private sector. However, returns are likely to diminish, particularly due to the slow regeneration of montane forest species, and benefits provided by forest such as watershed protection, carbon sequestration and the supply of non-timber forest resources would be reduced.

REDUCED IMPACT LOGGING (RIL) in the hypothetical scenario would allow for a renewable harvest of timber. Although some damage to the environment would be experienced, benefits to society would be more favourable in relation to CONVENTIONAL LOGGING.

In the final TOTAL PROTECTION option, although timber revenue is excluded, maximum environmental benefits are enjoyed by the State and related sectors, while the potential recreation value would increase substantially. In economic terms, this option raises **Pareto Efficiency**, in which the private sector should not increase its welfare by making other parties worse-off. However, private sector interests also stand to benefit if their main business focus is adjusted to include economic activities that capitalise on the non-timber values of the Ulu Padas forest.

The economic assessment concludes that decisions relating to land use management in Ulu Padas should favour a regime in which forest enjoys total protection as part of a framework of sustainable development planning. Compatible activities such as tourism, the harvest of non-timber products and research which are supported by the retention of natural areas could be promoted to derive economic benefits from forest conservation. The private sector can ensure that it is able to partake of these benefits, by adjusting the focus of its business towards more compatible economic activities in collaboration with government and the local community.

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5 CONCLUSIONS

5.1 ACHIEVING BIODIVERSITY CONSERVATION IN ULU PADAS

The origins of the IPPA are to make recommendations for the conservation of biodiversity in Sabah. The botanical assessment of Ulu Padas confirms that this region contains forest types that are not represented in Sabah's Protected Area system and which have exhibited outstanding levels of plant diversity and endemism (see Section 4.1 and *Background Paper 1*).

However, selecting small specific sites for biodiversity conservation in an area as large as Ulu Padas would not only be exceedingly difficult, but unlikely to capture an adequate representation of the region's biodiversity. Long-term studies have shown that small conservation areas are also particularly vulnerable to forest fragmentation which affects the structure of the forest and complex biological relationships of flora and fauna, increases the risks of fire and unsustainable harvest of wild species and contributes towards the deterioration of forest quality (Laurance, W.F. et al 1997).

Biodiversity conservation in Ulu Padas is therefore, best achieved by conserving extensive contiguous areas of natural forest to ensure that the full array of unique forest types continue to exist.

With many competing demands on natural areas in the State, the IPPA studies also outline the additional ecological functions performed by forested areas as well as its development potential, so that the retention of forest may be seen as a key component of wise land use and sustainable development. These recommendations have been formulated to contribute towards sustainable and equitable development in the south-western part of the State while helping to conserve its biodiversity.

5.2 IMPORTANCE OF ENVIRONMENTAL PROTECTION

Following normal land management criteria, as a steep land region occupying elevations of over 3,000 ft, Ulu Padas should be retained under natural vegetation with minimal disturbance to, or exposure of soils. Both the soil and hydrological assessments of Ulu Padas (Sections 4.1, 4.2; *Background Papers 2 and 3*) concur that the combination of topography, soil structure, drainage and high rainfall in Ulu Padas strongly necessitate special care in forest management and land use planning. The soil assessment concludes that highly erodible soils and steep slopes throughout much of the area make Ulu Padas sensitive to disturbance. Land clearing, extensive road construction or commercial logging in the area are strongly advised against.

In addition, the hydrological assessment warns that such activities can be expected to lead to high levels of soil erosion, siltation, landslips and flooding in the Ulu Padas villages and at least two Districts in the south-western part of the State.

It recommends that land above 3,500 ft in Ulu Padas should largely be given protected status and kept under undisturbed forest cover.

The Ulu Padas is ranked among the State's top priority catchment areas within the Sabah Water Resources Master Plan (1994), accepted by the State government in 1995. Issues relating to water catchment protection have also been raised by the Department of Irrigation and Drainage (DID) in a document submitted to the IPPA study team (*Appendix 3*). The DID has recently indicated the existence of plans to draw up an integrated catchment management plan for the entire Padas river basin; a priority of which would be to establish guidelines for management and sustainable land use in the upper Padas catchment.

At the Ulu Padas Planning Workshop in Sipitang (*Background Paper 6*), stakeholders emphasised the need to identify and reserve key water catchment areas. Agricultural agencies and the District Offices of Tenom and Beaufort were particularly concerned that an increase in flooding and reduction in dry season streamflow could arise from inappropriate land use in Ulu Padas.

It is clear from IPPA findings and stakeholder consultation, that environmental protection cannot afford to be compromised in Ulu Padas. This should be strongly reflected in land use and forest management practices within the area.

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Decisions relating to land use in Ulu Padas are likely to be implemented in two land status categories - Commercial Forest Reserve and within the State land and village area. Recommendations for these areas are presented according to these categories.

5.3 FOREST RESERVES IN ULU PADAS

The Commercial Forest Reserves within Ulu Padas are described below and shown in **Map 2**.

- A. Ulu Padas Forest Reserve - south-western section (UPFR)
The south-western portion bordered by Sarawak and Kalimantan.
- B. Sipitang Forest Reserve - Southern section (SFR)
The section extending south of Sg. Maligan to border of UPFR.

Most of the Ulu Padas area consists of these two Forest Reserves which are under the stewardship of the Forestry Department. Most of the forest is undisturbed. There is still an opportunity to implement appropriate management and conservation strategies, particularly in light of the information gained by the IPPA studies pertaining to the area's importance for biodiversity conservation, watershed protection and its inherent development potential.

