

333:(911.14)

WOSSAC:23735

333

(911.14)

LAMBER — SUBIS

A REGIONAL DEVELOPMENT PLAN

Prepared by Land and Survey Dept., Sarawak, Sept., 1967

HUNTING TECHNICAL SERVICES

LAND & SURVEY DEPARTMENT, SARAWAK

THE
LAMBIR-SUBIS
REGIONAL DEVELOPMENT PLAN

by

Russell Gwilliam, B.Sc., Dip. T.P., F.R.I.C.S., A.M.T.P.I.,
Chief Planning Officer

and

Henry Kon Teck Pong, B.A., M.Sc.,
Planning Officer.

HUNTING TECHNICAL SERVICES
LIBRARY

PREFACE

For many years the Lambir-Subis area in the Fourth Division has been regarded as a promising one for large-scale agricultural development. Much of the area is still covered by primary forest and the terrain, unlike so much of Sarawak's unoccupied land which is steep and broken, is generally favourable for development.

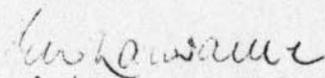
2. In 1962 work began on the preparation of the Fourth Division Development Plan which, together with those for other Divisions, was used for the preparation of the Sarawak Development Plan 1964-1968. A preliminary interpretation of soils was undertaken from air photographs and a reconnaissance soil survey of the Lambir-Subis area was undertaken both of which confirmed the earlier optimism in regard to the development potential of the area.

3. In 1963 construction work commenced on the Miri-Niah section of the Trunk Road and, in the same year, the Commonwealth Development Corporation, at the invitation of the State Government, began an investigation into the possibilities of establishing an oil palm estate of about 5,000 acres in the area. Licences for large-scale timber exploitation of the primary forest in the area were issued and, in 1965, the Department of Agriculture started the development of the Kebulu Agricultural Station with an experimental oil palm plantation.

4. The Fourth Division Development Plan drew attention to the need for a port to serve the area and detailed investigations into the possibility of establishing a port at Kuala Baram are at present being undertaken by the Hydrological Research Unit, Wallingford. The possibility of an alternative port is one of the subjects to be investigated under the Malaysian Transport Study to be undertaken shortly by United Nations' consultants.

5. The Fourth Division Development Plan proposed the creation of the Subis Development Area as one of the three Development Areas in the Division in which the majority of development projects should be concentrated to ensure a maximum utilisation of limited resources. The concept of establishing Development Areas was, however, not accepted formally in either the Sarawak Development Plan 1964-8 or subsequently in the First Malaysia Plan 1966-1970 into which the former plan was incorporated.

6. The increasing pace of development in the Lambir-Subis area has raised a number of problems largely connected with claims to customary rights over land by the Native communities living in the area. It was decided therefore that a detailed study of the area was required before any detailed recommendations for land development could be made to the Minister for Lands & Mineral Resources. This report is the result of the study which has been undertaken by the Land Planning Branch of this Headquarters, assisted by the Superintendent of Lands & Surveys, Fourth Division. It is the first report of its kind and will, it is hoped, demonstrate clearly the need for such studies as a basis for physical and economic planning.



E. W. LAWRENCE,
C.B.E., F.R.I.C.S.
Director of Lands & Surveys,
Sarawak.

22nd September, 1967.

CONTENTS

Preface

Contents.

List of Tables.

List of Appendices.

List of Plans and diagrams.

Summary	1
Chapters.	
I Introduction	9
II Physical Factors	10
III The People	13
IV Land Occupation and Tenure	18
V Land Use	23
VI Farming Methods (Padi)	28
VII Land Requirements	33
VIII The Timber Industry	41
IX Communications	43
X Social Services	47
XI Problems and Policy	50
Land Tenure	50
Shifting Cultivation	50
Settled Agriculture	52
Communications, especially port facilities	59
Capital	61
Labour Supply	61
Water Supply	63
Rural Settlement	64
Summary of Recommended Policies	70
XII Recommendations	74
Forest Reserves/Communal Forests	74
Native Area Land	75
The Balance of State Land	87
Land Classification	95
Urban Development	96
Social Services	97
Communications	98
Summary of Recommendations	99
Index	160

L I S T O F T A B L E S

1.	Population (1966) and projected population (2000)	15
2.	Iban population 1963 - 1966	17
3.	Illegal Felling	22
4.	Total Land Use (1966) by territorial claims	24
5.	Land Use by Persons	25
6.	Individual Farms, Rh. Bedit 1963	31
7.	Estimate of Areas farmed by an Iban Family per annum	32
8.	Land Requirement of the Iban Longhouses in the Lambir-Subis Area	40
9.	School Statistics	48
10.	Availability of State Land for Development	88

LIST OF APPENDICES

I	Letter from Siah ak Barrat and T.R. Unggam ak Kalong to Minister of Natural Resources concerning Territorial Claims	103
II	Report by Executive Officer of the Internal Migration Committee dated 25.9.1959.	105
III	Religions connotations of Padi Planting amongst the Iban peoples (extract from "Iban Agriculture" by J. D. Freeman)	113
IV	Department of Agriculture, Development Plan Brief 1967	117
V	A Blue-Print for expansion of Secondary and vocational Education in Sarawak under the First Malaysia Plan	123
VI	The Development of an Oil Palm Industry in Sarawak	125
VII	Hereacrumb Factory to deal with 8000 lbs a day: Estimated Capital Costs	147
VIII	Planning Criteria and Procedure for Land Development Schemes (RPS "B")	148
IX	The Farmstead and The Village (Extract from "Rural Settlement and Land Use by Michael Chisholm)	152
X	References	153
XI	Glossary	155

LIST OF MAPS AND DIAGRAMS

An Oil Palm	Front Cover
State Land for Development	Back Cover.
Locality Diagram	Inside back cover

Figures.

1.	Comparative Areas	Following page	9
2.	Geology		10
3.	Generalised Topography		10
4.	Reconnaissance Soil Maps		10
5.	Land Suitability		11
6.	A Rainfall Records, Miri B Rainfall Records, Bekenu		11
7.	Diurnal Variation of Rainfall, Miri		12
8.	Settlements and Territorial Claims		13
9.	Adam's Map of Longhouse Boundaries		19
10.	Areas of Felling as proved by Aerial Photography		21
11.	Felling of Forest after 1959		21
12.	Land Use (1960)		23
13.	Land Requirement Estimate for Rh. Unggam		39
14.	Timber Logging Programme		41
15.	Proposed 2500 Gallon Water Storage Tank For Stage II Settlers' House		63
16.	Development Proposals: Forests		74
17.	Development Proposals: Existing Native Communities		75
18.	Development Proposals: Balance of State Land		89
19.	Proposals: Land Classification		95

THE LAMBIR-SUBIS REGIONAL DEVELOPMENT PLANSummary

1. This report examines the natural and human resources of an area of 210 square miles in the Fourth Division, and makes broad recommendations for policy decisions concerning its development. It is intended to be the foundation of a framework of policy within which detailed planning may take place.
2. The report shows that there are extensive areas of agriculturally suitable land lying along the Lambir-Subis section of the Miri-Bintulu trunk Road. It ~~examines~~ the history of settlement in the area, and the rights of the present inhabitants, and concludes that, after providing amply for their needs, there remain some 56,400 acres of State land of which 50,000 will have been cleared of merchantable timber by 1970. It therefore recommends that no rights or claims to land occupied by primary forest, or old jungle, are recognised; and that the opportunity is taken to develop this considerable block of State land in the best economic manner.
3. Development problems are analysed; and emphasis is laid on the magnitude of the capital investment required, the potentially serious labour shortage, and the lack of a deep water port. The suitability of the block for the large scale production of palm oil is noted, and it is recommended that the State Government clarifies its policy on oil palm development. However, it is also pointed out that oil palm requires sophisticated processing and handling; and that there is an immediate need to guarantee the provision of bulk shipping facilities of a minimum economic size.
4. The detailed recommendations relate to three main land classes. A number of Forest Reserves and Communal Forests are proposed on the land which is topographically marginal for agriculture, including one of 17,000 acres which it is recommended should become part of the permanent forest estate.
5. The plan then suggests that it is of immediate importance to define and mark on the ground the boundaries of lands to be reserved exclusively for Natives.

It recommends the development of Native lands by extension work, and suggests that once the boundaries of individual houses have been fixed pindah into these areas, based on settled cultivation, should be legalised and even encouraged both to accelerate their development and to make the provision of social services more economic.

6. Within the 56,400 acres of State land the plan recommends a multiplicity of approaches to development: State Land Development Schemes; Federal Land Development Authority Schemes; block alienation schemes and private estates are all shown to have their place. The importance of encouraging the private sector to meet an appreciable proportion of the capital investment required is brought out, as is the need for rapid simultaneous development of at least two private oil palm estates i.e. a minimum of 10,000 acres, to render economic the provision of bulking facilities. For Government Schemes a new type of village based on 2 acre mixed farming lots is recommended.

7. The plan also envisages that the construction of the trunk road and the development of the Lambir-Subis area will clearly affect the whole of the Subis Local Authority Area; that new urban centres will be necessary; and that, in the long term, the Government Station should probably be moved from Bekenu. It recommends that adequate land for urban uses, including social services and secondary schools at a scale commensurate with the eventual population, be reserved now.

8. A more detailed summary of suggested policies and recommendations is included below.

SUMMARY OF SUGGESTED POLICIES

Land Tenure

9. (i) Legally created native customary rights for farming should be recognised.
- (ii) Land on which primary forest has been cleared without a Permit should be regarded as unencumbered State land.

- (iii) Adequate areas should be reserved for each longhouse/kampung for farming purposes where Native Customary Land is insufficient.
- (iv) Communal Forests to the extent of about 1 acre/head should be created (this is slightly more than the 5 acres/door originally recommended to Supreme Council).
- (v) Claims that there are rights to fell primary forest for farming should not be entertained.

Shifting Cultivation

- 10. (i) Shifting cultivation should be discouraged.
- (ii) In the interim the use of fertilisers should be encouraged.
- (iii) Hill padi farming for two consecutive years after the felling of secondary forest should be prohibited.
- (iv) Investigations should be made into the possibilities of planting swamp padi, padi emperan, and also hill padi on a short rotation using fertilisers where beneficial.

Settled Cultivation

- 11. (i) A substantial proportion of the State land suitable for the cultivation of oil palm should be earmarked for such development either by estates or smallholders participating in Land Development Schemes.
- (ii) Natives should be encouraged to develop Native Customary Land of a similar quality for oil palm.
- (iii) Provision for the necessary subsidies should be made.
- (iv) Government's interest in the Lambir-Subis area should be demonstrated by commencing, as soon as possible, a pilot oil palm scheme, and a Land Development Scheme based on Rubber Planting Scheme "B".*

Communications

- 12. Urgent attention should be given to the problem of shipping palm oil, and to the siting of a bulking terminal for palm oil.

*See footnote page 57.

Capital

13. In view of the shortage of capital Government schemes and private investment both in the form of Estates and smallholdings should be encouraged.

Labour Supply

14. In view of the grave shortage of labour migration into the area should be encouraged.

Water Supply

15. Roof catchment and storage should be regarded as the standard domestic supply.

Rural Settlement

16. (i) Rural Settlement should be planned on the basis of units of approximately 200 families.

(ii) Detailed planning of rural settlement should incorporate the maximum possible flexibility to allow for adjustment to changing conditions as development proceeds.

17. (i) In view of the impact on the local inhabitants of the rapid and radical changes in their way of life, any proposals relating to existing villages should be fully discussed with the community concerned.

(ii) In Government schemes involving subsidised block planting of cash crops a new type of village based on 2 acre lots to incorporate the mixed farming lot should be adopted where possible.

(iii) In other schemes where land is set aside for a village residential lots should be large enough to permit the cultivation of fruit and vegetables. A proportion of two acre lots should be provided to cater, inter alia, for labourers who will work on small estates.

SUMMARY OF RECOMMENDATIONS

18. The recommendations summarised below are based on the assumption that the policies suggested above are acceptable. Should alternative policies be adopted it will be necessary to examine the physical implications of any changes and to reframe the recommended land use to conform with policy directives.

Forest Reserves/Communal Forests

19. Forest Reserves/Communal Forests totalling 25,000 acres should be created. These have been defined on the following principles:

- (i) Forest which is on peat or topographically rugged land should be retained in permanent forest estate.
- (ii) Communal Forests should be created at the minimum rate of 1 acre/head of Native population.

Native Area Land

20. 50,750 acres should be classified as Native Area Land, and be retained for the exclusive use of the Natives currently living in the area, their descendants and such immigrants as they agree may, and are permitted to join them.

21. These areas should be developed according to the following principles:

- (i) Development should proceed on the basis of the communities already established; nucleated populations of 200 families approximately should be encouraged to facilitate the provision of both agricultural advice and social services.

- (ii) The Native peoples should be encouraged to establish permanent farming holdings preferably in blocks with the aid, where appropriate, of the usual subsidies.
- (iii) An adequate network of minor roads and footpath/cycle tracks should be developed to ensure reasonable access from the village/longhouse to the agricultural land.
- (iv) Social services and amenities should be provided on a scale commensurate with the population and the funds available.

Balance of State Land

22. To expedite development a number of simultaneous approaches are recommended:

- (i) A Land Development Scheme based on R.P.S. "B" should be finalised. A one-village unit (200 families, 1600 acres of rubber) should be commenced in 1968.
- (ii) A Block Alienation Scheme of 200 ten acre units to be alienated either singly or in blocks of up to 100 acres should be prepared immediately. These holdings should be developed by developers with their own resources, but with usual subsidy assistance.
- (iii) Four Oil Palm Development Blocks should be established, the first for development by C.D.C., the second by F.L.D.A., and the third and fourth to be advertised for private development as oil palm estates.
- (iv) The remaining area of State Land should be retained as a development reserve pending an assessment of the relative success of these varying approaches.

Land Classification

23. The whole area should be reclassified to give legal effect to these recommendations.

Urban Settlement

24. Three larger urban settlements should be planned, the largest of which should be where the trunk road crosses the Sungai Sibuti and Sungai Bakas. This is also at the junction of the Beluru spur road. Land should be reserved now to enable the Government station at Bekenu eventually to be moved to this new site, which will be more central to the area.

Education

25. (i) Every attempt should be made to create primary schools of a minimum of one complete stream; i.e. with a supporting population of approximately 200 families.
- (ii) Three secondary schools will eventually be required, and sites should be reserved in each of the three larger urban settlements referred to above.
- (iii) In view of its potential impact on rural development the importance of adult education should be emphasised.

Other Social Services

26. These should be provided on a scale commensurate with population and funds available. To ensure optimum efficiency they should be developed against a background of a nucleated settlement pattern.

Communications

27. (i) The construction of the first five miles of the proposed Beluru feeder road should be authorised immediately as being required for the development of this area.
- (ii) The road network should be extended by:-
- (a) requiring the developers of the Oil Palm Development Blocks to construct and maintain to an agreed standard certain roads which shall be open to the public.
 - (b) constructing a new feeder loop to open up the south eastern part of the Lambir-Subis Area, with a spur to the ulu Sibuti.
- (iii) Timber extraction roads should be improved wherever possible to provide improved access to smallholdings. These should be supplemented where necessary by footpaths/cycle tracks.

CHAPTER I - INTRODUCTION

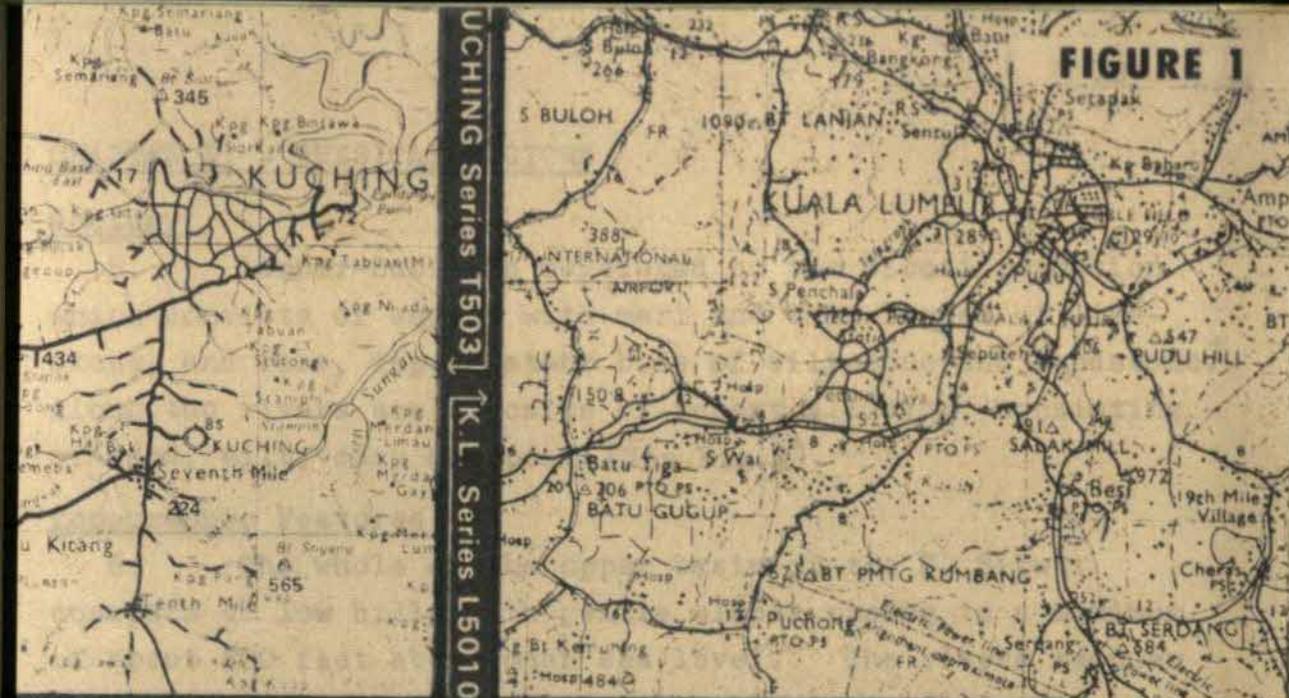
1. The Lambir-Subis Area is so named because it extends along the line of the Miri-Bintulu trunk road between these mountains. The area selected for study is roughly triangular in shape, extending approximately 30 miles from north to south, and 10-15 miles from east to west. It covers an area of approximately 210 square miles or 133,000 acres situated in the headwaters of the Sungai Sibuti. (See Fig. 1).

2. Initially the boundaries of the area for study were defined in a somewhat arbitrary manner. New air photography was flown in 1966 over the anticipated line of the trunk road and the area covered by this new photography formed the basic unit for examination. The final boundaries of the region as defined are related to physical features, and to the boundaries of land occupied or claimed by various communities.

3. Lambir-Subis was selected for the study as being of considerable development potential; timber resources are extensive, and the reconnaissance soil survey indicates that it is well suited to agricultural development. The population is sparse, although the local Iban people lay claim to very extensive tracts of land; and with the construction of the trunk road the area is now readily accessible.

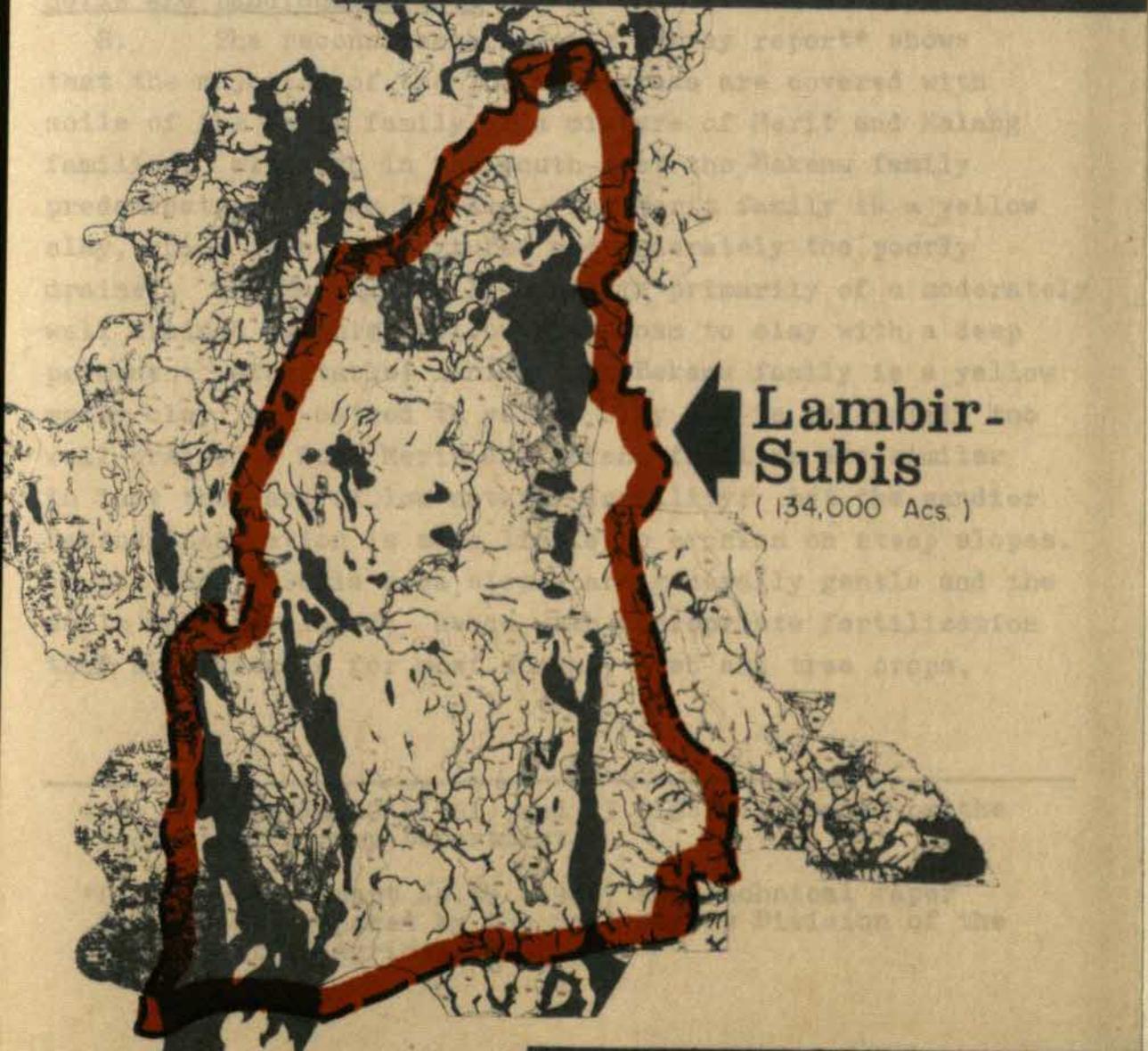
4. In order to complete the necessary information for planning the Land and Survey Department commenced a basic planning survey in June and July 1966, and subsequently several visits have been made to the ground to check and/or consolidate information during the compilation of the report. In the course of this survey existing land use was mapped,* and the boundaries of the territory claimed by each community were recorded. It is the purpose of this report to analyse and integrate the information obtained, and to make recommendations for the development of the area.