*In view of the significance of the upper Padas catchment to the State, recommendations to conserve forests within sections of the UPFR and SFR that occur within the Ulu Padas area (as shown on **Map2**) should be given priority consideration by the highest State-level natural resource management and planning authorities. (see Part IV of the Recommendations).*

5.3.1 Sustainable Forest Management in Sabah

In 1997, the Government of Sabah formalised its strategy to implement Sustainable Forest Management (SFM). The move towards implementing SFM throughout the Permanent Forest Estate (PFE) is to ensure the future of the forestry industry in Sabah and to demonstrate the State's commitment to the International Timber Trade Organisation (ITTO) Year 2000 objective that all internationally traded tropical timber should be from sustainably managed forests (see *Appendix 5*).

To implement SFM, Commercial Forest Reserves have been reorganised to form Forest Management Units (FMUs) which have been awarded to long-term license holders to establish a foundation for the appropriate stewardship of the PFE.

SFM Forest Management Plans (FMPs) are required for all FMUs to ensure that forests are managed for other important functions, in addition to wood production. Emulating the SFM model developed at Deramakot Forest Reserve, FMUs are normally divided into compartments (usually 200-500 ha each) and zoned for the following functions:-

- **PROTECTION:** Areas that are excluded from logging to protect soil, water, climate, flora and/or fauna.
- **PRODUCTION:** Areas with gentle to moderately steep slopes for timber production.
- **COMMUNITY NEEDS:** Areas for local communities to access forest resources and to carry out compatible economic development activities.
- **RECREATION:** Protected areas with special touristic values.

FMPs provide a means to optimise opportunities for economic development while maintaining the forests' role in safeguarding environmental quality. Although some of the functions are complementary, others are not. Therefore, environmental constraints and basic society needs are prioritised in delineating forest function zones.

It is understood that agreements between Sabah Forest Industries Sdn. Bhd. (SFI) and the State government award long-term licenses to SFI for timber harvesting in the UPFR and SFR, and to establish industrial tree plantations in parts of the SFR. However, it is important to note that long-term licenses are intended to ensure management of natural forests in line with State and National forestry policies on Sustainable Forest Management, particularly in large and ecologically sensitive forest concessions.

5.3.2 Forest management in Ulu Padas

In the interest of environmental protection and natural resource management, it is of the utmost importance that the Forest Reserves within Ulu Padas are managed according to Sustainable Forest Management principles and guidelines. Appropriate actions should be taken to ensure that all plans and activities within the Forest Reserves comply with SFM standards.

Recommendations in support of this are made in Section 6, Part IV.

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5.4 STATE LAND AND VILLAGE AREA

An area of approximately 12,300 ha is enclosed by the south-western section of the UPFR and the southern section of the SFR. This area is mainly State land. Although part of this area consists of alluvial land and gentle slopes, where the Ulu Padas villages are centered, much of the area consists of steep slopes and hills. Some of these areas are covered with undisturbed forest and old secondary forest provide watershed protection and serve as a source of forest resources for the local community.

5.4.1 Importance of planning land use

The well-being of the Ulu Padas villages depends on maintaining a balance of sufficient farming and fallow areas and forest within easy access. From the perspective of environmental protection, land use planning is especially important within this environmentally sensitive area. It is understood that applications have been made for much of the State land area irrespective of land capability or natural ecological features. In this context, it seems unlikely that processing existing applications as they stand will lead to the equitable division of land to Ulu Padas residents, or appropriate management of the area.

Land tenure issues within Ulu Padas will have to be resolved in order to fulfill local needs for sufficient land for hill rice cultivation and the retention of forests for continued access to resources, watershed protection, biodiversity conservation and to support forest-based development activities.

The Ulu Padas community has expressed its desire for assistance in land use and development planning to the government, through the MTED. The findings of the IPPA studies support this request for planning in the State land area and suggest the need for a committee to be established to facilitate the input and involvement of relevant government agencies at District level. (Recommendations relating to this are found in Section 6, Part V). Further, suggestions for land use categories within the State land area are listed in TABLE 3, to be read in conjunction with **Map 9**.

5.4.2 Resolving land tenure

The system of allocating rights to land use in Sabah is codified in the Land Ordinance, 1930, which defines native customary rights and customary tenure.

The Lun Dayeh's traditional system of recognising rights to land are decided internally in consultation with community leaders and elders. In principle, individuals who initially cleared forest land for farming claimed first rights to that land in future farming. In practice most of the land in the village area is observed to be held under 'adat', including land that is left fallow (for periods of 10 to 40 years) to restore its fertility. The system of land rights observed by residents of the Ulu Padas villages is complex, but demonstrates the Lun Dayeh community's belief that it has some claim to land retained under forest fallow, and requires its use in the future.

In general, this system differs somewhat from that codified in the Land Ordinance which does not explicitly recognise land under forest fallow as endowing customary rights, nor does it recognise claims to land by individuals whose ancestors farmed land in the past.

Nevertheless, it is in the interest of both the government and local communities to resolve land tenure in the State land and village area, particularly to ensure environmental protection and sustainable land use. Towards this aim, there is a need for a process of well-mediated discussions in which the relevant government agencies and the local community are able to decide on the equitable allocation of land rights within the framework of integrated land use and development planning.