*Data has generally been compiled on air photo mosaics at a scale of 1:25,000; the information thus obtained has been reduced to a scale of 1:125,000 for inclusion in this report.



or ease of comparison these maps are to the same scale 1:250,000

COMPARATIVE AREAS



Lambir-Subis
(134,000 Acs.)

JENKA TRIANGLE: Land Suitability

CHAPTER II - PHYSICAL FACTORS

Geology

5. Lambir-Subis is developed on the Sibuti formation which consists of shales with marl and thin lenses of limestone, and rare, impersistent beds of siltstone and sandstone.⁺ Along the rivers are deposits of recent alluvium, consisting of sand, silt, clay and peat. (See Fig.2).

Topographic Features

6. The whole of the upper basin of the S. Sibuti consists of low hills with gentle slopes rising to a maximum of about 500 feet above mean sea level. The rivers meander through broad valleys floored with alluvium and sizable areas of peat swamp. Along the rivers are levees which are at a slightly higher level than the swamp and the alluvium behind.

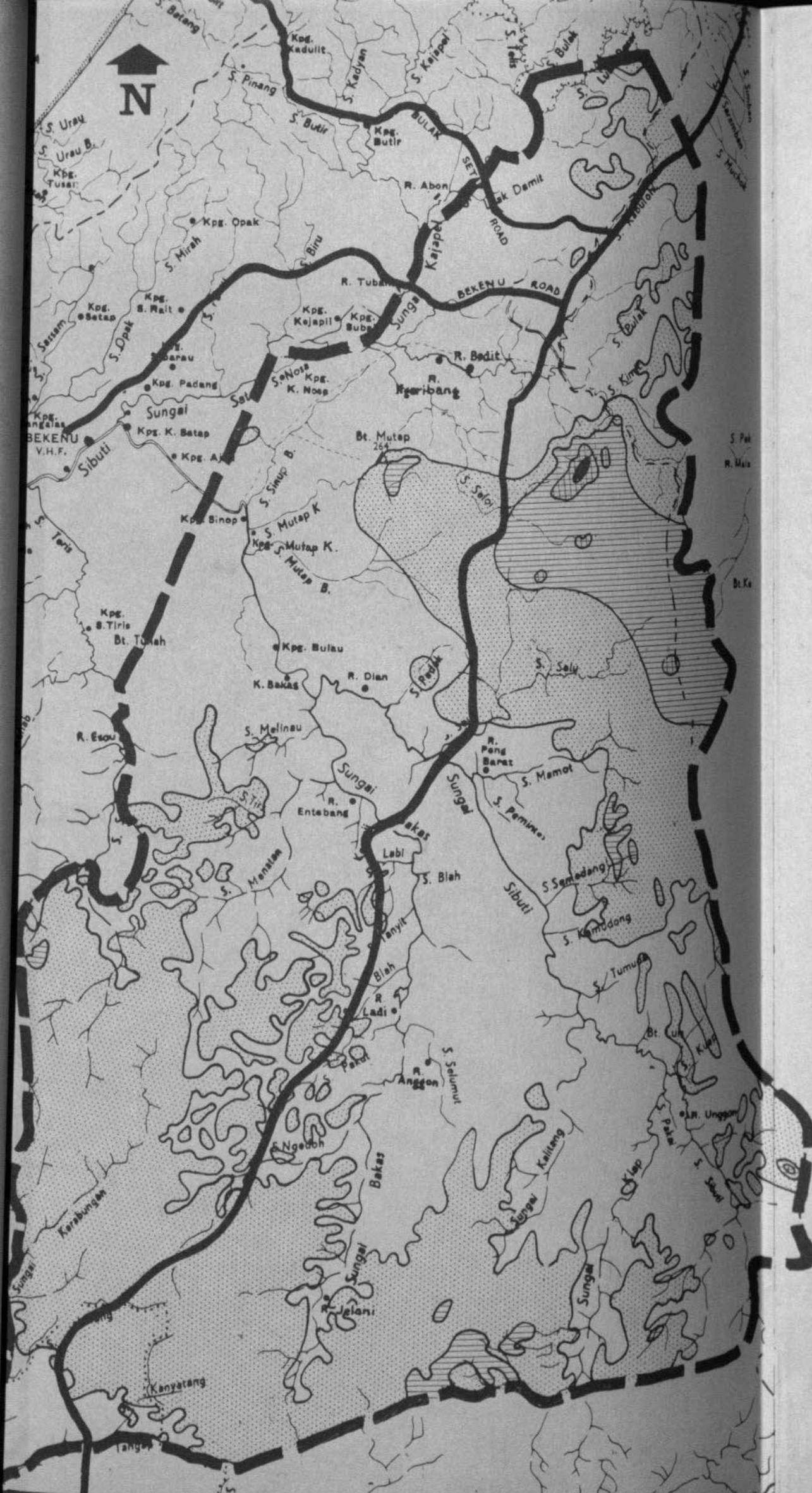
7. Most of the rivers are extremely small. Even the two main streams, the S. Sibuti and its tributary the S. Bakas, are still very narrow where they cross the trunk road. Much of the land in the S.W. and N.E. lies on the watersheds and there are no streams of any great size. (See Fig.3).

Soils and Land Suitability

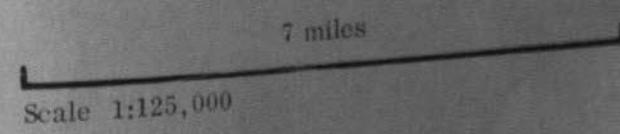
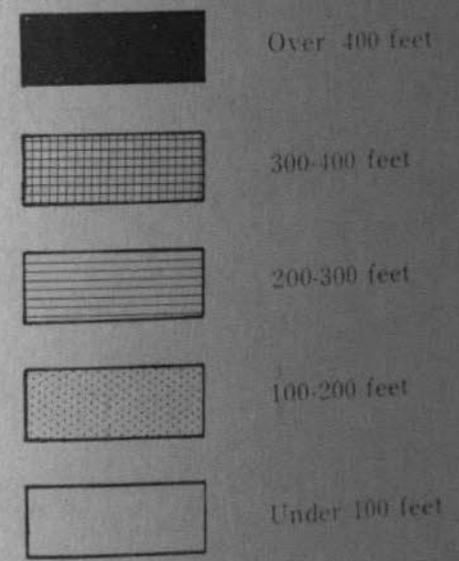
8. The reconnaissance soils survey report* shows that the majority of the low hill areas are covered with soils of the Merit family or a mixture of Merit and Malang families; although in the south-east the Bekenu family predominates. (See Fig.4). The Merit family is a yellow clay, which is heavy textured and moderately too poorly drained; the Malang family consists primarily of a moderately well drained brownish yellow clay loam to clay with a deep permanent water table; whilst the Bekenu family is a yellow sandy clay loam on red to yellow clay and is moderately too well drained. Both Merit and Bekenu families are similar in that they are of low natural fertility; but the sandier Bekenu Association is more liable to erosion on steep slopes. In the Lambir-Subis area slopes are generally gentle and the soils well developed; hence with appropriate fertilization they are suitable for most annual, bush and tree crops.

⁺See Memoirs No.10 (1961) and 13 (1962) prepared by the Geological Survey Department.

*Soil Survey Report No.35 (1962) and Technical Paper No.2(1966) prepared by the Soil Survey Division of the Department of Agriculture.



GENERALIZED TOPOGRAPHY



Prepared by Land & Survey Dept. Sarawak.

GENERALIZED TOPOGRAPHY FIG. 3

FIGURE 4

RECONNAISSANCE SOIL MAP

KEY TO SOILS

MAPPING SYMBOL	SOIL FAMILY	GREAT SOIL GROUP	PARENT MATERIAL	TOPOGRAPHY	MAIN SOIL CHARACTERISTICS	MAIN AGRICULTURAL LIMITATIONS	TENTATIVE CROP SUITABILITY
Kpt	KAPIT	SKELETAL	Shale and sandstone, possibly some limestone	Steep and extremely steep slopes of ridges, scarp slopes, and some erosion platforms	Shallow, stony, brownish loams	Shallow depth	None
Mri	MIRI	GROUNDWATER PODSOL	Old, quartzose marine sand	Flat to gently sloping terraces	A thick O, and thin A1 horizon, overlying a pale, loose, sandy A2 over a dark brown, cemented B2h horizon. Excessive drainage above the generally waterlogged B2h horizon	Low fertility, bad drainage	
Bkn	BEKENU	RED-YELLOW PODSOLIC	Mixed shale and, predominantly fine, sandstone	Mainly low and high ridges with steep and moderately steep slopes.	A thin O and thin A1 horizon, overlying a yellowish fine sandy clay loam A2, over yellowish brown to reddish yellow clay loam to sandy clay B horizon. Moderately deep and moderately well drained.	Susceptible to gully erosion and landslides	On suitable slopes, rubber, pepper, oil palm, fruit trees, tobacco, groundnuts, vegetables; possibly coconut, mania hemp, coffee, cocoa
Mrt	MERIT		Predominantly shale, in places calcareous.	Mainly low ridges with gentle to moderately steep slopes.	A thin or extremely thin O, and thin A1 horizon, overlying a thin yellowish brown clay loam A2, over a yellowish brown to red clay B horizon. Moderately deep and moderately well drained.		
Mlg	MALANG		Young riverine clays.	Flat to gently sloping low river levees.	A thin O and thin A1 horizon, overlying a deep yellowish brown clay loam to clay A2/B horizon. Imperfectly to well drained.	Periodic, brief floods	Mainly perennial tree crops, fruit trees, oil palm, rubber, coconut, coffee
Smd	SEMADOH	GLEYS	Predominantly shale with some sandstone	Long, gently sloping cuesta dipslopes.	A moderately thick O, and thin A1 horizon, overlying a shallow, pale yellow to light grey horizon, over a light grey, reddish brown-mottled clayey horizon.	Poor drainage, shallow depth common	After drainage; rubber, and possibly some fruit trees and vegetables.
Bjt	BIJAT		Young riverine clays.	River basins	A thin O, and thin A1 horizon, overlying light grey clay, in places mottled reddish brown. Poorly drained.	Poor drainage, periodic flooding	With controlled drainage and irrigation wet rice if drained; coconut, vegetables.
Mkh	MUKAH	PEAT	Organic deposits	Margins of peat swamps.	Raw peat and muck, 10-40" deep and overlying clayey subsoil. Very poorly drained.	Poor drainage, weak rooting medium, commonly low fertility	After drainage, possibly rice, vegetables, shallow-rooted fruit trees
And 2 3	ANDERSON			Peat swamps.	Raw peat and muck > 40" deep. Very poorly drained. Three phases mapped, 40-80", 80-120" and >120"		None, except possibly sago

SCALE 1 : 125,000
7 miles

KEY TO TOPOGRAPHY SHADING

-  Mainly scarp slopes, high ridges and karst areas
-  Mainly high ridges and steeply dipping cuestas
-  Mainly moderately high hills and ridges with moderately steep slopes
-  Mainly flat land and low hills with gentle to moderate slopes. Includes some long, gentle dipslopes of cuestas, and some low, steeply sloping hills

NOTES

- 1 For soils of Bekenu and Merit families the tentative crop suitability should be revised to "on suitable slopes soils are primarily suited to bush and tree crops and require fertilisation"
- 2 This map is a reproduction of the Reconnaissance Soil Map of the Bekenu-Niah-Suar Area by Soil Survey Division, Department of Agriculture, Sarawak.

9. The valleys of the Sungai Sibuti, Sungai Bakas and Sungai Satap largely consist of poorly drained alluvium. These riverine soils are agriculturally important because with suitable drainage a mixed wet padi/cash crop system would be possible. Their main drawback at present time is the prospect of flooding during the Landas. These riverine valleys also include sizable areas of peat swamp which is more than 10 feet deep; at the present time this has little or no agricultural value.

10. Soils and topographic information are integrated to form the basis of a general classification into land suitability which is shown on Fig. 5. This map shows that classes 1 and 2 predominate i.e. that (with the reservation that drainage works will be necessary in class 1) the area as a whole is suitable for agriculture. Fig. 5 also shows that within the area occupied by the Bekenu family there are extensive areas of class 4 land i.e. land which is strongly dissected with slopes generally between 20° and 35° . The dangers of erosion on steep slopes in the sandier Bekenu family have already been emphasized. Class 5 land consists of areas of deep peat for which no agricultural use has yet been discovered.

Climate

11. The Lambir-Subis area shares the characteristic features of Sarawak climate; heavy rainfall, a uniform temperature and high humidity.

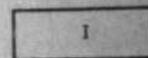
12. The detailed meteorological information which is available consists of rainfall records from Bekenu, which is just outside the area, and full records from the Miri station, which is about 33 miles away from the centre of the area. These figures throw some light on the climatic characteristics of the area.

13. Rainfall records of Bekenu over a period 13 years (1954-66) shows that the annual rainfall in the area averages 111.7 inches. This compares with Miri's 112.4 inches. The rainfall in the Lambir-Subis area is equatorial in type; but considerably modified by monsoonal influences. Both the rainfall records in Miri and Bekenu show four seasons:- (See Figures 6A and 6B).

- (i) a dry season from February to April.
- (ii) The little Landas in May and June, related to the passage of the zenithal sun, and equatorial in type.
- (iii) The drier spell of July and August.

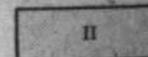


LAND SUITABILITY



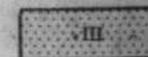
Flat to gently undulating terrain (slopes less than 5°) with soil of no or few severe limitations.

Suitable for agriculture. Risk of flooding may exist.



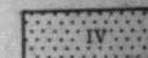
Gently undulating to moderately dissected hilly terrain with slopes less than 20° (including some hills less than 50' high with some slopes between 20° to 35°). Soil with no or few severe limitations.

Suitable for agriculture. But soil conservation measures needed on the steeper slopes.



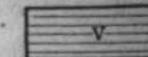
Flat to hilly terrain (slopes less than 20°) with soil with several severe limitations.

Marginally suitable for agriculture due to adverse soil factors. Expensive soil improvements needed.



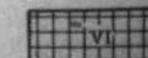
Strongly dissected terrain with slopes generally between 20° - 35°. Soil with no or few severe limitations.

Marginally suitable for agriculture owing to extreme danger of erosion. Very expensive soil conservation measures required.



Flat to gently undulating with many severe soil limitations (mainly mangrove, nipah and peat swamp areas).

Not suitable for agriculture at present owing to adverse soil factors.



Rugged country with slopes exceeding 35° in general or with slopes of less than 35° occupied with soil with many severe limitations.

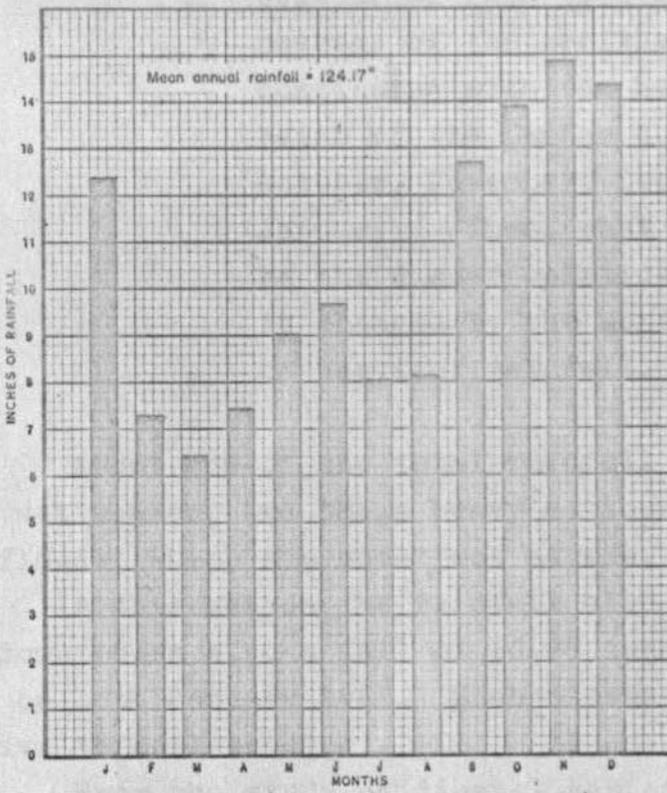
Unsuitable for agriculture.

7 miles

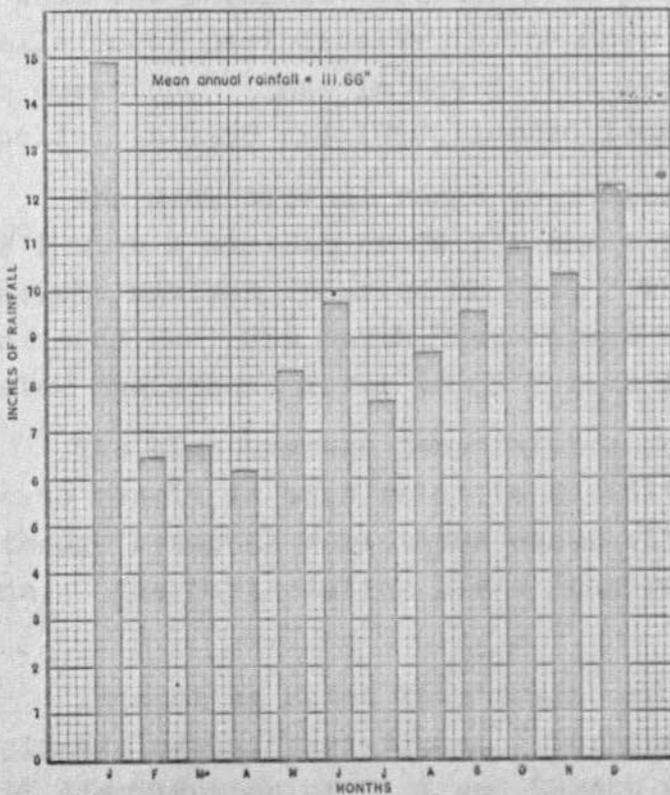
Scale 1:125,000

Prepared by Land & Survey Dept. Sarawak.

FIGURE 6



MIRI
MEAN MONTHLY RAINFALL
(1917-57)



BEKENU
MEAN MONTHLY RAINFALL
(1954-66)

- (iv) The wet season beginning in September with the return of the equatorial rain type related to the passage of the zenithal sun, but continuing with the heavy monsoon rains of the Landas during late October, November, December and January. Thus, what would normally be the winter solstice long dry season is changed by the monsoon to the period of heaviest rainfall.

14. About 43% of the total rainfall is concentrated in the wet season, and these heavy monsoon rains frequently cause floods, which are sometimes severe, in the low-lying areas. In this season the rainfall also tends to occur in heavy down pours e.g. a fall of 10.65 inches was recorded in Bekenu on 18th January 1963. Such storms are highly conducive to soil erosion.