Recommendations towards this objective are made in Section 6, Part V.

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5.5 COORDINATION

A high degree of coordination and integrated planning among government agencies, members of the Ulu Padas community and key stakeholders is needed to ensure appropriate land use and forest management planning within both the Forest Reserves and the State land area. It is vital that management decisions within either of these areas do not adversely impact plans within the other. There may also be opportunities for collaboration that transcend the boundaries of the two areas.

It is proposed that a high-level government agency be charged with the responsibility of overseeing planning within the Forest Reserves and the State land village area, and ensuring that they complement each other.

Recommendations towards this objective are made in Section 6, Part VII.

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6 RECOMMENDATIONS

PART I. GENERAL

(Recommendations, Page 1 of 22)

6.1 THIS REPORT TO BE PRESENTED TO THE HIGHEST STATE-LEVEL DEVELOPMENT PLANNING AND DECISION MAKING BODIES

In view of the importance of appropriate management of Ulu Padas for catchment protection reasons, and the fact that land use decisions in Ulu Padas impinge on three Districts (Sipitang, Tenom and Beaufort) and one Federal Territory (Labuan), the recommendations contained in this report should be made known to the highest State-level development planning and decision-making bodies.

ACTION 1

A paper to be submitted to Cabinet, with this Report as an appendix. The Cabinet paper should outline the importance of Ulu Padas in water catchment protection and specifically request the Cabinet to

- (a) ensure that this Report and its background papers are evaluated by Sabah Forestry Department and used towards forest conservation and management in Ulu Padas, and*
- (b) direct that processing of all land applications and issuance of titles for the entire State land area (around and upstream of Long Miau) be frozen until the procedures for determining land tenure and land use planning recommended in this Report have been completed.*

The Cabinet paper should note that recommendations made by the local authority on future land tenure and use of this State land will be forwarded to Cabinet after the recommended studies and consultation have taken place. Cabinet decisions made on the recommendations of this Report should be disseminated by MOCET to all relevant government agencies.

Implementing agency: MOCET

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6.2 PROMOTE INTEGRATED PLANNING AND MANAGEMENT OF ULU PADAS

Ulu Padas to be regarded as a single unit for purposes of water catchment management and for development planning. Land use changes in one area, under one management authority should not be planned and implemented in isolation from land use changes planned and implemented elsewhere by a different authority.

ACTION 2

The various management authorities, land-owners and license-holders with interests in Ulu Padas to be instructed to inform and consult with each other on proposed land use changes before decisions on implementation are made.

Implementing agency: Natural Resources Office (NRO).

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PART II. WATERSHED PROTECTION

(Recommendations, Page 2 of 22)

6.3 WATER SUPPLY NEEDS FOR KG. LONG PASIA AND KG. LONG MIAU TO BE INVESTIGATED URGENTLY BY RELEVANT AGENCIES

- i) The gravity feed system (GFS) water supply for Kg. Long Pasia has been obtained from Sg. Lelayo, a tributary of the Pa Sia river. This stream is inadequate for the village's long term needs and completely dried up between February and April 1998. During similar dry periods, the village obtains water directly from the Pa Sia river, which would be adversely affected if logging or clearing activities take place within its catchment.
- ii) Kg. Long Miau does not have GFS water supply, and relies on the Padas and Miau rivers for its water needs. With the onset of logging activities in the catchment of the Miau, the river is vulnerable to pollution.
- iii) Both villages have appealed to government authorities in writing to protect these water catchment areas, as they do not presently have alternative sources of water, other than rain.

ACTION 3

Reliable long-term water supply sources for Kg. Long Pasia and Kg. Long Miau need to be determined urgently by the Health Department or Water Department or DID, in liaison with the Sabah Forestry Department and SFI. Until such time as water sources are identified, evaluated for long-term suitability and supply systems are set in place, the catchments for the Pa Sia and Miau rivers should not be disturbed.

Once the water catchments for the two villages have been determined, they may be gazetted for protection under the Water Supply Ordinance 1962, or any other suitable legislation.

It is recommended that Sg. Rekong be investigated as a potential long-term GFS water supply source for Kg. Long Pasia and that Sg. Pegisi be investigated as a potential long-term GFS water supply system for Kg. Long Miau. The catchments of both these rivers should be protected from any disturbance to the natural forest cover.

Lead agency: SFD (to request advice from Health Department, Water Department or DID)

Supporting agencies: Health Department, Water Department or DID, and SFI.

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PART II. WATERSHED PROTECTION

(Recommendations, Page 3 of 22)

6.4 A PADAS RIVER WATER CATCHMENT MANAGEMENT PLAN TO BE PRODUCED

In order to ensure appropriate protection of fragile areas within the Padas catchment, a study should be conducted to determine guidelines for land use, with special attention paid to Ulu Padas.

ACTION 4

A Padas River Water Catchment Management Plan to be developed, approved and implemented. Preparation of this Plan should be done in consultation with the “Sustainable Forest Management” Committee for Ulu Padas.

Lead agency: Plan preparation: DID

Supporting agencies: Plan approval: State level authorities.

Plan implementation: District authorities.

ACTION 5

Pending implementation of ACTIONS 3 and 4, construction of new roads and timber extraction within Ulu Padas to be minimised.