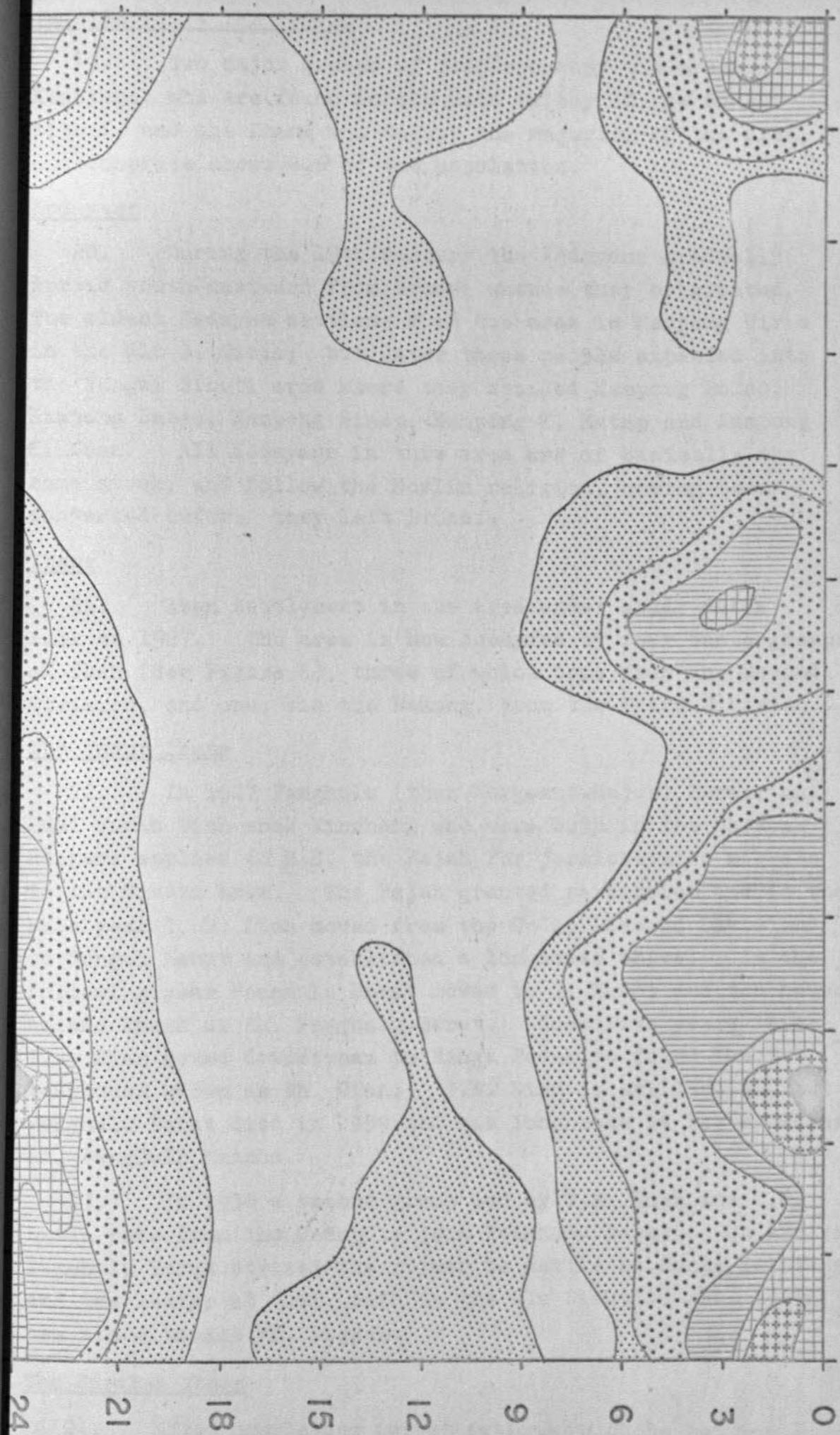
15. From the study of diurnal variation of rainfall of Miri Station (see Figure 7) and local experience in the Lambir-Subis area, it is known that rain falls mainly at night (from 9 p.m. to 6 a.m.). A study of relative variability of rainfall over a period of 13 years (1954-66) showed that the rainfall variance from year to year was 20%. Dry spells occur periodically in the area but they are rarely long in duration. Thus in the period 1954 to 1966 only two such spells, in 1958 and 1959, lasted longer than three weeks.

16. The mean diurnal range in temperature at Miri is 12.8°F with a minimum of 74.3°F and a maximum of 87.1°F . The absolute maximum recorded is 95.2°F whilst the absolute minimum is 67°F . The earth temperature averages 84.3°F one foot below the ground level to 85°F four feet below level.

17. The high average temperatures and heavy rainfall combine to result in high relative humidity throughout the year, though seasonal variations occur with changes in the monsoons. The Miri station has a mean relative humidity of 86.7%.

18. It must be noted that there are considerable micro-climatological variations. For instance, the monthly rainfall distribution of Miri and Bekenu stations varies considerably, though the total annual rainfall is identical. Thus the above description of climate must be treated with care.

MIRI



FIGU

CHAPTER III - THE PEOPLE

19. Two major groups of people occupy the area; the Kedayans, who are found in the main valley of the Sungai Sibuti, and the Ibans who occupy the majority of the area, and comprise about 80% of the population.

Kedayans

20. During the 19th Century the Kedayans gradually spread south-eastward from Brunei whence they originated. The oldest Kedayan settlement in the area is Kampong Tiris in the Ulu S. Tiris; but later these people expanded into the Sungai Sibuti area where they founded Kampong Bulau, Kampong Babas, Kampong Sinop, Kampong K. Matap and Kampong I. Nosa. All Kedayans in this area are of basically the same stock, and follow the Moslim religion, having been converted before they left Brunei.

Ibans

21. Iban settlement in the area under study dates back to 1927. The area is now occupied by four basic groups of Iban (See Figure 6), three of which come from the Second Division, and one, via the Bakong, from the Third Division.

The Undup Ibans

22. In 1927 Penghulu (then Sergeant-Major) Barat, and Tuai Rumah Dian anak Kinchang who were both in the Sarawak Rangers applied to H.H. the Rajah for permission to migrate to the Sibuti area. The Rajah granted permission and in the same year T. R. Dian moved from the Undup (Second Division) to Sungai Mamut and established a longhouse there. In the following year Penghulu Barat moved to S. Mamot and the house became known as Rh. Penghulu Barat. Some five years later T.R. Dian moved downstream to Nanga Pedek to found the longhouse known as Rh. Dian. T.R. Dian is still alive, but Penghulu Barat died in 1959 and his longhouse is now known as Rh. Penghulu Mancha.

23. In 1930 a second group led by T.R. Umeh and T.R. Lutin came from the Undup to join Penghulu Barat. On arrival Penghulu Barat advised the former to settle at Nanga Kalitang, and the latter at Quap, both in the Ulu Sibuti. Rh. Lutin has since become Rh. Unggam.

The Saribas Ibans

24. After completing investigations which he had commenced in 1929, T. R. Nyauk anak Ambok who was the father of the present T. R. Entebang, moved to the Sibuti area from the Saribas (Second Division) in 1935. He and his followers first

settled at Nanga Satap, but after one year moved to Nanga S. Lian. In 1939 they moved to Sungai Melinau, where they stayed for six years. However, after the death of T.R. Nyuh in 1945, the whole longhouse moved again to its present locality at Nanga Menatan under the leadership of T.R. Entebang.

25. In the late 1940's Rh. Tinggi split off from Rh. Entebang. Rh. Tinggi is now known as Rh. Ladi.

The Spaoh Ibans

26. During the Japanese occupation a group of Ibans from Spaoh, Second Division, migrated to the S. Bakas Area and established Rh. Angon. In 1948 this group split into two: Rh. Anggon and Rh. Jelani.

The Bakong Ibans

27. Rh. Bedit split off from Rh. Entulang, which is just across the watershed of the Sibuti to the north-west (Baram District). Rh. Entulang originated in the Batang Rajang (Third Division) and moved to the Bakong (Fourth Division) in the late 19th century. Rh. Bedit moved into the Sibuti in 1941 and in 1948 split into two houses: Rh. Bedit and Rh. Ngeribang.

28. It will thus be seen that the Ibans are relatively new settlers to the area, the longest established having been in occupation for some 40 years whilst the new arrivals have been there for only twenty-six. They do not form an homogeneous society. They originated from four separate and distinct groups, and, as commonly occurs in areas of recent settlement, these have not intermingled to any great extent.

Population

29. Population data were collected in 1966 in the Iban areas but due to floods it was not possible to do this in the Kedayan areas. The Kedayan population figures for 1966 are therefore derived by projecting the data obtained from the census taken by the Malaria Eradication Unit of the Medical Department in 1963. (See Table 1).

30. In projecting the population to the year 2000 the national growth rates of 1.93% and 1.80% per annum for Kedayans and Ibans respectively have been accepted. A check on the accuracy of this assumption is given by a comparison of the numbers of children aged 14 and under in the Lambir-Subis area, and over the whole State. The 1960 State census shows that 40% of the Iban population were aged 14 and under;

TABLE 1

Population (1966) and Projected population (2000)Lambir/Subis Area

Settlements	1966		2000 (Projected)	
	Doors	Persons	Doors	Persons
Kedayan				
Kg. Sinop	11	42	20	81
Kg. Mutap K.	5	29	10	55
Kg. Bakas	13	56	24	108
Kg. Bulau	25	118	49	225
Kg. K. Nosa ⁺	8	50	16	98
Kg. S. Tiris ⁺	76	388	146	742
TOTAL	138	683	265	1,309
Iban				
Rh. Peng. Mancha	50	344	91	625
Rh. Dian	42	257	76	467
Rh. Umeh	39	223	71	405
Rh. Unggam	30	191	54	347
Rh. Entebang	54	273	98	496
Rh. Ladi	43	251	78	456
Rh. Anggon	8	48	15	87
Rh. Jelani	21	129	38	234
Rh. Bedit	46	273	84	496
Rh. Ngeribang	38	215	69	390
TOTAL	371	2,204	674	4,003
GRAND TOTAL	509	2,887	939	5,312

* Projected from 1963 Census; See text.

⁺ Kg. K. Nosa and Kg. S. Tiris lie outside the surveyed boundary but parts of their farming land are within the area under consideration.

whilst the 1966 census in Lambir-Subis demonstrates that 41% of the Iban population were in this age group.

31. Whilst it might be argued that improved accessibility and hence improved medical attention will raise the rate of increase it may equally be argued that the effects of family planning will act in the opposite direction. It is suggested therefore that these projections cannot be made more accurate. It should be noted that they refer only to natural increase and make no attempt to forecast migration into the area.

32. Rates of increase in individual long houses vary between 1% and 3% per annum; but because of the small populations involved these variations are not considered significant. Indeed, the absence of presence of one or two youths on "jalai" or visiting, could materially alter these percentages. However, in three houses, Rumah Penghulu Mancha (7.2% per annum), Rh. Entebang (5.0% p.a.) and Rh. Bedit (5.4% p.a.) the rates of increase are so high as to preclude their being related solely to natural increase and must be taken as evidence of immigration (See Table 2). This immigration is at present regarded as illegal by the State Government and is discouraged. However, there is little doubt that such immigration, or pindah, would take place on an increasing scale if Government objections were to be withdrawn.

33. It would also seem likely that there is some internal migration between Rh. Anggon (where population increased markedly over the three years in question) and Rh. Jelani (whose population remained almost static). However, as Rh. Jelani is an offshoot of Rh. Anggon, and the whole farming area is at present under dispute the relationship between these two houses is still fairly fluid.

TABLE 2

IBAN POPULATION 1963-1966

Lambir/Subis Area

Settlements	1963		1966		Increase of Population bet. 1963-1966	
	Doors	Persons	Doors	Persons	Doors	Persons
Rh. Peng. Mancha	49	279	50	344	1	65
Rh. Dian	41	248	42	257	1	9
Rh. Umeh	39	209	39	223	0	14
Rh. Unggam	30	184	30	191	0	7
Rh. Entebang	47	236	54	273	7	37
Rh. Ladi	45	237	43	251	- 2	14
Rh. Anggon	7	32	8	48	1	16
Rh. Jelani	20	126	21	129	1	3
Rh. Bedit	44	233	46	273	2	40
Rh. Ngeribang	34	197	38	215	4	18
TOTAL	356	1,981	371	2,204	15	223

* The rates of annual population increase of the three longhouses for the period 1963-66 are as follows:-

Rh. Peng. Mancha : 7.2%

Rh. Entebang : 5.0%

Rh. Bedit : 5.4%

CHAPTER IV - LAND OCCUPATION AND TENURE

34. As yet no land is held under registered title in the Lambir-Subis area. Both Kedayans and Ibans hold land under native customary rights which are created by the initial felling of virgin jungle. These were regarded at first as rights of usufruct, but Government accepted the recommendation of the Land Committee* in 1962 that existing customary rights in land should be recognised as rights of ownership subject to land being used for agricultural purposes. Despite this basic similarity of tenure, however differing social conditions have resulted in each race having a different pattern of land occupation.

Kedayans

35. Although there are only four Kedayan kampongs situated within the Lambir-Subis area, six kampongs own land within its boundaries as defined. Equally, certain of the kampongs within the area own land outside it. Because of their common origin and their customs, separate village lands cannot be distinguished; and effective kampong boundaries cannot be drawn. However, a recognised boundary has been agreed with the Ibans of adjoining areas; the remaining dispute between the Kedayans and Rh. Entebang having been recently settled in Court.

Ibans

36. As has been described above Iban occupation of the upper Sibuti commenced in 1927 when the Rajah authorised settlement by Penghulu Barat and his followers from the Undup. There would seem to be little doubt that in accordance with practice at that time the Rajah allocated them an area over which they would be permitted to establish native customary rights by felling virgin jungle.

37. History at this time becomes a little confused. There is no record of the exact nature of the undertakings given by the Rajah; but this is not significant as all pre war records in Miri were destroyed as a result of the Japanese occupation.

*See "Report of the Land Committee 1962".

38. The development of the timber industry in 1963 stimulated the descendents of the late Penghulu Barat to lay claim a very considerable area in the Upper Sibuti.* This area, which is illustrated on Figure 8 coincides broadly with that presently claimed by the Undup Ibans except in the North, where Rh. Dian claims a considerable additional area.

39. Such records as do exist are of little assistance in resolving this claim. In 1959 Mr. W. Adams, the Executive Officer of the Internal Migration Committee prepared a report (Appendix II) which referred to a map prepared by Mr. Lascelles as District Officer, Miri, in 1939. This map appears to have been lost, although it is known that Mr. Lascelles prepared maps of longhouse boundaries, not only of this area but also in the Niah Sub-district. In his report Mr. Adams quotes certain boundary descriptions which it is presumed accompanied Mr. Lascelles' map. He found certain difficulties in identifying the boundaries as described and produced a map of his own, reproduced in this report as Figure 9 which gave his interpretation of the boundaries as then recognised.

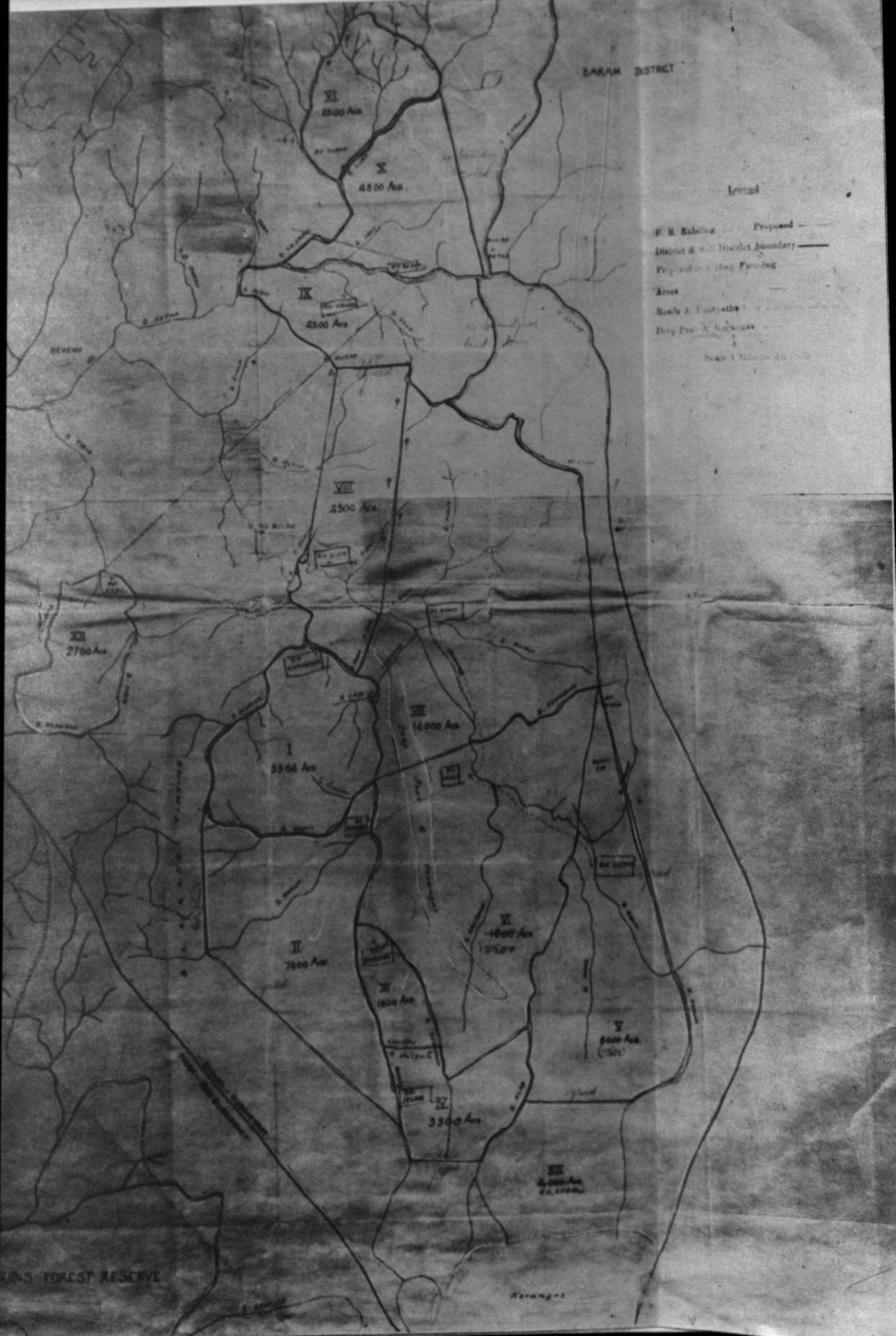
40. Up to the present time Government has taken view that Penghulu Barat was not given an area of land as such, but was allocated a locality within which he might establish native customary rights. In January 1965 the following recommendations were made to Supreme Council:-

- (a) that the claim to the farming land already felled be accepted;
- (b) that Communal Forests be constituted in the area sufficient for the needs of the communities involved (5 acres of forest per door is the usual scale on which communal forests are constituted).
- (c) since around 130 acres per door of farming land is already owned by these people, that no rights over the high forest be recognised and that the apparent request for more farming land be refused; and

*See Appendix I. Letter from Siah anak Barat and T. R. Unggam anak Kalong.

Legend

- F. R. Biddis Proposed
- District & Sub-District boundary
- Proposed (Proposed) Forest Areas
- Block A. Forests
- Deep Forest Reserves
- Scale 1 Mile to 1 inch



- (d) that the Limbang Trading Company* be allowed to continue provided they do so on a scale and to a plan satisfactorily to the Forest Department.

So far no formal decision on these recommendations has been taken by the State Government.

41. Similar problems exist in connection with the other Iban groups. When the Saribas Ibans migrated in 1935 they were allocated a considerable area in the Sungai Bakas by Mr. Aplin, the then Resident, Fourth Division. Both the Spaoh and the Bakong Ibans moved to the Fourth Division during the Japanese Occupation; but it has not been possible to trace any permission or definite allocation of land. Both groups however claim fairly extensive areas which include a large proportion of primary forest. It would seem that any ruling applied to the Undup Ibans should therefore be applied to the other groups; and that recommendations (a), (b) and (c) above form a reasonable basis on which to make a ruling.

42. There would seem to be little point in trying to relate land problems to uncertain historical data, and hence a new investigation has been made. Figure 8 shows the boundaries of the land at present claimed by the longhouses in the area, and also illustrates the two major land disputes:-

- (i) between Rh. Dian and Rh. Ngeribang over the area lying between S.Seloi and Bukit Mutap (about 1,400 acres).
- (ii) between Rh. Anggon and Rh. Jelani over the whole of the land claimed by the two longhouses.

*The Limbang Trading Company holds the Forest Licence for this area. (See Figure 14).

Illegal Occupation of Land

43. The term "farming land" used in recommendation (a) above is intended to refer to customary rights which have been created legally within the provisions of the Land Classification (Amendment) Ordinance 1955 which came into force on 16th April 1955. Under this enactment the occupation of Interior Area Land became illegal unless with the written consent of the District Officer; and penalties could be incurred by anyone felling virgin jungle or otherwise attempting to create any customary rights without such permission. The first air photography of the Lambir-Subis area after the operative date of the Ordinance was that taken in the years 1959 to 1961 (scale 1:60,000); it thus cannot be established whether or not there was any illegal felling between the years 1955 and 1959/61. However the area was photographed again in 1966 (1:25,000) and by comparison of these two sets of photography it is possible to establish that in the period intervening some 5,210 acres approximately of primary forest was felled (See Figure 10 and Table 3). During this period permits to fell were issued for 1,703 acres only.* It would therefore appear that illegal felling actually amounts to a minimum of 3,766 acres.+ It is not possible due to the lack of precision in the permits, to define specifically which areas are legal and which are illegal. The areas which have been felled since 1959/61, and also the approximate location of Permits to Fell are shown on Figure 11.

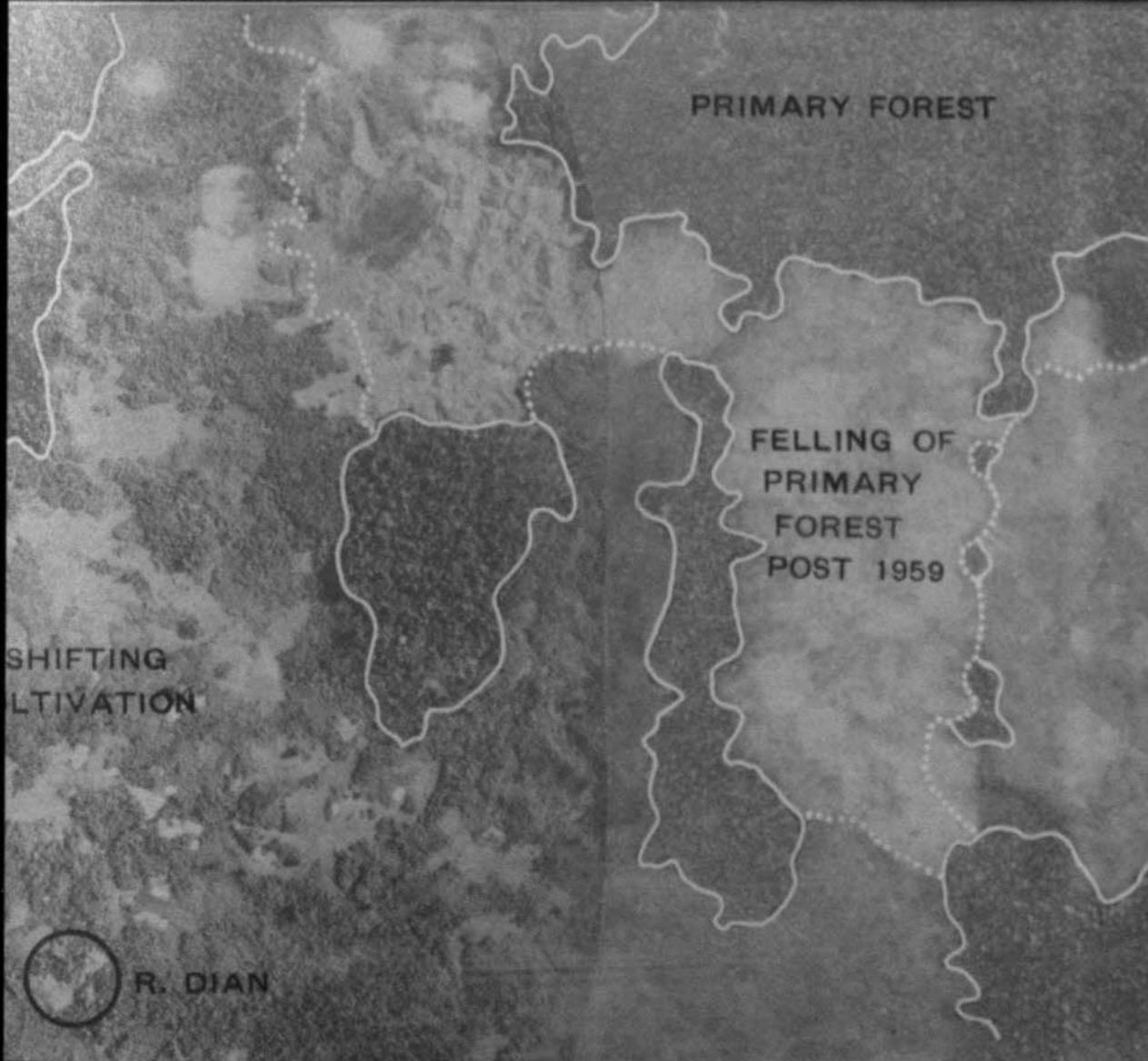
*Of this, permits to fell 220 acres were granted to Rh. Bedit presumably on the grounds that their farming land was inadequate. This 220 acres formed part of the area of 976 acres which Rh. Bedit recently sold back to Government.

+259 acres for which permits have been issued have not as yet been cleared.

AREAS OF FELLING AS PROVED BY AERIAL PHOTOGRAPHY



1959 Scale 1 : 25,000 1966



Settlements	Pre-1959 Farming Areas (Acs.)						1959 (Acs.)			Areas covered by permits for jungle felling (Acs.)			(Acs.)			
	Total	Suitable	Marginally Suitable	Unsuitable	Total	Suitable	Marginally Suitable	Total	Suitable	Marginally Suitable	Total	Suitable	Marginally Suitable	Total	Suitable	Marginally Suitable
Rh. Peng. Mancha	5,680	5,410	270	0	770	770	0	200	570	570	0	570	0	570	570	0
Rh. Dian	2,940	2,890	50	0	370	250	120	409	-	-	-	-	-	-	-	-
Rh. Umeh	4,370	3,880	350	140	800	350	450	Nil	800	350	450	350	450	800	350	450
Rh. Unggam	3,980	3,760	120	100	310	(outside the surveyed boundary)		120	190	190		190		190	190	
Rh. Entebang	3,310	3,310	0	0	720	720	0	144	576	576	0	576	0	576	576	0
Rh. Ladi	4,350	4,350	0	0	880	880	0	120	760	760	0	760	0	760	760	0
Rh. Anggon	1,220	1,220	0	0	80	50	30	Nil	80	50	30	50	30	80	50	30
Rh. Jelani	530	530	0	0	370	320	50	100	270	220	50	220	50	270	220	50
Rh. Bedit	3,120	3,120	0	0	Nil	-	-	220	-	-	-	-	-	-	-	-
Rh. Ngeribang	2,160	1,610	550	0	570	570	0	170	400	400	0	400	0	400	400	0
Kedayan Areas	6,400	5,370	420	610	340	340	0	220	120	120	0	120	0	120	120	0
TOTAL	38,060	35,450	1,760	850	5,210	4,250	650	1,703	3,766	3,236	530	3,766	530	3,766	3,236	530

CHAPTER V - LAND USE

44. The following categories of land use have been mapped from 1966 air photography. (See Figure 12)*

3. Tree, palm and other permanent crops
- Gs Seedling (low yielding) rubber
 - Gh High yielding rubber
 - O Oil palm
 - P Pepper

4. Cropland

- P Padi (swamp)
- X Shifting cultivation (hill padi and bush fallow)

7. Forest Lands

- M Mixed swamp forest
- H Hill forest
- Exploited forest - (has additional suffix e)

45. Such small vegetable and fruit gardens as exist could not be identified on the air photographs. Pepper was mapped at the working scale of 1:25,000, but does not appear on Figure 12 as the individual lots are too small to be distinguished at this scale.

46. In order to enable a quantitative evaluation to be made, land use has been examined against the background of the areas claimed by the various communities. As discussed in Chapter IV, Land Occupation and Tenure, this does not imply recognition of these claims.

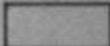
47. Table 4 gives the breakdown of land use by Communities, and Table 5 converts these figures to acreages per head. An analysis of these figures supplemented by on-the-spot investigation is very instructive.

*The categories are those of the Land Use Legend for Malaysia, but include, as has been agreed, certain sub-categories appropriate only to Sarawak. The Land Use Legend for Malaysia is based on the World Land Use Survey Classification.



LAND USE (1966)

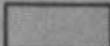
3. Tree, palm and other permanent crops

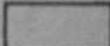
 Gs Seedling (low yielding) rubber

 Gh High yielding rubber

 O Oil Palm

4. Crop land

 P Padi (wet)

 X Shifting cultivation (hill padi and bush fallow)

7. Forest lands

 M Mixed Swamp forest

 H Hill forest

 e Exploited forest

7 miles

SCALE 1:125,000

Settlements	Seedling Rubber (Acres)	High Yielding Rubber		Oil Palm (Acres)	Pepper (Acres)	Padi (swamp) (Acres)	Shifting Cultivation (Acres)	Hill Forest (Acres)	Swamp Forest (Acres)	Exp. oited Forest (Acres)	Total (Acres)
		Mature	Immature (Acres)								
Kedayans	277	0	69	0	28	565	5,825	249	2,914	0	9,927
Rh. Peng. Mancha	515	153	63	0	39	104	5,576	7,772	1,146	374	15,742
Rh. Dian	203	0	27	0	15	64	3,005	1,773	399	473	5,959
Rh. Umeh	508	98	13	0	17	191	4,344	9,699	2,815	0	17,685
Rh. Unggam	48	0	87	0	9	132	3,704	7,473	0	0	11,453
Rh. Entebang	155	0	36	0	8	0	3,835	2,159	0	493	6,686
Rh. Ladi	90	0	36	0	10	0	5,096	5,480	0	0	10,712
Rh. Anggon	81	0	0	0	0	0	1,222	1,644	125	0	3,072
Rh. Jelani	137	0	0	0	0	0	767	1,893	0	0	2,797
Rh. Bedit	305	0	0	0	9	0	2,808	0	0	0	3,122
Rh. Ngeribang	165	0	29	0	9	0	2,522	1,886	0	0	4,611
Kabuloh Agricultural Station	0	0	0	58	0	0	736	642	0	0	1,476
Proposed Oil Palm Estate	0	0	0	0	0	0	2,541	5,231	0	0	7,772
Others	0	0	0	0	0	0	0	29,244	0	2,715	31,959
TOTAL	2,484	251	360	98	144	1,056	41,981	75,145	7,399	4,055	132,973

Settlements	Population persons	Wet padi Land Acs/person	High Yielding rubber Acs/person	Seedling rubber Acs/person	Pepper Acs/person	Shifting Cultivation Acs/person	Swamp Forest Acs/person	Hill Forest Acs/person	Exploited Forest Acs/person	Total Area Acs/person
Kedayans	464	1.22	0.15	0.60	0.06	12.55	6.28	0.54	0	21.40
Rh. Peng. Mancha	344	0.30	0.63	1.50	0.11	16.21	3.33	22.59	1.08	45.75
Rh. Dian	257	0.25	0.11	0.79	0.06	11.69	1.55	6.89	1.84	23.18
Rh. Umeh	223	0.86	0.50	2.28	0.08	19.47	12.62	43.89	0	79.26
Rh. Unggam	191	0.69	0.46	0.25	0.05	22.74	0	39.13	0	63.32
Rh. Entebang	273	0	0.13	0.57	0.03	14.05	0	7.91	1.80	24.49
Rh. Ladi	251	0	0.14	0.36	0.04	20.30	6	21.84	0	42.68
Rh. Anggon	48	0	0	1.69	0	25.46	2.60	34.25	0	64.00
Rh. Jelani	129	0	0	1.66	0	5.95	0	14.67	0	21.68
Rh. Pedit	283	0	0	1.08	0.03	9.92	0	0	0	11.03
Rh. Ngeribang	215	0	0.14	0.76	0.04	11.73	0	8.77	0	21.44

Kedayans

48. The Kedayans rely very heavily for their livelihood on the planting or wet padi. A family will normally plant between 2 and 2.5 acres of wet padi per annum, land being left fallow for one or two years after each crop. In addition to this most Kedayan families will plant one or two acres of hill padi, partly as an insurance against excessive flood damage to their wet padi, and probably partly because of the reputed better flavour of hill rice. Enough rice is produced for a considerable surplus to be available for sale.

49. Cash crops other than rice play a relatively small part in the Kedayan economy. It has been possible to identify only about 28 acres of pepper, and 69 acres of high yielding rubber, all of which is still immature. A small amount of rubber is at present produced in the form of poor quality sheet from old seedling (i.e. low-yielding) rubber trees; but tapping tends to be sporadic, and to be carried out only when money is short. The Kedayans have also planted a limited acreage of coconuts and fruit trees, mainly on riparian land, and cultivate vegetables; but not to any great extent.

Ibans

50. Although the Undup group possess a limited amount of wet padi land along the main Sungai Sibuti, this is only farmed occasionally. Throughout the area occupied by Ibans land for shifting cultivation claims by far the largest acreage. Some houses have planted a considerable area of seedling rubber but the more remote houses tend to have planted much less. Field investigation indicates that much of this rubber is untapped, and trees up to 15 years old have lost only a few inches of bark.

51. In recent years the planting of high yielding rubber under the subsidised Rubber Planting Scheme has made some progress. Rh. Penghulu Mancha and Rh. Umeh have led the way in this, and share the whole of the 251 acres which have reached maturity. Rh. Unggam, and to a much lesser extent, Rh. Dian have followed suit, so that the Undup group currently own more than 81% of the Rubber Planting Scheme rubber planted by Ibans.

Rh. Entebang and Rh. Ladi, i.e. the Saribas group, have planted 72 acres, or over 13% and the only other house to plant any is Rh. Ngeribang, with 29 acres. Rh. Anggon, Rh. Jelani and Rh. Bedit have planted none at all.

52. A total of 116 acres of pepper have been planted and once again the Undup group lead the way, with 80 acres or 69% of the total, whilst the Saribas group have planted nearly 16%. The Spaoh Ibans, Rh. Anggon and Rh. Jelani, are noticeable in that they have planted neither pepper nor high-yielding rubber.

53. The Ibans also possess fruit trees, and plant coffee and vegetables in small quantities for home consumption.

54. Within the areas claimed by both Kedayans and Ibans lie considerable areas of primary forest. There is a certain amount of swamp forest, but by far the greater proportion is hill forest. The unclaimed areas are also mainly covered by hill forest. In these forests the proportion of merchantable timber is very economic (averaging 12 to 15 tons per acre) and this is being exploited under a planned programme. Timber extraction is as yet only in its early stages, but already an appreciable acreage of exploited forest may be identified (about 1,340 acres of primary forest had been logged at the time of photography; 1966).

Government

55. A recent development is the Kabulu (formerly Luak) Government Agricultural Experimental Station at the northern end of the area. This comprises an experimental oil palm project, covering at present about 98 acres, and the Divisional production (i.e. fruit trees, pigs, etc., for distribution) and training centre.

CHAPTER VI - FARMING METHODS (PADI)

56. It is clear that the area under consideration could, support a population far greater than at present exists. It is thus necessary to examine farming methods in order to arrive at a reasonable allocation of land for the present occupants and their descendants, and hence the magnitude of any surplus of land which will become available for development.

The Kedayans

57. The Kedayans at present rely heavily on swamp padi cultivation, but also plant some hill padi. This latter is of little relative importance - one or two acres per door per annum - the significance of which as an "insurance policy" has been remarked upon above. However, in view of Government's policy of discouraging hill padi, and as incentives to grow swamp padi are now available to farmers under the Assistance to Padi Planters scheme*, it is considered that this has no long-term significance, and that the practice will gradually cease. The average yield of their hill padi is estimated by the Kedayans to be less than 25% of that of their swamp padi, and hence the economic incentive to grow hill padi is very small.

Ibans

Farming Primary Forest

58. The method known as Krukoh Kampong is almost universally followed. After initial felling the land is farmed for two years in succession. This has the advantage that a second crop, which frequently yields as much as the first, is produced with very little effort, and is, as Freeman notes, a method of "quickly extracting the maximum return from virgin land". For a more detailed discussion of the Krukoh farming method reference is made to Freeman. However it may be noted that he regards the system as a pernicious one, capable of inflicting permanent injury on the land. The land is permanently degraded from the point of view of hill padi cultivation in that the Damun or secondary forest is of an inferior quality. This is confirmed by the Ibans' own statement that yields from secondary forest average only 2/3 of those from primary forest.

*See Appendix IV
Iban Agriculture, Freeman P.116 et seq.

Farming Secondary Forest

59. After the initial double cultivation land is usually allowed to lie fallow for a period of 8 to 10 years; and thereafter is farmed at 8 to 10 years intervals. The Ibans state that the Krukoh Damun method, or farming of secondary forest in successive years, is not used. This is borne out by the fact that no tanah kusi⁺ or derelict land, has been identified in the area, either on the ground or on photographs.

Size of Farms

60. It is extremely difficult to judge the size of Iban padi farms because of the close connections with their religion. Freeman notes in his paragraph 64 (See Appendix III) the difficulties he encountered in surveying farms. Indeed, No.14 of the Pemali Umai of the Tusun Tunggu Iban, or the fourteenth offence related to infringement of farming rules recognised by the Iban customary law states:-

"14. Pemali negkalong kayu ngirit wi atau barang utai bukai di tisi amai orang (i.e. Taking tree bark, dragging rattan or anything at the edge of another farm), Mungkul*(2)."

+Tanah Kusi, or derelict land infested with noxious weeds such as lalang, usually results from over farming - i.e. farming primary forest for three years in succession, or secondary forest for two years. The tanah kusi reported by Adams in his memorandum to the D.O. Miri (See Appendix II) appears on investigation to have been about two acres of abandoned pepper garden, covered in scrub and grass. It was planted with seedling rubber in 1960, and now contains mature trees.

*Cap. 51, Volume VII The Laws of Sarawak 1958 page 616. One of the authors has in fact been fined for this offence (i.e. dragging a steel tape at the edge of a padi farm) when carrying out control traverse. As this did not involve actual measurement of the farm, the reaction was not too strong.

61. It has been possible, however, by a study of the land holdings purchased by Government from Rh. Bedit for the proposed C.D.C. oil palm estate, and from a study of air photographs to make some deductions about the farming practices in the area.

62. At Rh. Bedit in 1963 some 16 doors cleared just over 76 acres of secondary forest, or an average of about 0.7 acres per head (See Table 6). Actual areas farmed varied from 1.33 acres per head to as little as 0.50 acres per head. Holdings however tended to be more constant in size; only two were less than 4 acres and only one more than 5.5 acres in extent.

63. It has also been possible to identify areas cleared for farming on air photographs. This information is given in Table 7, and has been related to the population at the nearest census date. This indicates that on average the Ibans of this area cleared about 0.9 acres per head per annum for farming. This compares closely with the figure of 0.8 acres per head derived by Freeman.

64. All of the houses have, within the land over which they have established rights, a considerable acreage of low lying valley land in which the higher yielding padi emperan can be planted.⁺ High yields have also been associated with farming primary forest, and large farms are possible by farming the newly felled primary forest twice. Hence the padi crop has normally been considerably in excess of the requirements of the population for its own use, and there has been a surplus for sale. This emphasis on padi and the tendency to use it as a cash crop explains to a very large extent the disinterest in other crops which, until a few years ago, was a characteristic of the area, and which still persists in the majority of the houses.

⁺Padi emperan is a variety planted by Ibans on flat land, which is not swamp. It tends to yield more than most varieties of hill padi, but considerably less than true swamp padi.

INDIVIDUAL FARMS, RH. HEDIT 1963

Names of Claimants	Persons Door	Area of Land farmed; Acs.	Acs. /Person
Pak anak Gunong	6	4.24	0.71
Leng anak Reman	7	3.56	0.51
Bana anak Anggang	8	4.18	0.51
Leng anak Reman	7	4.47	0.64
Lajoh anak Rumpang	9	4.48	0.50
Lagar anak Nyambong	5	3.98	0.78
Leng anak Matan	8	4.94	0.62
Sambang anak Ateh	7	5.12	0.73
Lajok anak Samat	6	5.23	0.87
Bana anak Anggung	8	5.84	0.73
Gunong anak Langkau	8	5.14	0.64
Samat anak Ladi	9	5.23	0.58
Luyok anak Arup	5	4.65	0.93
Lambu anak Jinban	4	5.33	1.33
Lakong anak Anyat	5	5.21	1.04
Sambang anak Ateh	7	4.81	0.69
Totals	109	76.41	0.70

TABLE 7

Estimate of Areas Farmed by an Iban Family per annum

LONGHOUSES	POPULATION (PERSONS)	AREA FARMED (ACRES)	ACRES/PERSON
n. Peng. Mancha	279 (63)	280 (1962 Termuda)	1.00
n. Peng. Mancha	279 (63)	1964 248 (Primary Forest)	0.89
n. Peng. Mancha	344 (66)	1965 314 (Primary Forest)	0.91
n. Dian	248 (63)	+ 208 (1962 Termuda)	0.84
n. Jelani	129 (66)	1964, 1965 148 (Primary Forest)	1.15
n. Anggon	48 (66)	54 (1966 Termuda)	1.12
n. Ladi	237 (63)	290 (1963 Termuda)	1.22
n. Ladi	251 (66)	240 (1965 Termuda)	0.96
n. Bedit	109	76 (Termuda)	0.70 *
TOTAL	1989	1858	0.93

* Estimates based on the statistics of land surrendered to the government in 1962

+ Including approx. 100 Acs. of padi emperan

CHAPTER VII - LAND REQUIREMENTS

65. All of the inhabitants of the area practice shifting cultivation although as has been mentioned earlier, the Kedayans tend to plant hill padi as an insurance policy rather than as a staple crop. Shifting cultivation is not good for the land and a very considerable acreage is required to support each family. It is hence policy to discourage shifting cultivation, and settle farmers on permanent holdings of an economic size.⁺

66. It is first necessary to decide what constitutes an holding of an economic size. This varies with the crop; but assuming that the total holding should consist of the area required by the cash crop, plus an additional area of 2 acres for mixed farming, average economic holdings of various types might be :-

Oil Palm	12 acres + 2 acres mixed farming	14 acres
High yielding rubber	8 acres + 2 acres mixed farming	10 acres
Pepper	2 acres + 2 acres mixed farming	4 acres

As farmers will be encouraged to develop mixed holdings rather than depend on a one cash crop economy actual farms might be of almost any size. However, for the purposes of assessing ultimate land requirements a figure of 2 acres per head has been accepted. This will mean an holding of about 12 acres for an average Iban family of 6 members and 10 acres for an average Kedayan family of 5 members.