Implementing agency: Sabah Forestry Department

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PART III. INFORMATION DISSEMINATION

(Recommendations, Page 4 of 22)

6.5 DISSEMINATE REPORTS TO RELEVANT GOVERNMENT AGENCIES FOR USE IN PLANNING

The information and recommendations made in this report should prove useful to government agencies in implementing plans and programmes which are related directly or indirectly to management of Ulu Padas. This report should also be used in the formulation of land use and forest management plans for Ulu Padas.

ACTION 6

Following decisions by the State Government on recommended actions contained in this report, copies of the Final Report and its Background Papers together with those decisions to be forwarded to the following agencies: Sipitang District Office, Tenom District Office, Beaufort District Office, Sipitang District Council, Sabah Forestry Department, Department of Lands and Surveys, Department of Town and Regional Planning and Sabah Forest Industries Sdn. Bhd. for information and further action.

Implementing agency: MOCET

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6.6 PRODUCE INFORMATION FOR PUBLIC AWARENESS

Interesting information resulting from the studies on which this report is based, that do not touch on policy issues, should be available publicly, to instill awareness and support for the conservation of the Ulu Padas area's natural and cultural heritage.

ACTION 7

A booklet or leaflet to be prepared in Bahasa Malaysia and in English by in association with the Sabah Forestry Department (SFD) outlining the interesting natural and cultural values of Ulu Padas. The booklet should be distributed to relevant people, communities and agencies, with emphasis on Sipitang District and other main stakeholders relevant to development in Ulu Padas.

Lead agency: MOCET

Supporting agency: SFD.

PART IV. RECOMMENDATIONS ON FOREST RESERVES

(Recommendations, Page 5 of 22)

6.7 IMPLICATIONS FOR THE FOREST RESERVES IN ULU PADAS

In view of the importance of the high elevation forest of Ulu Padas to the State in terms of water catchment protection, all activities proposed in the Forest Reserves in the Ulu Padas area (namely the south-western part of the UPFR and southern part of the SFR as shown in **Map 2**) should be reviewed to conform with Sustainable Forest Management guidelines.

ACTION 8

Existing plans proposed within the south-western section of UPFR and southern section of SFR to be re-evaluated and steps to be taken to ensure compliance with Sustainable Forest Management principles. Until this is completed, further logging activity in these areas should be prohibited.

Implementing agency: SFD

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PART IV. RECOMMENDATIONS ON FOREST RESERVES

(Recommendations, Page 6 of 22)

6.8 SOUTH-WESTERN SECTION OF ULU PADAS FOREST RESERVE (UPFR) TO BECOME A PROTECTED AREA

- i) SFM guidelines state that land above 25 degree slope should be retained as protection forest. Much of the UPFR is estimated to exceed this slope limit. Existing maps of land above 25 degrees slope probably underestimate extent of steep land to a significant extent, because topographical maps “smooth” variation in local terrain.
- ii) The hydrologist’s input for this report (*Background Paper 2*) recommends no timber extraction in Ulu Padas above 3,500 ft elevation (**Map 6**). UPFR is almost entirely above this elevation.
- iii) The soils assessment for this study strongly recommends no land clearing, road construction or logging in Ulu Padas except on the alluvial valleys and lower slopes around Long Pasia (*Background Paper 3*).
- iv) Most of the UPFR consists of tropical montane forests in the upper headwaters of a large catchment, which are generally regarded worldwide as suitable mainly for water catchment protection, not timber extraction.
- v) Elsewhere in Sabah land ecologically similar to UPFR is totally protected (e.g. Kinabalu Park, Crocker Range Park), and
- vi) The Long Pasia community has requested that UPFR should not be available for timber extraction as it may negatively impact the Ulu Padas villages (*Appendix 4*).

ACTION 9

To provide maximum assurance of environmental protection, the south-western section of UPFR (Maps 2 & 7) should ideally be reclassified as Class I Protection Forest Reserve. However, if existing commitments prevent this option, all compartments within the south-western section of UPFR should be zoned for protection.

Implementing agency: SFD

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**INSERT MAP 7 - ULU PADAS RECOMMENDED AREAS FOR
CONSERVATION**



PART IV. RECOMMENDATIONS ON FOREST RESERVES

(Recommendations, Page 7 of 22)

6.9 SUSTAINABLE MANAGEMENT OF SOUTHERN PART OF SIPITANG FOREST RESERVE (SFR)

- i) Based on current guidelines used locally and internationally for sustainable forest management, and on the hydrologist's and soil scientist's reports for this study, the southern part of Sipitang Forest Reserve (**Map 2**), should be entirely or largely classified as protection forest, primarily for slope and watershed protection, and also for biodiversity conservation (**Map 7**).
- ii) Some parts of SFR in the vicinity of Kg. Long Pasia should be allocated for supply of forest products (including timber) for non-commercial use by village residents (e.g. eastern part of Compartment P52).
- iii) Some parts of SFR have potential for recreation and tourism, and should be allocated for these purposes (e.g. forest on both sides of the Long Pasia - Sarawak trail within Compartment P55).

ACTION 10

To ensure appropriate watershed management, the areas within SFR upstream of the junction of the Miau and Padas rivers (Map 2) and the Senipong / Bukit Rimau area (Map 3) must be managed under strict Sustainable Forest Management (SFM) principles and zoned primarily for Protection, Recreation and Community Use within the FMP for Sipitang Forest Reserve.

Lead agency: Plan preparation: SFD and SFI.

Supporting agencies: See Recommendation 6.11.