Kedayans

67. The average Kedayan swamp padi farm is between 2 and 2½ acres, or 0.4 to 0.5 acres of padi per head of population. This produces a yield of about 450 gantangs per acre; and Kedayan farmers state that half to two thirds of their crop is usually surplus and available for sale.

+ See Department of Agriculture Development Plan Brief 1967 at Appendix IV.

68. As has been stated earlier, the exact extent of the lands owned by the six Kedayan Kampongs in question is unknown. However, within the study area there is enough wet padi land to provide 0.43 acres per head for the whole of the estimated population in the year 2000. The Kedayans further own customary rights over 5,825 acres of shifting cultivation, and have 354 acres approximately under permanent cultivation. This amounts in all to cover $4\frac{1}{2}$ acres per head of the population in the year 2000, excluding lands held outside the boundary of the study area. It is thus clear that the Kedayans have ample land in reserve for future development.

bans

69. To the Iban hill padi planting is not merely farming; the whole practice is intimately bound up with his religion. To quote Freeman "To the Iban the growing of padi is a ritual undertaking, and their whole system of agriculture is an elaborate fertility cult".* However, he also records that economic pressures created by the 1950 rubber boom had in some cases affected the normal padi cycle. Thus he notes that "At Gansurai, a Dayak longhouse on the banks of the Layar River, for example, 6 of the 19 bilek families did not grow any padi during the 1950-51 season, and were relying entirely on imported rice which they were able to purchase with money obtained from the sale of rubber."

*This point must be emphasised. In this connection it is worth quoting paragraphs 59-64 of Freeman's report verbatim, and this is done in Appendix III.

70. Since 1950 the relationship between padi and cash crops has generally remained favourable to the latter, and hence there has been economic pressure for hill padi cultivation to decline. Despite the religious aspects there has been a tendency for this to take place, although the low prices of both pepper and rubber in the years 1956-58 caused a slowing down, and perhaps even a short reversal of this trend. However, an analysis of overall Sarawak production shows a decline in total rice production of approximately 1.7% per annum between 1949 and 1966. At the same time with encouragement from Government the proportion of wet padi has increased very rapidly so that in present years with the exception of 1964, wet padi production has exceeded that of hill padi. Indeed, one estimate by the Department of Agriculture suggests that the acreage of wet padi doubled between 1957 and 1966.⁺

71. The significance of this is very great. Despite the rapid increase in population in the period since the war, production of hill padi has shown a declining trend. Thus, looked at statistically, from the point of view of providing land for the future, should this trend continue all new families may be regarded as being dependent on settled agriculture, whilst there will be a steady swing from shifting cultivation to settled farming amongst those farming families already in existence.

72. In the past various estimates have been made of the amount of land required by a family relying on hill padi. The Internal Migration Committee accepted 100 acres door whilst Freeman* suggested 6-8 families per square mile; but neither of these figures take into account the part played by permanent crops. Both estimates are intended to be on the generous side, to make allowance for a proportion of unusable land.

73. In order to provide a basis for comparison formulae for assessing land requirement which take permanent cultivation into account have been derived.

⁺A Digest of Agricultural Statistics 1966.

*Iban Agriculture, Freeman P.116 et seq.

Present Land Requirement

74. This formula makes the following assumptions:-

- (i) That 1 acre/head/annum for the period of the rotational cycle is required for hill padi cultivation. (This compares with Freeman's figure of 0.8 acres/head, and makes an allowance for a proportion of bad land.)
- (ii) That on good land an eight year planting cycle should suffice whilst on marginal land a twelve year cycle is required.⁺ This is equivalent to saying that 8-12 acres/head is required for shifting cultivation.
- (iii) That on average 2 acres of land/head is adequate for settled agriculture. This applies in both marginal and suitable land as the requirement is based on a labour equivalent. In marginal land fertiliser costs are higher and hence the return is less.

These assumptions mean that on suitable land where an eight year cycle is assumed full reliance on shifting agriculture would result in a land requirement of 8 acres per head. On marginal land where a twelve year cycle is assumed, the requirement would be twelve acres per head. For permanent agriculture the requirement is taken as 2 acres per head. Hence in an overall formula for assessing land requirement one acre of permanent cultivation may be regarded as replacing 4 acres of hill farming land on suitable soil, or 6 acres of hill farming land on marginal soils.

⁺In Lambir-Subis the Ibans report an 8-10 years cycle; Kedayans an 8 years cycle.

Expressing these assumptions in terms of a formula:-

If y = present population

x = existing acreage of permanent cultivation

then the present land requirement "R" may be expressed as follows:

$$R = \left(\begin{array}{l} \text{Area required} \\ \text{for full reliance} \\ \text{on shifting} \\ \text{cultivation} \end{array} - \begin{array}{l} \text{Area replaced} \\ \text{by permanent} \\ \text{cultivation} \end{array} \right) + \left(\begin{array}{l} \text{Area actually} \\ \text{under} \\ \text{permanent} \\ \text{cultivation} \end{array} \right)$$

i.e. on good land

$$R = (8y - 4x) + (x)$$

and on marginal land

$$R = (12y - 6x) + (x)$$

these may be simplified as follows:-

$$R = 8y - 3x \text{ for good land}$$

$$R = 12y - 5x \text{ for marginal land}$$

Land Requirement: Year 2000

75. In estimating the land requirement in the year 2000 it has been further assumed that hill padi production will decline at $1\frac{1}{2}\%$ per annum*, i.e. by 40% up to the year 2000.

+Permanent cultivation is defined as all economically productive permanent cultivation: and is taken to include land used for fish ponds and livestock husbandry but to exclude seedling rubber gardens as these are of little long term value. Wet padi land which is planted annually is also regarded as permanent cultivation.

*This assumption is based on an estimate included in the paper "Some Aspects of Physical Planning in Rural Areas" by Gwilliam, 1963. A more recent analysis of statistics collected and published by the Department of Agriculture in the annual Digest of Agricultural Statistics shows that between 1959 and 1966 the actual figure was more, i.e. approximately 2%.

76. Hence a new formula for land requirement (suitable land) can be derived which assumes:

- (i) 40% of the present acreage under hill padi cultivation will have been replaced by permanent cultivation in the ratio of 4 acres of hill padi land abandoned to one acre brought under permanent cultivation (i.e. 4:1)
- (ii) The area required for the population increase is 2 acres of settled cultivation per head.

Existing area of permanent cultivation x

$$\text{Area for shifting cultivation} = 0.6(8y-4x) = 4.8y-2.4x$$

$$\begin{array}{l} \text{Area for permanent cultivation} \\ \text{to replace} \\ \text{hill padi land abandoned} \end{array} = \frac{0.4(8y-4x)}{4} = 0.8y-0.4x$$

Area of permanent cultivation at 2 acres/head for population increase of p. 2p

Hence summing, land requirement (suitable land) $R'' = 5.6y-1.8x + 2p$

Similarly it may be shown that the land requirement R'' in marginal land is $R'' = 8y-3x + 2p$

Application of these Formulae to the Lambir-Subis Area

77. These formulae are based on average national trends, and whilst they give a basis for comparison they cannot be regarded as being directly applicable in every case. In the Lambir-Subis area only the Undup Ibans have so far shown any marked inclination to plant permanent crops in any quantity. It cannot be said that there is any evidence that hill padi production has been on the decline in this area.

78. On the other hand, much of the area which was extremely remote in the immediate past is now readily accessible. The Department of Agriculture has established its main agricultural station for the Fourth Division at the northern end of the area (Luak). One can expect, therefore the impact of Government farming policies to be marked.

79. Table 8 makes two estimates of land requirement, based on the assumptions that the whole of the future population continues to live in the area, and to be engaged in agriculture. The first estimate is based on the formula, and illustrates the reduction in the area required, despite population increase, as the changeover from shifting to settled cultivation takes place. The second estimate is based on a figure of eight acres of agriculturally suitable land per head, the area required for complete reliance on shifting cultivation. This is regarded as a maximum figure, being four times the area which would be utilised were the population to become entirely reliant on settled agriculture.

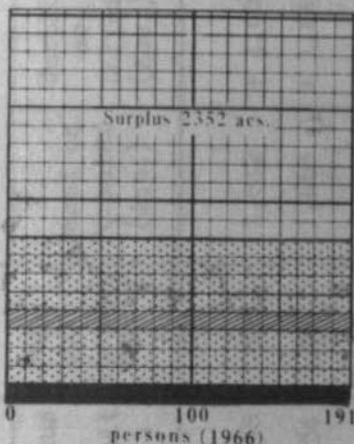
80. These estimates show that at the present time all longhouses, with the exception of Rh. Jelani, have created rights over an area which is sufficient for their present use. The supposed shortage at Rh. Jelani arises from the temporary settlement of their land dispute with Rh. Anggon, which, under the interim agreement, has a considerable surplus. The estimates also demonstrate for the year 2000 that all longhouses (with the exception of Rh. Jelani) have more than adequate land compared with their future requirement as calculated from the formula; but they indicate that if the Ibans were to remain completely reliant on shifting cultivation four long houses would by that date require more land. Figure 13 provides a visual illustration of the formula as applied to a representative longhouse; Rh. Unggam. Note that the present requirement as derived from the formula $R = 8y - 3x$ will shortly be reduced when the 90 acres of immature high yielding rubber comes into yield. (See Table 4 for the present land use pattern of R. Unggam.)

LAND REQUIREMENT ESTIMATE FOR R. UNGGAM

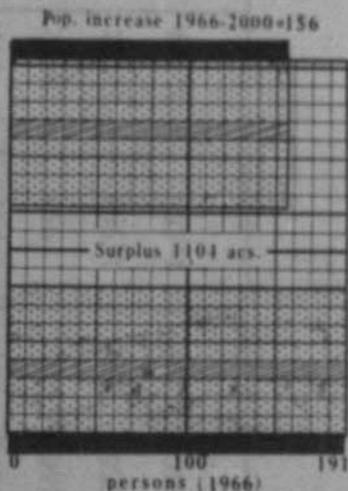
LAND REQUIREMENT (YEAR 1966)

LAND REQUIREMENT (YEAR 2000)

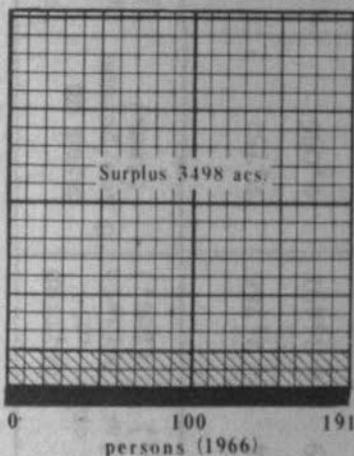
THEORETICAL
Full shifting
(8 acs. per head)



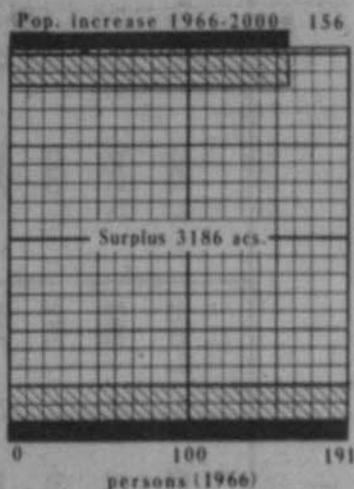
THEORETICAL
Full shifting
(8 acs. per head)



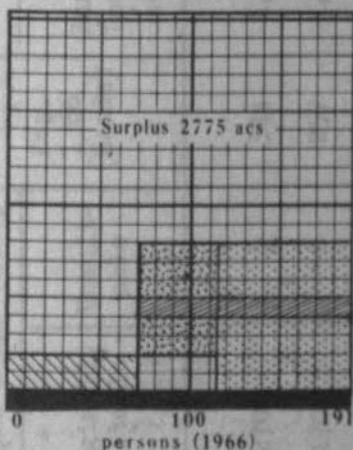
THEORETICAL
Full settled
(2 acs. per head)



THEORETICAL
Full settled
(2 acs. per head)



ACTUAL
Partially shifting
and
partially settled
 $R=8Y-3X$



PROJECTED
Partially shifting
and
Partially settled
 $R=5.6Y+1.8X=2P$



Population.

Annual farming area under
shifting cultivation.

Immature settled cultivation
presently unproductive

Bush fallow

Settled Cultivation

Area which will become surplus
when immature settled cultivation
becomes productive

NOTES: The 1966 farming area of R. Unggam totals 3980 acs. (i.e. 20 acs. per head) of which 100 acs. are unsuitable for agriculture
One small grid square equals to 10 acs.

LAND REQUIREMENT OF THE IBAN LONGHOUSES IN LAMBIR/SUBIS AREA

LONGHOUSES	1966 FARMING AREAS (ACS.)			Pop. 1966 (Heads)	LAND REQUIREMENT 1966				Pop. 2000 (Heads)	LAND REQUIREMENT 2000			
	Suitable	Marginally Suitable	Unsuitable		Based on Formular (ACS.)	Surplus or Deficit (ACS.)	Based on 8 Acs/person (ACS.)	Surplus or Deficit (ACS.)		Based on Formular (ACS.)	Surplus or Deficit (ACS.)	Based on 8 Acs/person (ACS.)	Surplus or Deficit
Rh. Peng. Mancha	6,180	270	0	344	1,684	+ 4,766	2,752	+ 3,698	625	1,842	+ 4,608	5,000	+ 1,450
Rh. Dian	3,140	170	0	257	1,819	+ 1,491	2,056	+ 1,254	467	1,668	+ 1,642	3,736	- 426
Rh. Umeh	4,230	800	140	223	866	4,164	1,784	+ 3,246	485	1,039	3,991	3,240	1,790
Rh. Unggam	3,760	120	100	191	1,105	+ 2,775	1,528	+ 2,552	347	972	+ 2,908	2,776	+ 1,104
Rh. Entebang	4,030	0	0	273	2,160	+ 1,870	2,184	+ 1,846	496	1,896	+ 2,134	3,968	+ 62
Rh. Ladi	5,230	0	0	251	1,978	+ 3,252	2,008	+ 3,222	456	1,733	+ 3,497	3,648	+ 1,582
Rh. Aragon	1,270	30	0	48	384	+ 916	384	+ 916	87	347	+ 953	696	+ 604
Rh. Jelani	850	50	0	129	1,050	- 146	1,050	- 146	234	932	- 32	1,890	- 990
Rh. Bedit	3,120	0	0	273	2,237	+ 863	2,264	+ 856	496	1,959	+ 1,161	3,968	- 848
Rh. Ngeribang	2,180	550	0	215	1,693	+ 1,037	1,720	+ 1,010	390	1,486	+ 1,244	3,309	- 579

CHAPTER VIII - THE TIMBER INDUSTRY

81. The timber industry is based on the extraction of hill timber by tractor from the magnificent stands of primary forest in the area. Licences have been issued and a phased logging programme has been worked out. Details of the phased exploitation of hill timber are given in Figure 14. Timber is transported to the coast by tractor, road, light railway, rafting by river or a combination of these methods. Timber ships anchor out to sea and load logs direct when the weather permits.

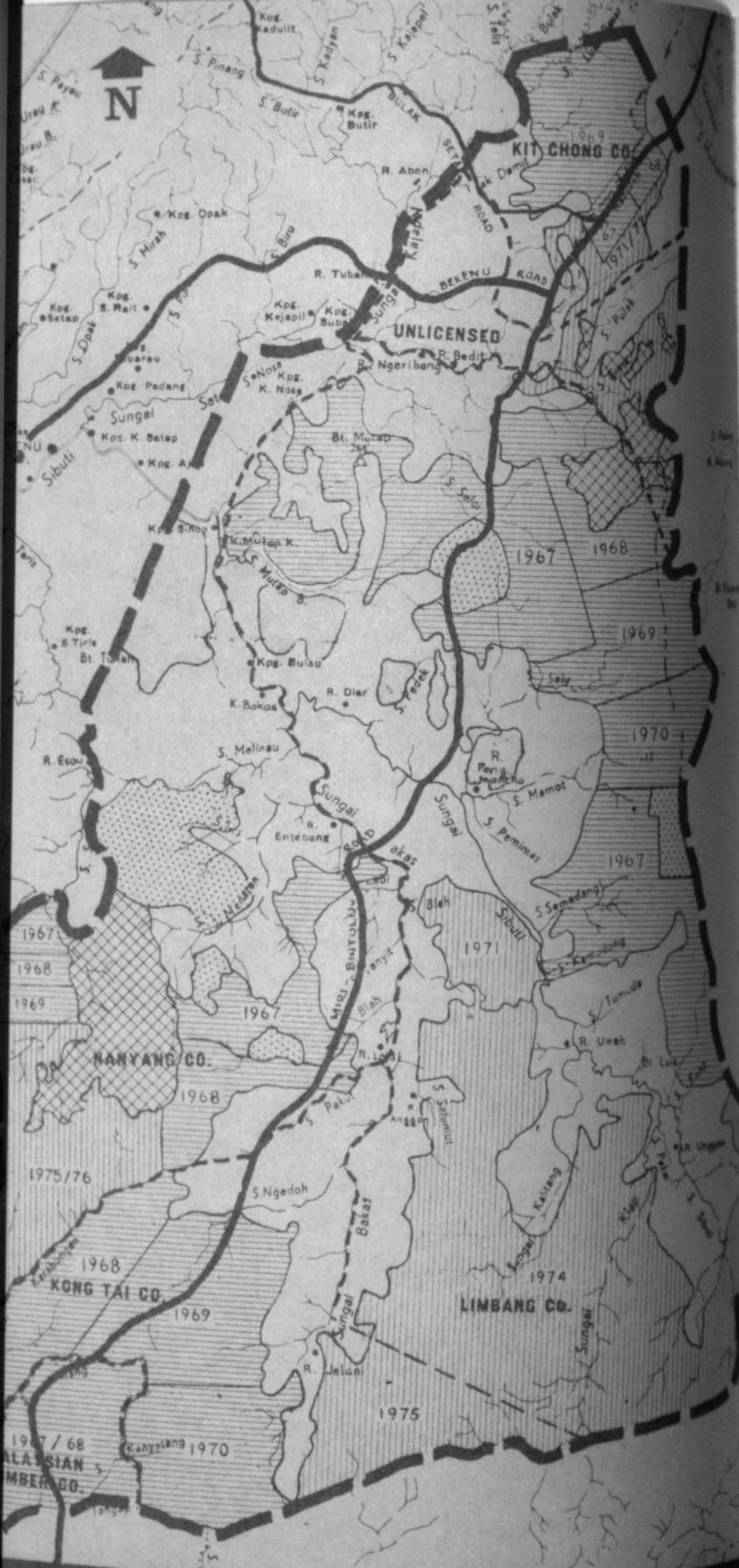
82. In issuing timber licenses Government has so far regarded primary forest as unencumbered State land, and the timber thereon as a State resource. This has not been accepted by the Ibans who, as has been noted earlier, lay claim to considerable tracts of primary forest. In July 1963 Government introduced a timber cess of \$1/- per ton of timber extracted. There is little doubt also that payments are being made by timber companies to the local Ibans for "peace and quiet". These two payments have only tended to re-enforce the Iban's claim to have rights over primary forest.

83. As the greater proportion of the land in the area is suitable for agricultural development it is not intended that it shall be retained as part of the permanent forest estate. An exception to this is a block in the south between the S. Bakas and S. Klap which includes an appreciable proportion of Class IV land which is only marginally suitable for agriculture, and which it is proposed to retain as a Forest Reserve. It is likely that the block to be retained under forest extends well outside the boundaries of the Lambir-Subis area to the south, and it is intended to make a special study of the desirable extent of the proposed reserve before making final recommendations. However, the block as presently delineated is above the minimum economic size for future exploitation.

Employment in the Timber Industry

84. Most of the labour engaged in timber extraction does not come from the Lambir-Subis area, but from outside. Very few local Ibans have taken employment with the timber companies, although the timber is largely being extracted from primary forest which they themselves claim.

TIMBER LOGGING PROGRAMME



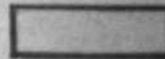
Primary Forest



To be logged before 1970



To be logged after 1970



Logging Programme unknown



Degraded primary forest



Exploited forest



Boundary of timber licence area

LIMBANG CO.

Timber licence

Note: Year indicated is the estimated year of completion of timber extraction.

7 miles

SCALE 1:125,000

This is probably partly due to the fact that there is no land shortage, and hence no need to look for work; and possibly partly due to the fact that the Iban, so near to his home, is an unreliable source of labour, prone to take a day off whenever he feels so inclined, and employers are known to be reluctant to employ Ibans in these circumstances.

85. On the other hand some Kedayans have found the prospect of regular work with the timber companies attractive. Investigations in the area show that about 85 Kedayans have taken employment in the timber industry, i.e. approximately 40% of the adult male Kedayan population.

86. However work in timber extraction cannot be regarded as providing long term employment opportunities, as the majority of the area will be turned over to agriculture once the initial extraction of merchantable timber is completed. Even in these areas planned to become part of the permanent forest estate it is estimated that some 60 years must elapse after the initial coupe before a second coupe will be worthwhile.

The Timber Cess

87. Approximately 35,000 acres will be logged between 1967 and 1970, and an estimated further 20,000 acres after that date. This means that at an average yield of 12 tons per acre the cess will produce an additional \$420,000/- prior to 1970, and \$240,000/- after that date.