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PART IV. RECOMMENDATIONS ON FOREST RESERVES

(Recommendations, Page 8 of 22)

6.10 IPPA RECOMMENDATIONS TO BE CONSIDERED IN THE PREPARATION OF FOREST MANAGEMENT PLANS FOR SIPITANG FOREST RESERVE

The IPPA studies have generated information which is directly relevant to implementing Sustainable Forest Management in the southern part of Sipitang Forest Reserve. Some priority areas to be zoned for Protection (for watershed management and biodiversity conservation), Community Use and Recreation within the Forest Management Plan (FMP) are denoted on **Maps 7 and 8**. (The areas shown on the map do not represent a complete list of areas worthy of conservation; further surveys are needed in the production of the FMP.)

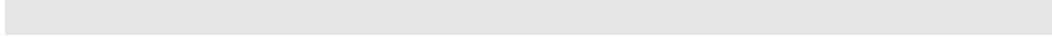
ACTION 11

This report, especially Maps 7 and 8, to be used in the preparation of the Sustainable Forest Management Plan for Sipitang Forest Reserve.

Implementing agencies: SFD and SFI.

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**[INSERT MAP 8 - RECOMMENDED AREAS TO BE ZONED WITHIN THE
FMP FOR THE SFR]**



PART IV. RECOMMENDATIONS ON FOREST RESERVES

(Recommendations, Page 9 of 22)

6.11 EXPAND MEMBERSHIP OF SUSTAINABLE FOREST MANAGEMENT COMMITTEE FOR ULU PADAS

It is important that government agencies responsible for environmental protection and sustainable development are given an opportunity to contribute to, and comment on the sustainable FMP prepared for the SFR, as well as UPFR, and to monitor its implementation.

ACTION 12

The existing Sustainable Forest Management Committee consisting of Sabah Forestry Department and SFI to be expanded to include Department of Irrigation and Drainage, Department of Environment Conservation, biodiversity specialists and other key stakeholders. The scope of this Committee should include all the Commercial Forest Reserves in the Ulu Padas area, i.e. the southern section of Sipitang Forest Reserve and the south-western section of Ulu Padas Forest Reserve.

Lead agencies: SFD and NRO

Supporting agencies: DID, MOCET and SFI.

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PART IV. RECOMMENDATIONS ON FOREST RESERVES

(Recommendations, Page 10 of 22)

6.12 A STAKEHOLDER CONSULTATION PROCESS TO BE INCORPORATED INTO PLAN PREPARATION

In recognition of the wide stakeholder interest in issues related to land use change in Ulu Padas, it is important that stakeholders (in addition to those serving on the Sustainable Forest Management Committee for Ulu Padas) are given an opportunity to register their concerns, and have them adequately addressed in the preparation of the Forest Management Plans for Commercial Forest Reserves in the Ulu Padas area.

TABLE 2 ADDITIONAL STAKEHOLDERS RELEVANT TO LAND USE PLANNING IN ULU PADAS.

- Department of Lands and Surveys
- Water Department
- Health Department
- Sabah Electricity Board
- Department of Agriculture
- Other agricultural agencies
- Department of Fisheries
- Department of Veterinary Services
- Sabah Museum Department
- Public Works Department
- Sipitang District Office
- Tenom District Office
- Beaufort District Office
- Residents of Kg. Long Pasia and Kg. Long Miau

*Stakeholders identified at Ulu Padas Planning Workshop, Sipitang
20 November 1997.*

ACTION 13

A process of stakeholder consultation to be undertaken in the preparation of a Forest Management Plans for the sections of the Ulu Padas Forest Reserve and Sipitang Forest Reserve in the Ulu Padas area (as defined to Map 2)

Lead agencies: SFD and SFI.

Supporting agencies: Stakeholders identified in **TABLE 2**.

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**PART V. RECOMMENDATIONS ON THE STATE LAND
AND VILLAGE AREA**

(Recommendations, Page 11 of 22)

**6.13 ESTABLISH A MECHANISM TO PREPARE AND IMPLEMENT A
SUSTAINABLE DEVELOPMENT PLAN FOR THE STATE
LAND/VILLAGE AREA OF ULU PADAS**

- i) The sustainable management of land and resources within the State land/village area is important for the welfare of the State and the local community. Land use and land tenure within this area should be planned according to a zoning system based on environmental sensitivity, soil capability, development potential and the special features of specific areas (tourism attractions, biodiversity significance, historical/cultural importance).
- ii) Such an approach meets the Ulu Padas residents' request for government assistance, through MOCET (*Appendix 4*), to draw up and implement a land use and forest management plan for the purposes of sustainable development, continued access to natural resources and watershed protection.

ACTION 14

Recommendations for the State land/village area (6.13-6.15, Part V) to be presented at a briefing to the Sipitang District Action Committee (SDAC) for discussion and further action.

Implementing agency: MOCET

Supporting Agency: Sipitang District Action Committee

(immediately followed by Action 15)

PART V. RECOMMENDATIONS ON THE STATE LAND AND VILLAGE AREA

(Recommendations, Page 12 of 22)

ACTION 15

It is suggested that a sub-committee, which may be called the MATANG - PA SIA DEVELOPMENT PLANNING COMMITTEE (MPDPC) be established by the Sipitang District Action Committee to produce a land use and development plan for the State land/village area, which may be called the MATANG - PA SIA DEVELOPMENT PLAN (MPDP).

Once finalised, the MPDP should be submitted to the Sipitang Land Utilisation Committee for comment and approval. Implementation of the Plan should then be taken up by the Sipitang District Action Committee together with the Ulu Padas community and relevant stakeholders.

The membership of (MPDPC) should include Ulu Padas community leaders and key government agencies responsible for land use planning and development that have an interest in Ulu Padas, namely:

- *Department of Lands and Surveys*
- *Department of Environmental Conservation / MOCET*
- *Sabah Forestry Department*
- *Department of Agriculture*

The MPDPC should consult with other government agencies including the Department of Irrigation and Drainage; Health Department; Public Works Department; Water Department; Department of Town and Regional Planning; and Sabah Museum Department. Additional members or advisers may be co-opted by the committee.

The MPDPC may choose to function as a steering committee, and delegate preparation of the MPDP to a core group of local community leaders and technical specialists.

In addition, the MPDPC should liaise with SFD to ensure that the Forest Management Plan for the adjacent Sipitang Forest Reserve is compatible with the land use and resource needs of the area.

Lead agency: Sipitang District Action Committee (SDAC)

Supporting agencies:

Participation: Department of Lands and Surveys is recommended to chair the MPDPC; other government agencies listed above, with local community representatives.

Plan approval: Sipitang Land Utilisation Committee.

PART V. RECOMMENDATIONS ON THE STATE LAND AND VILLAGE AREA

(Recommendations, Page 13 of 22)

6.14 MPDPC TO ESTABLISH A TASKFORCE TO RESOLVE LAND TENURE WITHIN THE LAND USE PLANNING PROCESS

- i) Allocation of land rights and titles to the Ulu Padas community to land intended for purposes other than Community Forest should be carried out within a land use planning process to ensure sustainable and equitable development and equal access to shared resources.
- ii) Recognising the importance of development planning, and acknowledging the haphazard nature of existing applications, community representatives have suggested that in the long-term interest of the community, the process of allocating title to land should begin afresh with the input/involvement of the Lun Dayeh community, and assistance/guidance of the Department of Lands and Surveys.

ACTION 16

A taskforce should be established under the MPDPC, to investigate and recommend on the allocation of State land in Ulu Padas.

The role of the taskforce is to:-

- (1) Establish guidelines and procedures for allocating land rights and titles within the area which is currently State land, using Map 9 and TABLE 3 as a guide;*
- (2) Hold dialogues to satisfactorily translate native 'adat' land claims to appropriate tenure under the Land Ordinance, and resolve disputes or competing claims.*
- (3) To make final recommendations pertaining to land tenure to the MPDPC, for follow-up by the Sipitang Land Utilisation Committee*
- (4) To oversee the final allocation of land.*

Membership of the taskforce should include representatives from the Long Pasia and Long Miau JKKK and village headmen; Lun Dayeh elders knowledgeable of native 'adat'; a District-level land authority; representatives of non-resident Lun Dayeh with land claims, and if necessary, independent advisers such as officers of the Native Court or an NGO such as PACOS.

Implementing agencies: SDAC or other appropriate District Level authority, and the MPDPC.

Supporting agencies: Same as for ACTION 15 (6.13).

**PART V. RECOMMENDATIONS ON THE STATE LAND
AND VILLAGE AREA**

**6.15 IPPA RECOMMENDATIONS TO PROVIDE A GUIDE FOR THE
PREPARATION OF THE MATANG - PA SIA DEVELOPMENT PLAN
(MPDP)**

Based on information gained and analyses under the IPPA a provisional basis for land tenure and land use planning within the State land area is presented in **Map 9**, with accompanying notes in **TABLE 3**.

ACTION 17

Outline IPPA recommendations for land tenure and land use planning within the State land/village area, as outlined in TABLE 3 and Map 9, to be used to guide the preparation of the MPDP.

Implementing agencies: Sipitang District Action Committee (SDAC) or other appropriate District Level authority, and the MPDPC.

ACTION 18

Recommendations on land tenure and appropriate land use made by the MPDPC, to be passed to the Sipitang Land Utilisation Committee for endorsement, and submitted for Cabinet approval.

Implementing agencies: Department of Lands and Surveys; Sipitang Land Utilisation Committee.

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TABLE 3 PROVISIONAL OUTLINE LAND USE RECOMMENDATIONS FOR STATE LAND AND VILLAGE AREA.

<i>LAND USE</i>	<i>BACKGROUND AND JUSTIFICATION</i>	<i>SUGGESTED LAND STATUS</i>
I. COMMUNITY FOREST	<p>Large sections of the State land area consist of primary forest or old secondary forest which are unsuitable for agriculture and prone to soil erosion if deforested. Retaining these forests can serve several complementary functions including supply of forest produce (including meat) for local use, tourism use, and biodiversity conservation.</p> <p>Timber for local non-commercial use may be extracted by manpower, river or buffalo with minimal disturbance.</p>	<p><i>(Recommendations, Page 15 of 20)</i></p> <p><i>These areas may be reserved as Native Reserve (Section 78 of the Land Ordinance) for community use and management. Trustees must be appointed to control and manage the Native Reserve and set conditions for accessing forest resources. Trustees should include representative members of the Lun Dayeh community (including appointed village leaders, village elders, and those with special interests; e.g., women’s representative; those involved in tourism; regular hunters, etc.) and relevant government agencies.</i></p>
II. PERMANENT AGRICULTURE	<p>Based on the soil assessment and local community input, fertile areas capable of supporting permanent agriculture are limited to alluvial valleys and some gentle hill slopes.</p> <p>To ensure that productive land is fairly distributed, fertile State land areas should be mapped and allocated equitably to resident households. Certain areas may be allocated to community projects executed with government support and centralised facilities.</p>	<p><i>Policy on whether such land should be alienated under Native Title (NT) or Country Lease to be determined by MPDPC.</i></p>