88. This money is available for use on minor rural development projects. The following proposals are currently under consideration:-

(1) Adult Education/Community Centre at Bekenu ..	\$15,000
(2) Dayak Rest House at Bekenu ..	\$15,000
(3) Clinic/Community Centre at Rh.Peng.Mancha ..	\$15,000
	<u> </u>
	Total \$45,000
	=====

CHAPTER IX - COMMUNICATIONSRiver and Sea

89. As the trunk road is not yet open to traffic the only major transport routes open for unrestricted use by members of the public are the rivers and the sea. This means that transport of both goods and people is inconvenient, unreliable and at times dangerous, for every river on this part of the Sarawak coast has, at its mouth, a sand bar which severely hampers navigation, and restricts the draft of vessels which can be used. These bars are not stable, and the navigable channel is always liable to change especially at the turn of the monsoons. Thus in the Fourth Division alone 19 Chinese launches have been stranded on these bars in the last 5 years; three of these strandings have resulted in the total loss of the vessel concerned.

90. Within the area, the Sungai Sibuti and its tributaries the Sungai Bakas and Sungai Satap link the Kedayan and Iban settlements with Bekenu Bazaar, which is the main trading centre and river port of the area, being at the head of navigation for Chinese launches and timber launches. Above Bekenu all rivers are navigable by longboat and outboard only, and even then travel is restricted at periods of low water. In the Landas season, when the rivers are high, the occurrence of belian logs in the river beds has in the past set an upstream limit to outboard travel. However, since 1965 Government has spent some \$1,900/- under Federal Head 126-31 'Other Rural Development Projects' on river clearance in the Sungai Sibuti and Sungai Bakas.

91. The unsatisfactory nature of a communications system which is regularly interrupted by every dry spell is clear; and there has been local pressure to develop alternatives. In December 1965 a footpath with timber bridges, connecting Rh. Penghulu Mancha and Rh. Dian and the village shops at Kuala Bakas was completed at a cost of \$12,000/-. This has been handed over for maintenance to the Subis District Council, and is heavily used when the Sungai Sibuti is unnavigable. More recently, also under "Other Rural Development Projects", a timber bridge has been built spanning Sungai Setapat at a cost of \$1,000/-.

92. As has been mentioned above, Bekenu is the river port for the area, trading coastwise mainly with Miri. Bekenu stands on the north bank of the Sungai Sibuti, about eleven miles from its mouth. Chinese launches and timber launches of up to five foot draft can cross the bar at Kuala Sibuti, and reach Bekenu where there are two small wooden commercial wharves each about 30 feet in length. However, because of the distances involved, the shallowness of the rivers, the bars, and the difficulties of coastal navigation during the landas season it is anticipated that the importance of river transport in commerce and trade will decline considerably after the trunk road is opened, and Miri is easily accessible by land.

93. Miri is the overseas port for this part of the Fourth Division. The river bar there is extremely shallow and dangerous, with a narrow channel which not only changes position with the turn of each monsoon season, but also unpredictably at other times as well. The Port of Miri therefore consists of:

- (i) Riverside wharves to cater for coastal shipping, and accessible only to vessels of shallow draft.
- (ii) A lighterage service for cargo ships using Miri Roads.

The main public river wharves are as follows:-

Coastal Wharf	Length	200 feet
Least depth alongside		7 feet
Customs Wharf	Length	90 feet
Least depth alongside		3 feet
Immigration Wharf	Length	20 feet
Least depth alongside		7 feet

Along the true left bank of the Sungai Miri there are a number of private wharves serving godowns and industrial land.

94. In addition to the lighterage service for cargo the port of Miri includes the offshore oil loading berths at Lutong which serve Sarawak and Brunei Shell Oilfields.

95. There is also a very considerable export of timber from the Lambir-Subis area. This is rafted down to the coast towed by small launches, and when weather conditions permit these rafts are towed out to sea and the logs are loaded directly onto ships anchored offshore.

96. The overall picture is marred by the lack of port capable of handling ocean going ships. However, the possibility of building a port at Kuala Baram, some miles away by road, has been recognised for some years, and during 1965 a survey was carried out by the Hydrological Research Unit of the Department of Scientific and Industrial Research assisted by State Public Works Department. Subsequently the Hydrological Research Unit at Wallingford have constructed a model of Kuala Baram for the purpose of conducting experimental feasibility studies. These are still in hand, and preliminary results tend to show that proposals will be subject to economic rather than physical limitations. In this connection the development of the Ambir-Subis area could be an important factor.

97. It is also relevant to note that a U.N. team began work in July 1967 on a Transportation Planning Project, which they are undertaking on behalf of the Federal Government. In this one of the items listed for study is "Kuala Baram Port Development or alternative facility". The need for solving the question of a deep water port is thus fully recognised; but in view of the capital investment which will of necessity be involved careful investigation is essential before any decision is taken.

Roads

98. The Miri-Niah section of the trunk road, which roughly bisects the area, is now nearing completion and will shortly provide ready access to and through it. It is of all weather construction to a secondary standard (i.e. capable of taking up to 1,500 vehicles of a weight of over 10 cwt. per day) on a trunk route; and is expected to be opened before the end of 1967. In addition a number of feeder roads from the trunk road are under construction or have been planned; notably the Bekenu road which is nearing completion and the Beluru Spur road, for which the exact alignment has yet to be settled.

99. Funds are also included in the First Malaysia Plan to improve the Lutong-Kuala Baram Road to secondary standard and thus to give access to the possible port development at Kuala Baram. Work is likely to commence in 1968 and is scheduled for completion before the end of the plan period.

100. Clearly the development of Lambir-Subis for agricultural purposes will necessitate additional road construction within the area which is well justified by the agricultural potential. In the primary forests agricultural development will be phased to follow the extraction of timber. When the timber companies withdraw they frequently leave behind a system of road traces constructed for their own purposes and which provide excellent temporary access. As the terrain is relatively gentle it may well be possible in many cases to improve these at a relatively small cost so that the access they provide is not lost.

101. A network of footpaths connected with and relating to the new road construction is already developing. These have not been mapped at the present time as they cannot be seen on air photographs; but their junctions with the roads are frequently marked by signposts erected by the people themselves. These new paths emphasise the readjustment which is taking place throughout the whole Lambir-Subis area as the impact of development becomes more marked.

CHAPTER X - SOCIAL SERVICESEducation

102. It is probably better to regard education as a long term economic investment rather than a social service. Indeed, at the recent Founding Conference of the Institute of Development Studies at the University of Sussex, attention was drawn to the importance of directing education towards agricultural improvement if productivity were to be raised; and the importance of the potential impact of adult education on rural transformation was emphasised. This is also in line with the advice and recommendations of the present UNESCO Mission which suggested a more practical curriculum for secondary schools (see Education Department's statement at Appendix V). It is thus essential to any rural development programme that education, both child and adult, is facilitated.

103. Figure 8 shows the distribution of the primary schools in the area, and Table 9 shows their size and enrolment. The highest attendance is amongst the Kedayans, with 103 children at school out of an estimated 150 between the ages of 6 and 14, or approximately 70%. Of the Iban population as a whole some 285 children, out of an estimated 530 of school age, are receiving primary education, i.e. about 54%. It is noticeable that in Rh. Dian, which has been broken up for several years, only 13 out of 55 children or less than 24% attend school. Once again the relative backwardness of this house, which has for a number of years had no real community existence, is evident.

104. Of the eight small schools in the area, Upper Primary classes are only available as yet at Barat District Council School. Because of their small size it is impossible to provide a full staff, and hence they suffer the fate of all small village schools: classes must share teachers and hence standards drop. The minimum desirable size for a primary school is one complete stream consisting of six classes including upper primary. Such a school requires about 200 families to support it; hence it is desirable, from the education viewpoint, to encourage settlements of about this size. Shared facilities are to be encouraged where longhouses are almost adjacent, e.g. Rh. Bedit and Rh. Ngeribang. This is not the case, however, where houses are well separated, e.g. Rh. Unggam and Rh. Umeh, or Rh. Ladi and Rh. Jelani.

School Statistics

Names of Schools	Total Enrolment	No. of Teachers	No. of Classrooms	
Barat D. C. School (Dayak)	90	3	3	In Rh. Peng. Mancha, upper primary. It also serves Rh. Dian, Rh. Umeh, and Rh. Unggam.
Dian D. C. School (Dayak)	13	1	2	In Rh. Dian, lower primary school.
Kelitang D. C. School (Dayak)	40	1	2	In Rh. Umeh, lower primary. It also serves Rh. Unggam.
Mlu Satap D. C. School (Dayak)	62	2	3	In Rh. Bedit, lower primary. It also serves Rh. Ngeribang.
Bakas D. C. School (Dayak)	40	1	2	In Rh. Entebang, lower primary opened in 1967.
Ladi D. C. School (Dayak)	40	1	2	In Rh. Ladi, lower primary. It also serves Rh. Anggon and Rh. Jelani.
Belau D. C. School (Kedayan)	53	2	2	In Kg. Balau, lower primary. It also serves Kg. Bakas, Kg. Sinop and Kg. Mutap.
Belaun Ahad D. C. School (Kedayan)	50	2	2	In Kg. Tiris, lower primary. It also serves Kg. Patasan.
Total	388	13	18	

In such cases shared facilities can only be regarded as a temporary expedient.

105. In the field of adult education little has yet been done. However, Home demonstration (economics) services run by the Department of Agriculture commenced early in 1966 and are now available at Rh. Dian and Rh. Penghulu Mancha.

Other Social Services

106. Other social services are at the moment extremely limited. Rh. Bedit and Rh. Penghulu Mancha have been supplied with water tanks for roof catchment supplies. One tank of 200 gallons capacity has been provided for each door, i.e. forty-six to Rh. Bedit and 51 to Rh. Penghulu Mancha. These are large enough to supply pure water for drinking only.

107. There are no medical facilities within the area itself the nearest being at Bekenu, and at the moment there is neither a midwife nor an home help in the whole of Lambir-Subis. However a clinic/community centre, to be financed from the timber cess, is proposed for Rh. Penghulu Mancha.

108. A Dayak Rest house has been proposed at Bekenu, also to be financed by the timber cess. This would be a considerable service to Dayaks in the area as long as Bekenu remains the commercial and administrative centre for Lambir-Subis.

CHAPTER XI - PROBLEMS AND POLICY

Land Tenure

109. The problems of land tenure have been discussed at length in Chapter IV. It is recommended that the following policy is adopted:-

- (i) Legally created native customary rights for farming should be recognised.
- (ii) Land on which primary forest has been cleared without permit should be regarded as unencumbered State land.
- (iii) Adequate areas should be reserved for each longhouse/kampong for farming purposes where Native Customary Land is insufficient.
- (iv) Communal Forests to the extent of about 1 acre/head should be created (this is slightly more than the 5 acres/door originally recommended to Supreme Council).
- (v) Claims that there are rights to fell primary forest for farming should not be entertained.

110. In the absence of a ruling these policies have been provisionally adopted for the purposes of preparing this plan.

111. The adoption of these policies will mean that Government will refuse to recognise the claims made by the Iban people to large areas of primary forest, and also to much of the recent illegal felling. This will clearly require very careful explanation to the people. At the same time the opportunity should be taken to settle the outstanding land disputes between longhouses.

Shifting Cultivation

112. Whilst generally speaking the Undup group have, in recent years, made substantial progress towards a reliance on permanent crops, the other groups have achieved little. The most recent settlers, the Spach group, have no permanent crops of any economic value, although they have planted a certain amount of seedling rubber.

113. The livelihood of these people has, then been based on an hill padi economy; large farms and double cropping of primary forest have made possible a substantial surplus, which could be sold for cash. The restriction placed by these proposals on further felling of primary forest will mean a complete change in emphasis in their way of life. The problem of bringing about this change will not be made any easier by the religious connotations of hill padi planting referred to in para 69. The following approach is recommended:

- (i) An urgent programme to encourage the use of fertilisers on hill padi farms should be initiated, with the object of improving yields and hence to some extent making up for the loss of the higher yields which would otherwise have been obtainable if primary forest had been felled. This is clearly necessary as the planting of hill padi is bound to continue until permanent crops are yielding, (i.e. 4-7 years minimum depending on the crop.)
- (ii) Hill padi farming for two consecutive years after the felling of secondary forest (temuda) should be prohibited). There is no legislation to make such a prohibition effective at the moment; but there is a clear possibility that this method might be used in an attempt to increase the crop by planting a larger area. Should this happen it must be controlled to prevent permanent degradation of the land.
- (iii) Investigations should be undertaken by the Department of Agriculture into the possibilities of:
 - (a) dry padi planting on a short rotation using fertilisers, similar to the West Malaysian pattern. This may well be possible in the areas of gentler terrain.

- (b) Padi Emperan planting, on a short rotation or even an annual basis, employing fertilisers where beneficial. This, on religious grounds, would probably prove more acceptable to the Iban than swamp padi.
- (c) Mapping of all potential swamp padi land with a view to encouraging the Iban farmer to adopt the crop for annual farming. It may well be that in the upper parts of the river valleys suitable land for true swamp padi may not be available; hence the importance of examining all possibilities.

114. This approach is in sympathy with the agricultural policy recommended by the Department of Agriculture. (See Appendix IV).

115. It is clearly impossible to make positive recommendations until the results of these investigations are known. It is recommended, however, that the investigation into padi Emperan be given a high priority. There is apparently a considerable area of land in the main river valleys suitable for its cultivation; the Iban are familiar with the crop (contrast swamp padi); its yields are higher than those of hill padi (though at the moment not so high as swamp) and it is probable that these could be raised further by use of fertiliser. Hence it would appear that it has a number of advantages if planting on a short rotation or annual basis is possible.

Settled Agriculture

116. The problems of the development of settled agriculture in the area are of a twofold nature; those concerning the Native hill padi farmer as he turns away from subsistence shifting cultivation; and those related to capital and labour in the large areas of State land. Overshadowing both, however, is the question of oil palm cultivation and the impact that its introduction will have on the economy of both on this region and the State as a whole.

117. The Sarawak 1964-68 Development Plan states that "Probably the most important single objective of the Plan is the establishment of oil palms as a commercial crop in Sarawak". It goes on to state "Oil palms are now well established in Sabah and Malaya, and there are large areas of land in the Fourth Division of Sarawak which are suitable for the crop". The First Malaysia Plan notes "The potential for extensive cultivation of oil palm is also good in Sarawak and Sabah".

118. The Lambir-Subis Area contains large areas suitable for the cultivation of oil palm. The Department of Agriculture has established a trial plot at Kabulu Agricultural Station, which is doing well. In view of the economic advantages of this crop compared to rubber and the need to reduce the reliance of the State economy on rubber, it would seem wise to plan for a large-scale development in oil palm wherever the land is suitable.

119. However, it is important to note that whilst rubber is well suited to small scale processing even though the final product may not be of the best quality, oil palm requires factory processing with careful quality control. A pilot scheme for smallholder development, with a small factory suitable for up to 600 acres is planned at Danau in Fifth Division^{*}; but the normally recognised minimum acreage to support a factory of economic size is 5,000 acres. Such small scale production also creates handling difficulties. It is the intention to ship the production of the pilot project in 44-gallon drums or other suitable containers, but this again is expensive. Large scale production requires bulk shipping facilities to be really economic.

120. Thus in view of the capital investment involved in factory and shipping installations it is not possible to "drift" into oil palm production as it is into rubber. Whilst Governments offer of land for an oil palm estate to the Commonwealth Development Corporation may be taken as an expression of intention, a definite policy statement re oil palm development in the Fourth Division has not as yet been forthcoming. It is recommended that a policy decision be taken now to specify that oil palm will be the major cash crop in the Lambir-Subis area.

*See Appendix VI for details.

121. Even when this decision has been taken it will be impossible for large-scale production to commence until the question of shipping facilities has been settled. This problem is examined in greater detail in paras 131 to 133.

122. In the meantime the idea of oil palm development in the Lambir-Subis area should be kept in the public eye. This could be done by means of a pilot scheme similar to that which has been commenced at Danau. A scheme such as this based upon approximately 600 acres would eventually aim at supplying fruit to a large-scale factory. Should large-scale production be delayed initially the fruit would be processed in one of the small factories of the type described in Appendix VI. When the large-scale facilities were eventually developed this could then be moved elsewhere to another pilot project. It is therefore recommended that a pilot oil palm scheme should be started in the Lambir-Subis area as soon as possible.

123. It is also recommended for the following reasons that this pilot project should be sited near Rh. Bedit and planned to provide for the participation of the whole long-house community:-

- (i) The land is suitable for planting oil palm.
- (ii) Rh. Bedit is immediately adjacent to the Kabulu Agricultural Experimental Station and hence the project would be easy to supervise.
- (iii) Rh. Bedit had a population of 46 doors in 1966, which at 12 acres per door would mean a block of 552 acres (i.e. about optimum size for a small factory).
- (iv) Rh. Bedit immediately adjoins the proposed C.D.C. estate, which is likely to be the first large-scale oil palm project to go ahead. Oil palm at Rh. Bedit would be well placed for processing in the C.D.C. factory in the future.
- (v) The block could have ready access from the Bekenu feeder road.

- (vi) See para 196 Rh. Bedit is the only house where it is not possible to reserve 8 acres per head of population in the 2000. Hence it is essential for them to develop permanent crops at the earliest opportunity.
- (vii) Rh. Bedit has not so far planted any high-yielding rubber and only a small acreage of pepper. The labour supply is not therefore committed to other permanent crops.
- (viii) Rh. Bedit has expressed keen interest in an oil palm scheme. However should insufficient support come from Rh. Bedit, a joint block with Rh. Ngeribang could be contemplated.

124. The phasing of other Native oil palm blocks will have to be synchronized with the development of processing facilities (either on estates or large government schemes) and with the development of communications, to enable the ripe fruit to be transported to the factory without delay. The pace of development will also depend on to a great extent, the attitude of the people.* Whilst, therefore, oil palm will be encouraged it may not be possible to commence planting in some parts of the area for a number of years.

*Out of the 10 longhouses in the area, 6 (Rh. Penghulu Mancha, Rh. Umeh, Rh. Bedit, Rh. Ngeribang, Rh. Entebang, Rh. Jelani) have expressed interest in oil palm; but as smallholders and not as labourers. Penghulu Mancha has gone as far as to suggest an oil palm block in land under secondary forest claimed by his house to the west of the trunk road. The members of the house are reluctant to agree to this on the grounds that they might be short of land to plant hill padi should they use temuda for planting oil palm. This demonstrates how deep rooted is the problem of shifting cultivation. Rh. Unggam, Rh. Ladi, Rh. Anggon and Rh. Dian have expressed doubts about oil palm; but do not reject the idea entirely.

125. The emphasis on palm oil production does not mean it is intended to create a one-crop economy. Whilst oil palm in the State-wide sense means diversification, at a local level it could mean just the opposite. Thus those Natives with a negligible acreage of permanent crops at the moment should be encouraged now to plant up cash crops, e.g. high-yielding rubber in blocks of economic tapping units under RPS "A", pepper, preferably by the hedgerow method, and also vegetables, fruit and pond fish for home consumption. Such a policy has two advantages; firstly if energetically pursued it will broaden the base of the farming economy; and secondly it will enable development to proceed before large scale planting of oil palm is possible.

126. In the large blocks of State land the question of delay before planting oil palm can commence is also important. In order to stimulate interest in Lambir-Subis, and to demonstrate Government's intention to press ahead with developing the area it is recommended that an RPS "B" scheme (one village unit) for which funds are available, should commence as soon as possible.* Such a Government scheme would make it economic to provide a processing factory and Cooperative Marketing facilities which may then be used by smallholders outside the scheme itself. Over 600 acres of high yielding rubber had already been planted by Native smallholders up to 1966.

*The wisdom of recommending further rubber planting may be queried in the light of the sharp price fluctuations of September 1966. However the fall in price is not unexpected. In Table 3-2 of the First Malaysia Plan 1966-1970 the price of rubber in 1970 is estimated to be 55 cents per lb., and it has always been anticipated that the price would probably become stable at an average of about 50 cents per pound. In practice the price has dropped far earlier than expected; and should such low prices continue this would have a severe adverse effect on the National Economy.

The effect on the individual smallholder would be far less marked. Even should his net receipts fall to 39 cents per lb. a smallholder in a Land Development Scheme tapping eight acres of rubber yielding 1000 lbs per acre per annum would have an income of \$260/- per month. Produce for home consumption or sale from the mixed farming lot would further boost this figure; and hence it can be seen that even with these low prices a smallholder could earn an income which would be greatly in excess of the current rural average.

127. Notwithstanding this proposal it is recommended that the bulk of the State land in the area should be given over to oil palm cultivation. See paras 134 and 137, because of problems of capital and labour it is recommended that a number of types of development should be tried. Government is already negotiating with C.D.C. who wish to start an estate. Because of the need (see para 132) to raise the production of the area to a minimum of 20,000 tons per annum as quickly as possible it is recommended that a second and even a third estate be encouraged to start as soon as possible.

128. This concentration on oil palm will tend to make the area vulnerable in the event of a slump in the price of palm oil. In Government schemes (e.g. Land Development Schemes, block alienation schemes, FLDA schemes) the worst effects of failure in a one-crop economy will be buffered by the two-acre mixed farming lots. This, however, will not be true in the case of estates.