<p>III. HILL RICE CULTIVATION</p>	<p>The Lun Dayeh system of cycling fallow fields to retain the fertility of areas for hill rice cultivation has been noted to be stable and sustainable by the IPPA specialist studies. The system is mature enough not to require additional areas of primary forest to be cleared, and because farms are usually small and ground cover establishes quickly, soil erosion is minimised.</p> <p>However, in order to ensure that the optimum fallow period of 10-15 years is observed, large areas of land are required over a period of years, although only small sections are planted annually. Sufficient land must be set aside for this purpose based on soil capability, slope and distance from the village.</p>	<p><i>(Recommendations, Page 16 of 22)</i></p> <p><i>MPDPC will need to identify an area of sufficient size to be designated for hill rice cultivation, and determine whether the land will be alienated as Native Title (Section 70 of the Land Ordinance) or reserved as Native Reserve (Section 78 of the Land Ordinance) with Trustees identified as appropriate. Initially, all land not suited for permanent cultivation may be set aside as Native Reserve to ensure that it is retained for local use and falls within a management regime</i></p> <p><i>Further, the practice of leaving fields fallow (uncultivated under secondary forest) to re-establish fertility should be accepted as being in accordance with Section 34(2) of the Land Ordinance as part of the “proper and effectual management of the estate” and “shall not be held to be a breach of title” as awarded above.</i></p>
<p>IV. SETTLEMENT AND HOUSING AREAS</p>	<p>In anticipation of future population growth in the Ulu Padas, strategic areas should be identified close to the current settlements, road, airport and main river for expansion of the villages.</p>	<p><i>Sufficient areas for future housing and settlement needs should be investigated and included in the MPDPC. The areas identified should be given appropriate status under the Land Ordinance.</i></p>
<p>V. GOVERNMENT INFRASTRUC- TURE</p>	<p>Certain areas should be set aside for the provision of Government services, facilities and roads.</p>	<p><i>The MPDPC should determine, through consultation with relevant government agencies, the total area needed for infrastructure reserves for incorporation into the MPDPC. These areas are to be reserved under Section 28 of the Land Ordinance.</i></p>

for map 9

PART VI. PLANNING FOR DEVELOPMENT

(Recommendations, Page 18 of 20)

Alternative economic activities such as tourism, temperate agriculture and research have been identified as having a potential role in building a non-timber forest-based economy in Ulu Padas. In order to contribute effectively to the development of the MATANG-PA SIA DEVELOPMENT PLAN, government agencies belonging to the MATANG-PA SIA DEVELOPMENT PLANNING COMMITTEE should support further surveys and information gathering to facilitate the preparation of the MPDP.

6.16 TOURISM POTENTIAL IN ULU PADAS TO BE INVESTIGATED AND SUITABLE ACTIVITIES IMPLEMENTED

- i) Ulu Padas is considered to be among 45 sites in Malaysia with substantial potential for nature and adventure tourism in the *National Ecotourism Plan* (1996) and is noted as an important tourism resource in the *Sabah Tourism Master Plan* (1996).
- ii) IPPA specialist studies, consultation with the local community and other stakeholders confirm that Ulu Padas possesses many features that provide an excellent basis for a tourism product.
- iii) There is keen interest in tourism business among Ulu Padas residents, who have themselves identified several sites for tourism development.
- iv) In order to maintain the attractiveness of Ulu Padas as a tourism resource for the State, it is important that key tourism sites and their surrounding areas in the State land area, the UPFR and SFR are identified and conserved.

ACTION 19

Tourism initiatives in Ulu Padas should be encouraged, particularly by the Ulu Padas community and other stakeholders such as SFI and SFD in accordance with national guidelines and in consultation with the relevant government authorities.

Implementing agencies: SFI and SFD with the Ulu Padas community.

Supporting agency: MOCET.

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PART VI. PLANNING FOR DEVELOPMENT

(Recommendations, Page 19 of 22)

6.17 BIODIVERSITY RESEARCH IN ULU PADAS TO BE PROMOTED

- i) As the Ulu Padas is little explored, but now known to possess a high degree of species diversity and endemism, its protection has the potential to attract international interest and funding similar to that enjoyed by Danum Valley and Kinabalu Park.
- ii) The stature of Sabah's own research institutions stands to be raised by conducting research in this area. These institutions should be encouraged to undertake research in Ulu Padas.
- iii) Research activities have the potential to attract foreign support in various forms, such as special interest visits and international funding in support of biodiversity conservation.

ACTION 20

IPPA Final Report and Background Papers and to be forwarded to research institutions in Sabah, to make proposals for Ulu Padas. Further surveys to better document the biodiversity of the Ulu Padas region should be encouraged. Opportunities to obtain forms of foreign funds in support of research and planning activities in Ulu Padas should be investigated by the research institutions and presented to the MPDPC and Sabah Forestry Department.