129. It is therefore recommended that adjacent to each estate sufficient State land should be reserved for each family employed on the estate to have a 2-acre mixed farming lot (this in addition to the small vegetable garden provided by the estate near the labour lines). This would enable the more energetic labourers to supplement their income, and would act as a buffer should a slump in palm oil threaten.

130. It is not intended to try and prescribe the exact nature of the relationship between smallholdings (i.e. on block alienation schemes) and estates; as this will largely depend on the response to the various methods of development proposed (see paras 208 onwards). However, it is recorded for information that in West Malaysia an estate of 4,000 acres with factory has been found capable of working satisfactorily in association with about 1,000 acres of smallholdings. This would seem to suggest that a village block of 200 smallholdings (i.e. about 2,400 acres of oil palm) might be related to two estates of 5,000 acres each.

Communications, especially port facilities

131. Considerable emphasis has already been laid on the necessity for an urgent decision re bulk shipping facilities for palm oil. The main possibilities seem to be as follows:

- (i) a deep water port at Kuala Baram, with bulking tanks there.
- (ii) lighter service from Kuala Baram to Labuan, (with bulking tanks at Kuala Baram, and utilising the tanks which will be constructed at Labuan to handle the production of palm oil from Sabah).
- (iii) a deep water port at Bintulu.
- (iv) export via Muara in Brunei, using bulking facilities which may be constructed in conjunction with possible oil palm planting in Temburong.

Each of these proposals has drawbacks. The first is an uncertain starter, largely on economic grounds. The second entails a doubling-up of bulking facilities.

The haul by road to Bintulu is approximately 74 miles longer than the haul to Kuala Baram, i.e. entailing possible additional road transport costs of over \$11.00 per ton. The road is scheduled to be through to Bintulu in 1970; but no investigation has been made as yet of the practical possibilities of a new port there. It would therefore seem that a decision to use Bintulu is likely to involve considerable delay. Similarly Muara is 97 miles further from the estate than Kuala Baram; including the two ferry crossings at Kuala Baram and Kuala Belait this might add about \$16/- per ton to transport costs. Other drawbacks are :-

- (i) There are no funds in the First Malaysia Development Plan to improve the section of the trunk road from Kuala Baram to the Brunei border.
- (ii) Even if funds were made available there is no guarantee that Brunei would improve the section Brunei border - Kuala Belait.
- (iii) Brunei is, in effect, a foreign port.

Bearing in mind these drawbacks, and that the Brunei oil palm project is still only at an exploratory stage, a decision to use these facilities if they become available would again inevitably cause delay.

132. It would seem that the use of Labuan, with intermediate bulking facilities at Kuala Baram is the most likely starter, certainly in the short term. Such facilities could continue to be used in the event of Kuala Baram being developed as a deep water port. It should be noted, however, that the bulking of palm oil is not simple and straightforward, and requires specialist staff. A minimum economic facility should have a throughput of about 20,000 tons per annum. This means that should the decision be taken to go ahead with oil palm two estates of 5,000 acres each should commence at the same time, to enable the figure of 20,000 tons to be reached with the minimum of delay.

133. In view of the imminent transportation study it is not considered appropriate to make definite recommendations at this stage. As, however, the future of oil palm in the Fourth Division depends largely on a decision being taken re shipping the product, it is recommended that this matter should be given the most urgent consideration.

Capital

134. In round figures an area of approximately 50,500 acres of State land will become available at Lambir Subis by the end of 1970, of which 46,000 will be before the end of 1969. This land is at the moment being logged but is otherwise completely unused. Development costs must therefore include provision not only for agricultural development, but for internal communications, housing, amenities and social services.

135. To develop 50,000 acres in the form of Land Development Schemes based on R.P.S. "B" rubber would involve a capital investment of something in the region of \$1,600/- per acre, or \$80 million. To develop 50,000 acres in the form of oil palm estates the investment is nearer \$2,500.00 per acre, or \$125 million. (These figures include provision for processing factories, housing, etc., but neglect interest charges. In the case of R.P.S. "B" the settlers labour cost to himself is not included.) To these figures must be added the cost of subsidies, services etc. to the existing and future inhabitants of the native reserves, major road development, port development, etc.

136. These figures are not intended to be accurate estimates, but to give an idea of the order of magnitude of investment required. The total planned expenditure for Sarawak in the First Malaysia Plan is \$463.7 millions. By comparison it is clear that if development is to go ahead reasonably rapidly in Lambir-Subis Government cannot undertake the task alone. It is therefore recommended that in addition to Government schemes private investment both in the form of estates and smallholdings should be encouraged.

Labour Supply

137. The population statistics and projections in Table 1 amply demonstrate that if the potential of the area is to be fully developed the existing labour supply is woefully inadequate. By natural increase the total population of permanent residents in the area will only be a little over 5,300 in the year 2000. The area allocated to Rh. Penghulu Mancha alone would, on the basis of settled agriculture, support the entire Iban population of the area forecast for that year. The proposed C.D.C. oil palm estate and factory has a labour requirement of 700 families.

It is estimated that in the year 2000 there will be a total of only 674 doors of Ibans. Thus if all the Dayak families were to opt to work on this one estate, there would still be an inadequate supply of labour.

138. The minimum area that it is proposed to reserve for one community is that adequate to support 200 families. Thus excluding communal forests it is proposed to reserve over 50000 acres for the use of natives, i.e. enough to support some 25,000 people, or about 4,500 families. This is approximately five times the projected population in the year 2000.

139. After the land to be reserved for natives has been excised there remains an area of over 56,000 acres of State land for development, which will be available, in stages, by the end of 1971. Figure 12 and Table 10 show the land which will be ready for development after timber extraction by years. This, even allowing for 20% of unsuitable land within the generalized class "suitable for agriculture", will support 4,000 families on the basis of settled agriculture.

140. It is clear that all of the settlers for this land will have to come from outside the area. Of the existing inhabitants the Ibans have stated their reluctance to become labourers; and have not even taken employment in the timber industry. A number of Kedayans are employed in timber extraction, and might opt to work on oil palm estates. However, even should they do so the labour available within Lambir-Subis would be a drop in the bucket compared to the requirement; and it must also be remembered that any large scale trend on the part of Natives to accept employment on estates would only serve to deplete the labour required to develop their own land. It is therefore clear that any realistic development programme must envisage fairly extensive immigration into the area.

141. Similarly if the land reserved for the Native Communities is to be developed adequately a much larger population will be required. It is therefore recommended that once the community and longhouse boundaries have been finalised migration into the area should with the agreement of the existing inhabitants, be encouraged.

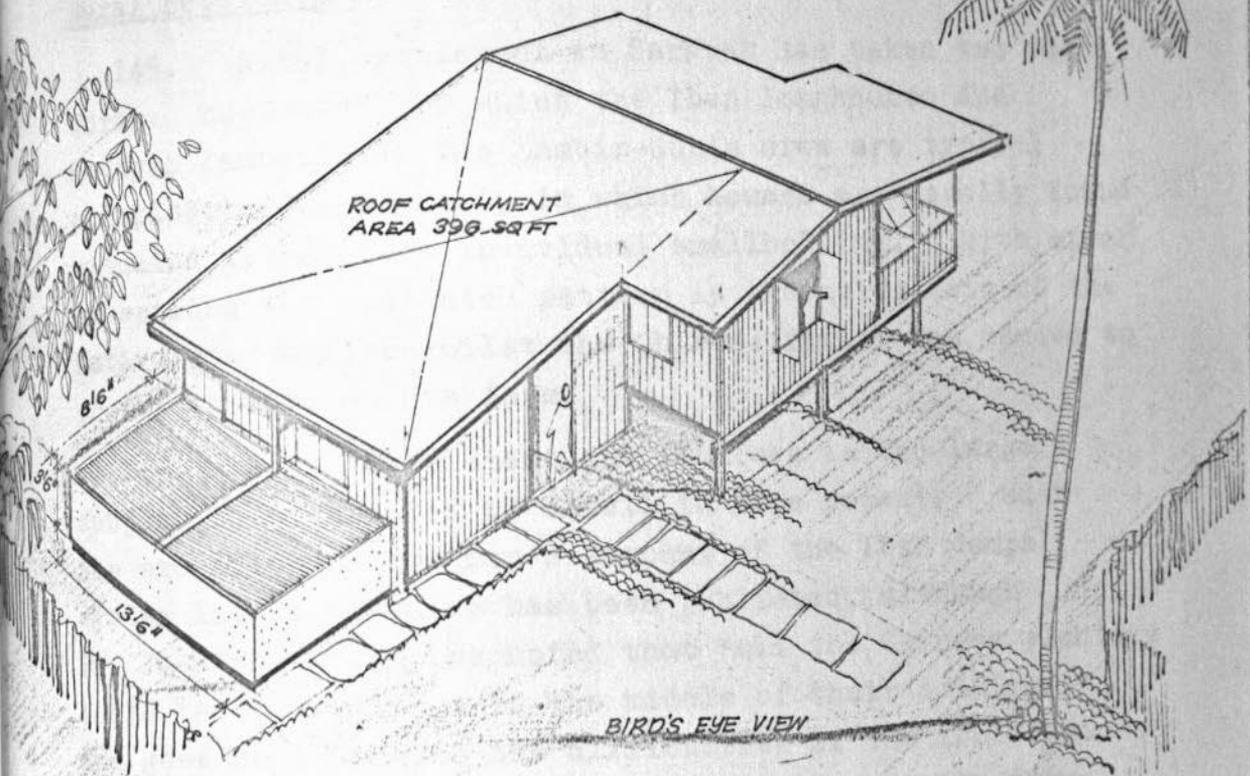
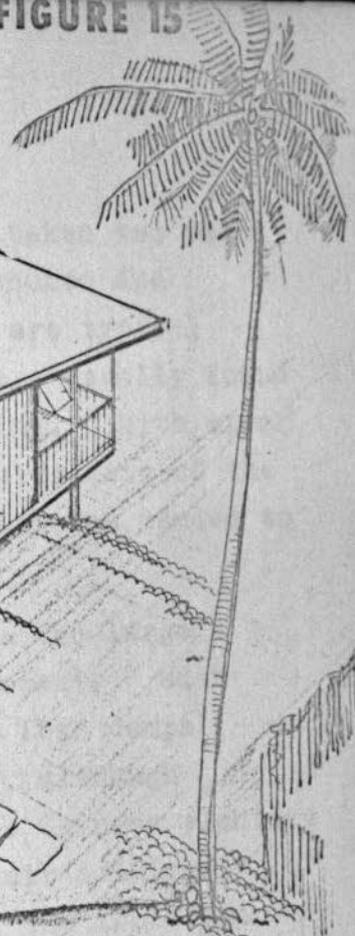
Water Supply

142. It may seem strange to talk of a water supply problem in an area where the rainfall exceeds 110 inches per year, and the average fall in April, the driest month, is approximately 6.2 inches. However, it must be remembered that whilst the Lambir-Subis area consists largely of the Upper Sibuti basin, much of the land to be developed lies astride the watershed. The only rivers of any size are the Sibuti and the Bakas, along which most of the existing settlements are clustered, and even these are still small where they cross the line of the trunk road.

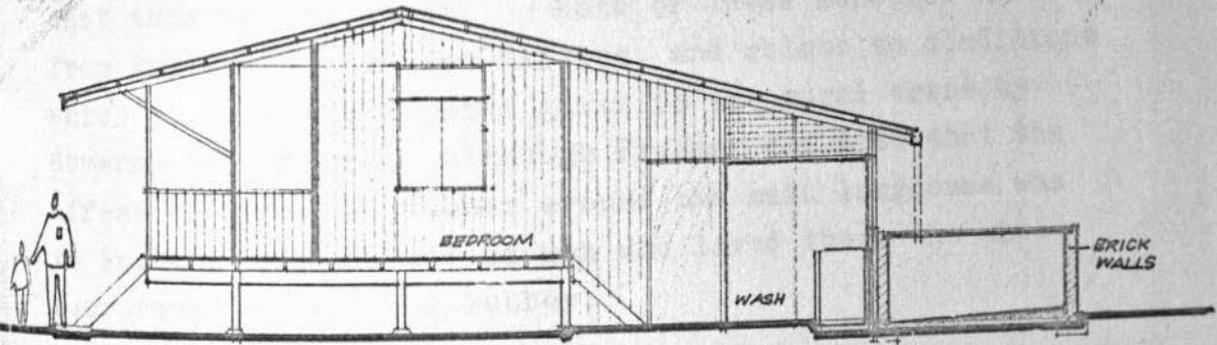
143. From an examination of daily rainfall records of Bekenu over a period of 10 years from 1955-1964 it has been calculated that a 2,500-gallon storage tank, supplied from the roof of a Stage II settlers house as erected in the Land Development Schemes to date, will provide a family with a supply of 40 gallons per day (See Figure 15). Emergency supplies might occasionally be required in periods of extended drought, which are most likely to occur in the drier period which extends from February to May, but this was not the case in the ten years examined. It is therefore recommended that this be adopted as the standard method of domestic water supply in the Lambir-Subis area.

144. Though roof catchment water supplies can with care provide for the domestic needs of the rural areas,* water sources will clearly be an important factor in the location of the larger urban settlements where a piped supply might ultimately be contemplated. They will also influence the siting of factories for processing agricultural produce. An Oil palm factory can require up to $2\frac{1}{2}$ tons of water per ton of fruit, i.e. 120,000 gallons per day for a factory handling the fruit from an estate of 5000 acres. Similarly a rubber processing factory consumes 30 tons of water for every ton of rubber produced. An hydrological investigation to establish the potential of the rivers in the area as sources of water is therefore very necessary.

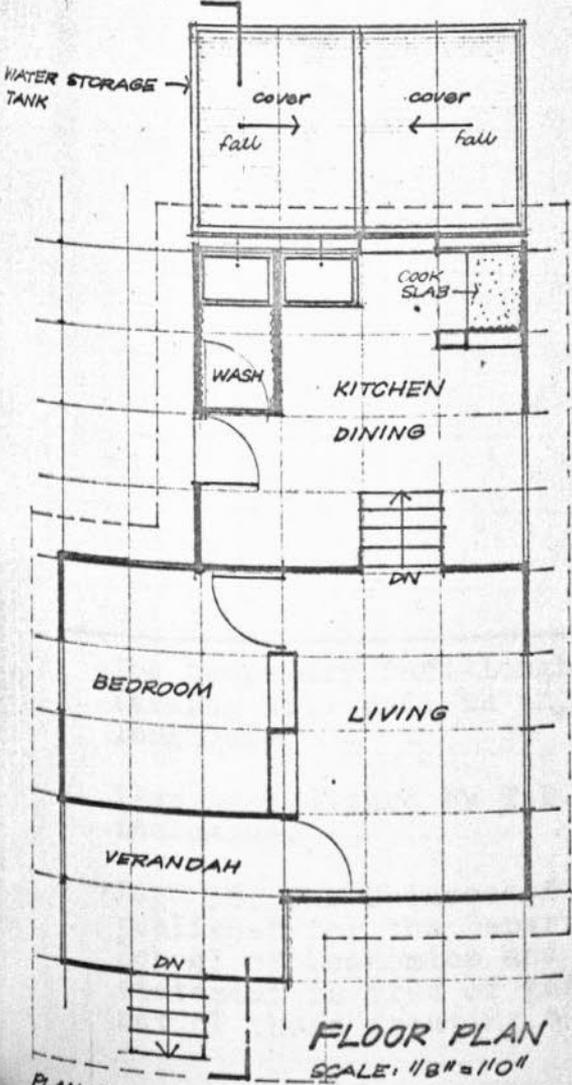
*The standard of 40 gallons a day per family compares with 12 gallons/head on introduction of a piped supply in Sarawak, which tends to rise gradually to 25 gallons/head. C.D.C. advise that on their estates in West Malaysia where they supply free piped water domestic consumption reaches 40 gallons/head/day.



BIRD'S EYE VIEW



SECTION



FLOOR PLAN
SCALE: 1/8" = 1'0"

PLAN IS BASED ON A 3 1/4" MODULE

**PROPOSED
2500 GALLON
WATER STORAGE TANK
FOR STAGE II
SETTLER'S HOUSE**

**NORMAN LEHEY & ASSOCIATES
ARCHITECTS & TOWN PLANNERS
3RD FLOOR · ELECTRA HOUSE
KUCHING · SARAWAK**

Rural Settlement

145. Rural settlement in Sarawak has taken two main forms: nucleated, of which the Iban longhouses and Kedayan Kampongs of the Lambir-Subis area are typical examples; and scattered, in which houses are usually found situated within each individual smallholding. With minor exceptions the nucleated pattern is characteristic of the Native communities whilst the Chinese farmer has tended to prefer to live on his farm.

146. Rural settlement and land use is too large a subject to be treated in detail in this report. With the exception of Freeman's account of the Iban dampa⁺ system little of value has been published, although Dr. Ju-K'ang T'ien has noted that "all the Chinese planters build their dwellings in the middle of their holdings," and goes on to record the difficulties of the isolation that this brings about.* Both of these accounts date from the early nineteen fifties, and relate to conditions which predate the impetus given to the rural areas by Government schemes; although Freeman did note that the effect of planting rubber around the main longhouse was to increase the number of men who lived there the whole year round to tap the rubber.

+The temporary farm-longhouse used by the Iban when farming hill padi in an area remote from the main longhouse.

Iban Agriculture by T.D. Freeman paragraphs 70 to 74 inclusive.

*Page 36, The Chinese of Sarawak by Dr. Ju K'ang T'ien published for the Department of Anthropology, London School of Economics and Political Science. This statement is true of gardens served by footpath; but not of those fronting a navigable river.

147. The impact of rural development programmes probably began in 1956 with the commencement of the Rubber Planting Subsidy Scheme. Since this time the scope of these programmes have been considerably extended, especially in recent years. Current plans provide for crop diversification; new processing methods; new roads, footpaths and bridges; new schools; new dispensaries, clinics and medical services, all of which will tend to change the existing settlement pattern. Although there is a clear need for a detailed examination of that pattern's response to these new stimuli, to date it has not been possible to make such a study although it is the intention to do so. However, even had an investigation already been undertaken, it is doubtful whether the results obtained would have indicated any clear trends as yet. Rural settlement patterns do not respond overnight to changes in the economy; and the vigorous rural development programme has barely had time to take effect. Thus in proposing a rural settlement policy for the Lambir-Subis area it will be necessary to rely on theoretical considerations, supported by experience in other countries, and substantiated by such facts as are available.

The 200 family unit:

148. It is recommended for the reasons given below that rural settlement should be considered on the basis of units of approximately 200 families:

- (i) 200 families will support a full one stream primary school. The advantages of such a school, with a different teacher for each class need not be emphasised further.
- (ii) Small District Headquarters such as Bau (1960 population 1203 in 202 households) Serian (1236 in 181 households) and Kanowit (1555 in 228 households) have been provided with treated piped water supplies, and electricity supplies. These are the smallest communities which have been provided with these services to date, and it seems likely that the cost of providing them to markedly smaller groups would be prohibitive.

- (iii) On average in Sarawak there is one shop per 200 persons; a unit of 200 families would thus support about six shops, which is about the number required before a small bazaar really begins to function as such.
- (iv) Consistent with the above, the distance between house and holding (should the family live in a village) or house and school (should the family live on the farm) should be kept to a minimum[†].

149. The organisation of the 200 family unit will clearly vary according to circumstances. The first objective of the Development Plan 1964-68 was stated to be:

- "(1) To improve the farmer's livelihood and make the countryside a pleasant place to live in"^{*}.

Broadly speaking farming efficiency, and hence the farmer's livelihood, is improved if the farmer lives on his lot. Loss in efficiency caused by living away from the farm may be minimised if the house lot is not more than 1.25 miles from the remainder of the holding and is large enough for intensive cultivation. Indeed, it can be argued that village life, by making adult education easier to organise, makes a positive contribution to improving farming techniques.

[†]See Appendix 9 for a quotation from "Rural Settlement and Land Use" by Michael Chisholm, published by the Hutchison University Library.

Applied to Sarawak this infers that where a farmer does not live on his land his house should preferably be not more than 1.25 miles from his farm, and should never be more than 2½ miles. Allowing for 20% waste land, a circle of radius 1.25 miles will hold approximately 200 lots of economic size (average 12 acres). It also suggests that the house lot should be large enough for intensive gardening for vegetables.

^{*}Development Plan 1964-68, para 89.

On the other hand it is certain that services are cheaper and amenities and social contacts are more easily provided when the rural population live in compact villages. The recommendation to use roof catchment water supplies (para 143) means that water can be supplied on isolated farms; yet it must be remembered that the cost of constructing a water tank on an isolated lot without road access will be considerably more than that in a village. An electricity supply in the future could probably only be provided in a village.

150. The requirements of individual farms and individual farmers will vary considerably; and this will depend not only on the crops which are grown, but on the stage of development which the farm has reached. Thus a newly planted holding of oil palm requires a lot of attention, and (See Appendix VI) offers favourable conditions for intercropping in the early years. When mature, it requires less labour (some 38 man days/acre/annum) and a farmer might then prefer to live on an intensive smallholding near a village centre to obtain the advantages that this offers, and travel to the oil palm lot as necessary. On the other hand a farmer dependant mainly on raising livestock, might never be in a position where he could justify moving into a village.