Lead agency: MOCET

Supporting agencies: Research institutions, MPDPC and SFD.

ACTION 21

Guidelines to regulate research activities in Ulu Padas should be discussed and proposed by the MPDPC.

Lead agency: MPDPC

PART VI. PLANNING FOR DEVELOPMENT

(Recommendations, Page 20 of 22)

6.18 SITES AND MONUMENTS OF HISTORICAL AND/OR CULTURAL SIGNIFICANCE TO BE IDENTIFIED AND CONSERVED

The forests of Ulu Padas contain many historical/cultural heritage sites and monuments similar to those found in upland parts of Sarawak and Kalimantan. The approximate locations of heritage sites have been denoted by Lun Dayeh residents (*Background Paper 6*) but further efforts are needed to verify their location, authenticity, initiate steps for their protection and evaluate their importance for tourism.

ACTION 22

A survey to be carried out to identify the precise locations of historical and cultural sites (using GPS instruments), and to document their condition or appearance. Selected sites should be proposed for protection under the Cultural Heritage (Conservation) Enactment 1997 and included in planning for tourism within the MPDP.

Lead agency: State Cultural Heritage Council

Supporting agencies: Sabah Museum Department, MOCET

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6.19 MAINTENANCE OF ROAD ACCESS

Permanent road access to the Ulu Padas villages is necessary for the viability of many of the development initiatives mentioned above and for enhanced economic development of Sipitang District (e.g. tourism, highland agricultural crops). SFI has borne the cost of constructing a road to Kg. Long Miau and Kg. Long Pasia, but this road is not adequately maintained and there are seemingly no long-term plans to ensure that this road remains accessible, especially the section outside SFR.

ACTION 23

SFI should be requested to continue to maintain the main access road to Long Miau and Long Pasia as part of the company's socio-economic enhancement role in Sipitang District.

Lead agency: Sipitang District Office

Supporting agencies: SFI, SFD and Public Works Department.

PART VII. COORDINATION

(Recommendations, Page 21 of 22)

6.20 NRO TO ENSURE OVERALL COORDINATION

In order to promote sustainable land use and forest management within the two Forest Reserves (UPFR and the SFR) and the State land/village area, two committees have been proposed to oversee land use planning and management within the respective areas as described in TABLE 4.

The achievement of the objectives of either of the plans will depend on close coordination between the two planning committees to assure the alignment of land use functions between the State land/village area and adjacent Forest Reserves. Requiring special attention in coordination are watershed protection, long-term water supply, development of tourism, communal forest reserves and protection of important historical and cultural areas.

ACTION 24

The Natural Resources Office should assume a coordinating role in the preparation of all land use and forest management plans for the Ulu Padas, and ensure that the zoning of forest functions and land uses in the State land area and Forest Reserves satisfactorily complement each other.

Implementing agency: NRO

Supporting agencies: SFD and SDAC.

TABLE 4. PLANNING AND MANAGEMENT COMMITTEES FOR ULU PADAS.

SUSTAINABLE FOREST MANAGEMENT COMMITTEE

Description: The Sustainable Forest Management Committee to guide the management of sections of the UPFR and SFR within the Ulu Padas area (as defined in **Map 2**) and to ensure coordination with the MATANG-PA SIA DEVELOPMENT PLANNING COMMITTEE .

Lead agency: Sabah Forestry Department.

Membership: SFI; and expanded to include the Department of Environment Conservation, DID, specialists advisers and other key stakeholders.

Role: To contribute to and review the preparation of the Forest Management Plans for CFRs in the Ulu Padas area.

PART VII. COORDINATION

(Recommendations, Page 22 of 22)

STATE LAND/VILLAGE AREA

‘MATANG-PA SIA DEVELOPMENT PLANNING COMMITTEE (MPDPC).’

Description: A committee established under the Sipitang District Action Committee to be chaired by the Department of Lands and Surveys.

Lead Agency: Sipitang District Action Committee.

Membership: Membership of this committee would include the Department of Agriculture, Sabah Forestry Department, Department of Environmental Conservation, and representatives from the Ulu Padas community. Additional members may be co-opted.

Role:

- (1) To investigate and determine appropriate land use and land tenure for the entire State land/village area as outlined in **Map 9** and TABLE 3.
- (2) To develop and implement a forest management, land use and development programme for the State land/village area.
- (3) To liaise with the Sustainable Forest Management Committee to ensure that the activities planned within the adjacent Forest Reserves are compatible with land use and resource needs within the area.

LAND TENURE TASKFORCE

Description: A taskforce of the MPDPC.

Lead agency: Sipitang District Action Committee

Membership: Ulu Padas community representatives (including representatives of the Long Pasia and Long Miau JKKK and village headmen; a District-level land authority; Lun Dayeh elders knowledgeable of native customs; a District-level land authority; representatives of non-resident Lun Dayeh with land claims, and if necessary, independent advisers such as officers of the Native Court or an NGO such as PACOS.

Role:

- (1) Establish guidelines and procedures for determining land tenure in Ulu Padas.
- (2) Hold dialogues to satisfactorily translate native ‘adat’ land claims to appropriate tenure under the Land Ordinance, and resolve disputes or competing claims.
- (3) To make final recommendations pertaining to land tenure to the MPDPC, for follow-up by the Sipitang Land Utilisation Committee.
- (4) To oversee the final allocation of land.

INSERT

Figure 1. Scheme for channelling the report and decisions on recommendations

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