151. For these reasons it is recommended that the detailed planning of rural settlement in the Lambir-Subis area should incorporate the maximum possible flexibility to allow for adjustment to changing conditions as development proceeds. For every 200 family unit a village reserve of adequate size should be created in which will be sited a centre including school, shops, and such other services (e.g. clinic) as can be provided. Except in those cases where the village forms part of the scheme (e.g. in a Government financed Land Development Scheme) there will be no requirement to live in the village; nevertheless it should be possible for every farmer, should he so wish, to live there and enjoy the services and amenities it has to offer.

Village Planning

152. The existing pattern of land ownerships and kampong and longhouse sites relates to an agricultural economy and a system of river transport both of which are being rapidly superceded. Especially in the case of the Ibans there was a tendency to site the main longhouse at the downstream end of their farming land, below the confluence of the main tributaries. This practice, combined with that of using rivers as boundaries has resulted in many villages being placed eccentrically to the lands they serve; a point of little importance when the dampa system is in use, but of considerably greater significance in the light of the changes in farming practice already taking place e.g. of part of the farming land claimed by Rh. Ladi, which is five miles from that house, is just across the Sungai Bakas from Rh. Jelani.

153. Whether or not the existing villages prove to be suitably located relative to the new economy there is little doubt that in most cases their sites are fixed. The main longhouse is the focal point of the community; and in the majority of cases is surrounded by and is central to such permanent crops as have been planted. It is possible to envisage a number of ways in which the settlement pattern might adjust to changed conditions: a new longhouse village might be encouraged to "twin" with similar one belonging to a different community on the opposite bank of the river, and to share villages facilities;* alternatively a variation of the dampa system might be developed, giving rise to a "king" village with satellite permanent hamlets a mile or so from the main longhouse. It is almost inevitable that several completely new settlements will be built to facilitate the exploitation of farming land which is at present remote from existing longhouses.

*Rh. Anggon and Rh. Jelani of the Spach Group already share a school with Rh. Ladi of the Saribas group. This is a trend which should be encouraged.

154. Current development projects have disturbed the traditional way of life of both the Kedayans and the Ibans. Capital investment is already sufficient to ensure that the way of life of the Native Communities will be radically affected during the coming decade. At a time such as this it is especially important that the social structure of these communities should not be disrupted; but should be given time to adjust to new conditions. It is therefore recommended that proposals should be made only after the most detailed investigation, and that every proposal should be fully discussed with the community concerned before implementation.

New Villages

155. In the areas of State land which are allocated for agricultural purposes most of the settlement will be on a nucleated pattern. This will clearly be the case where land is developed in the form of an estate, a Federal Land Development Authority Scheme or a Land Development Scheme. However, in accordance with para 151 it is recommended that even in areas of block alienation a suitable site should be set aside as a village reserve; although initially no works will be carried out.

156. Experience in Sarawak of new villages connected with new agricultural development has so far been confined to Land Development Schemes. A new village, with roads, footpaths, a treated, piped water supply and an electricity supply, is part of such a Scheme; and in order to construct these services at a reasonable cost a compact village plan is necessary. This means, unfortunately, that the agricultural holding is frequently in three parts:-

- (i) The house lot, which is, where possible, made big enough for vegetable growing.
- (ii) the mixed farming lot (averaging about two acres).
- (iii) the cash crop lot (todate, rubber).

This split of the holding into three parts makes it almost inevitable that one of the three will tend to be neglected. If, however, the settler's house could be built on the mixed farming lot agriculturally a much more satisfactory state of affairs would pertain.

157. It has been demonstrated in para 142 that over much of the Lambir-Subis area piped water supply is impracticable; and hence one advantage of a very compact village layout is lost. A satisfactory village for about 200 families can be designed on the basis of two acre lots, providing the terrain is not difficult. On a low tension distribution system this would possibly entail a voltage drop in the more remote parts of the village; but this future marginal disadvantage is considered worthwhile. It is therefore recommended that the agricultural settlements in the Lambir-Subis area should be based on the 200 family unit; that they should make provision for a village centre similar to that in Land Development Schemes, with shops, cooperative, primary school, cinema, community centre etc; and that the basic residential lot should, where possible, be about two acres in extent.* It is also recommended that where a village is not to be constructed immediately an adequate area for a future village should be reserved now.

Summary of Recommended Policies

Land Tenure

158. (i) Legally created native customary rights for farming should be recognised.
- (ii) Land on which primary forest has been cleared without a Permit should be regarded as unencumbered State land.

*A proportion of smaller true residential lots should be provided for those not requiring a smallholding.

- (iii) Adequate areas should be reserved for each longhouse/kampong for farming purposes where Native Customary Land is insufficient.
- (iv) Communal Forests the extent of about 1 acre/head should be created (this is slightly more than the 5 acres/door be originally recommended to Supreme Council)
- (v) Claims that there are rights to fell primary forest for farming should not be entertained.

Shifting Cultivation

- 159.
- (i) Shifting cultivation should be discouraged.
 - (ii) In the interim the use of fertilisers in hill padi planting should be encouraged.
 - (iii) Hill padi farming for two consecutive years after the felling of secondary forest should be prohibited.
 - (iv) Investigations should be made into the possibilities of planting swamp padi, padi emperan, and also hill padi on a short rotation using fertilisers where beneficial.

Settled Cultivation

- 160.
- (i) A substantial proportion of the State land suitable for the cultivation of oil palm should be earmarked for such development either by estates or smallhold smallholders participating in Land Development Schemes.
 - (ii) Natives should be encouraged to develop Native Customary land of a similar quality for oil palm.
 - (iii) Provision for the necessary subsidies should be made.
 - (iv) Government's interest in the Lambir-Subis area should be demonstrated by commencing, as soon as possible, a pilot oil palm scheme, and a Land Development Scheme based on R.P.S. "B".

Communications

161. Urgent attention should be given to the problem of shipping palm oil, and to the siting of a bulking terminal for Palm Oil.

Capital

162. In view of the shortage of capital Government schemes and private investment both in the form of Estates and smallholdings should be encouraged.

Labour Supply

163. In view of the grave shortage of labour migration into the area should be encouraged.

Water Supply

164. Roof catchment and storage should be regarded as the standard domestic supply.

Rural Settlement

165. (i) Rural Settlement should be planned on the basis of units of approximately 200 families.
- (ii) Detailed planning of rural settlement should incorporate the maximum possible flexibility to allow for adjustment to changing conditions as development proceeds.
166. (i) In view of the impact on the local inhabitants of the rapid and radical changes in their way of life, any proposals relating to existing villages should be fully discussed with the community concerned.
- (ii) In Government schemes involving subsidised block planting of cash crops a new type of village based on 2 acre lots to incorporate the mixed farming lot should be adopted where possible.

- (iii) In other schemes where land is set aside for a village residential lots should be large enough to permit the cultivation of fruit and vegetables. A proportion of two acre lots should be provided to cater, inter alia, for labourers who will work on small estates.

CHAPTER XII - RECOMMENDATIONS

167. These recommendations are based on the assumption that the policies suggested in Chapter XI are accepted. They naturally then arrange themselves under the following headings:-

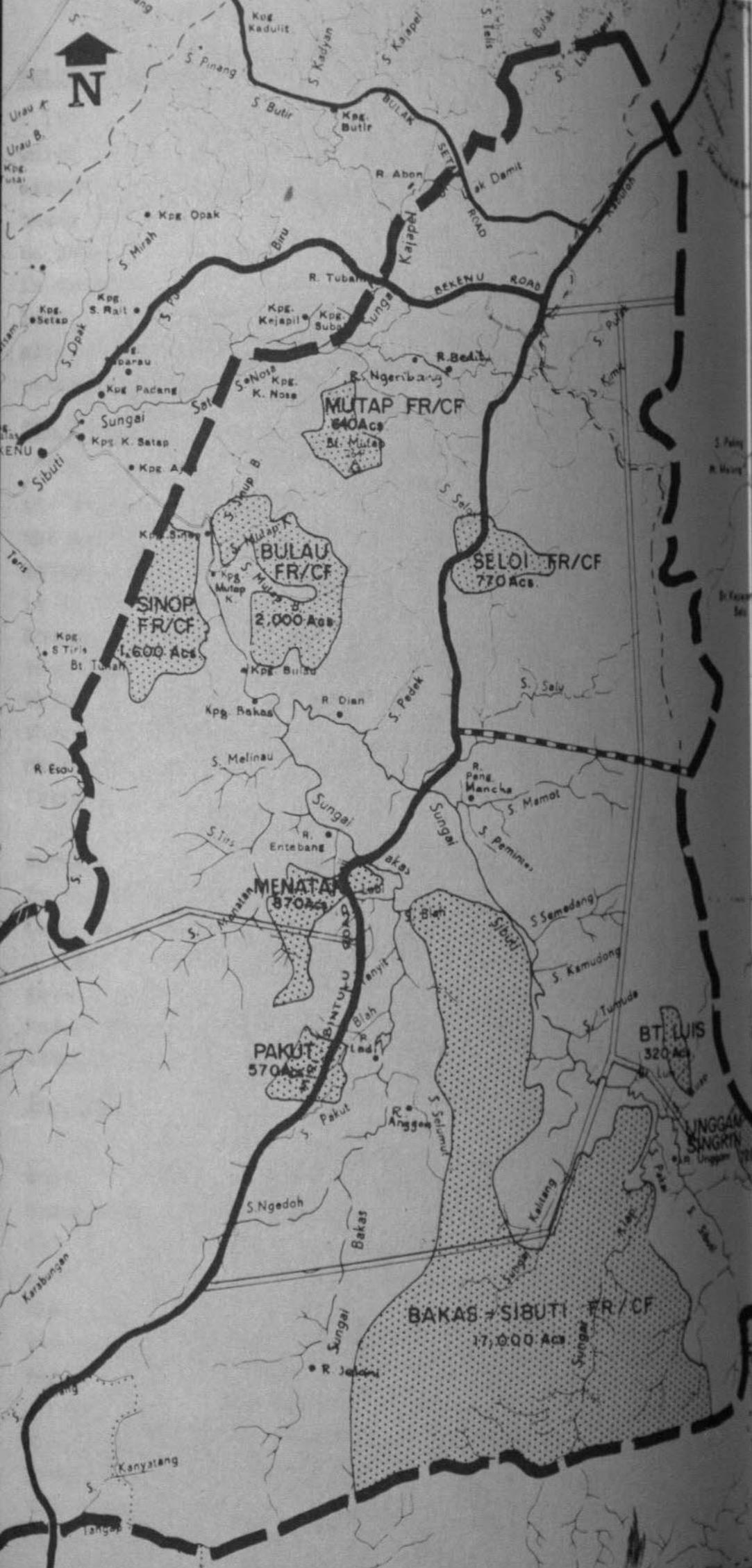
- (i) Forest Reserves/Communal Forests.
- (ii) Native Area Land.
- (iii) The balance of State land.
- (iv) Land Classification.
- (v) Urban Development.
- (vi) Social Services.
- (vii) Communications.

Forest Reserves/Communal Forests

168. It is proposed to create a total of 25,000 acres approximate as Forest Reserves/Communal Forests. (See Figure 16). The following principles have been adopted in defining these proposed reserves:-

- (i) Forest which is on land classes as IV, V or VI on the land suitability classification (i.e. on peat, or on topographically rugged land) should be retained under permanent forest estate.
- (ii) Where possible Communal Forests at the minimum rate of 1 acre/head of population as estimated in 2000 should be created.

169. The decision whether to constitute these Reserves or Communal Forests will be made after an investigation of rights in the area made by the Forest Department in accordance with the Forest Ordinance. In general the smaller blocks are likely to become Communal Forests, whilst the larger will become Forest Reserves. The largest block to be retained is that in the south totalling 17,000 acres approximately, most of which is under primary (hill) forest. This is above the minimum economic size for future exploitation, which is currently regarded as 10,000 acres.



DEVELOPMENT PROPOSALS: FORESTS

-  Forest Reserve/Communal Forest
-  Road - actual alignment
-  Road - definite proposal
-  Road - tentative proposal (diagrammatic)

7 miles
SCALE 1:125,000

Prepared by Land & Survey Dept., Sarawak.

PROPOSALS: FORESTS FIG. 16

Native Area Land

170. Native Area Land will include all that land which it is recommended shall in future be retained for the exclusive use of the natives currently living in the area, their descendents, and such immigrants as they agree or may be permitted to join them. This is approximately 50,750 acres in extent, almost all of which is agriculturally suitable land. Figure 17 shows the areas which it is proposed to allocate for native use. It is necessary to examine these recommendations in detail.

The Kedayans

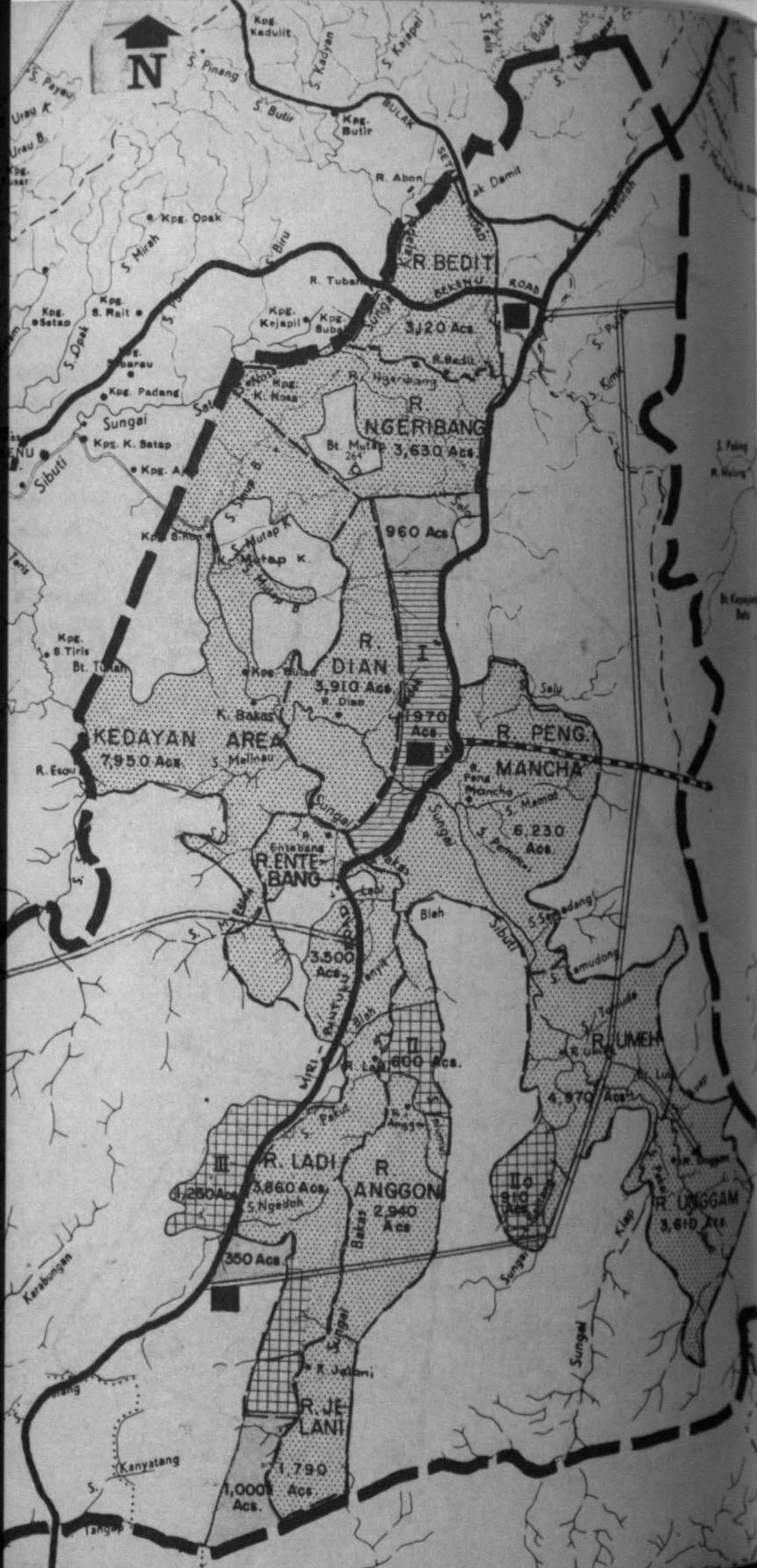
171. Para 35 shows that six kampongs own land within the study area, of which four are actually situated within the area. These four, however, contain only 36% of the actual population. All six stem from the same roots, and it is not possible to distinguish separate kampong areas. However, it has been demonstrated (Paras 67 and 68) that they have established native customary right over an area which is ample to meet their future requirements. It is therefore proposed to reserve for the Kedayans all the land over which they hold legal native customary rights for farming.

172. South of the Kedayan area there has been a certain amount of illegal felling, not covered by Permit. It is recommended that no rights are recognised over this land and that it regarded as unencumbered State land.

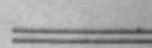
173. It is recommended that approximately 3,600 acres of swamp forest which is on deep peat and is presently unsuitable for agriculture be declared a Forest Reserve or Communal Forest.

The Ibans

174. By the time that photography of this area was taken in 1959 almost all of the houses in the area had managed to establish native customary rights, which must for the most part be acknowledged as legal, over areas far greater than their current requirements. Notwithstanding this they have continued to fell, mainly illegally, considerable areas of land in the ensuing years. Tables 3 and 8 illustrate the position. It will be seen that based on the formula for estimating land requirements all longhouses except Rh. Jelani have adequate land for the year 2000, and most have a very considerable surplus. In the case of Rh. Jelani, the whole of the farming area is under dispute with Rh. Anggon, who have a considerable surplus.



DEVELOPMENT PROPOSALS: EXISTING NATIVE COMMUNITIES

-  Land to be reserved for existing Native communities
-  State Land provisionally reserved for Natives
-  Land to be purchased from Natives
-  Land to be exchanged with Natives
-  Proposed bazaar
-  Settlement boundary
-  Road - actual alignment
-  Road - definite proposal
-  Road - Tentative proposal (diagrammatic)

7 Miles

SCALE 1:125,000

Prepared by Land & Survey Dept., Sarawak

Hence the deficit, which is calculated on the basis of a temporarily agreed farming boundary, is not definitely established.

173. Whilst this figure derived from the formula is a useful indicator, and certainly establishes a minimum acreage which should be reserved, it does not represent the complete picture. Thus, although introduction of permanent crops will result in a long term a land requirement which despite the estimated increase in population may well be less than the requirement today, until the permanent crop economy is established, and those crops are yielding, the area necessary to support a longhouse could well increase temporarily in the intervening period. The actual area which it is proposed to reserve for each longhouse therefore has been based on the following criteria:-

- (i) The area of legally created customary rights. In some cases purchase by Government of relatively small areas of Native Customary Land is recommended. These proposals will be examined in greater detail later in the Paper.
- (ii) The land requirement based on the formula.
- (iii) The Land requirement based on a complete reliance on shifting cultivation in the year 2000. The actual requirement given in Table 8 is based on 8 acres/head which refers to suitable land. (Marginal land is converted to "equivalent" suitable acreage in the proportion 3:2)
- (iv) The area reserved for each house should be adequate to support a 200 family unit on the basis of permanent agriculture, and hence a minimum of approximately 2,400 acres is required.. It is also intended to create Communal Forests at the rate of 1 acre/head for the estimate population in the year 2000. This is slightly higher than the normally accepted figure of 5 acres/door.

It is necessary to examine the future reserve for each house in detail.

Rh. Penghulu Mancha

174. By 1959 Rh. Penghulu Mancha had created legal native customary rights over about 5,680 acres. Subsequently the longhouse was granted a Permit to Fell for a further 200 acres of primary forest, making a legal holding of 5,880 acres. Land requirement in the year 2000 is 1,842 acres based on the formula or 5,000 acres based on shifting cultivation. This compares with a total area claimed of 15,740 acres approximately.

175. It is recommended that an area of some 6,370 acres be allocated to Rh. Penghulu Mancha as shown in Figure 17. This includes an area of unfelled primary forest on agriculturally suitable land immediately north of the house, but entirely surrounded by legal customary rights.

176. It is further recommended that the western boundary of the area allocated to Rh. Penghulu Mancha should be the trunk road. The house claims an area of 1,970 acres approximately situated west of the trunk road consisting partly of legally created rights, partly of illegal felling and partly of old jungle (see I on Figure 17). Investigation of rights in this area (i.e. legal settlement under the Land Code) is required at an early date to establish the actual position. Subsequently it may be possible to exchange the legal customary rights for felling permits in the primary forest North of the longhouse. Alternately it is recommended that these rights, occupying a thin strip fronting the road for nearly 2 mile should be acquired. Rh. Penghulu Mancha should be granted rights to jungle produce over part of the Bakas-Sibuti Forest Reserve/Communal Forest, after investigation by the Forest Department (See para 54).

Rh. Dian

177. By 1959 Rh. Dian had occupied under legally created native customary rights about 2,940 acres, almost all of which is agriculturally suitable land. Since that date they have received two Permits to Fell totalling about 409 acres of primary forest, of which they have felled about 370 acres. As the areas felled are in the same general locality as the permits granted, it is assumed that all the felling has been carried out under the Permits and, as far as is known, Rh. Dian cannot be said to have engaged in illegal felling.

178. Rh. Dian has, however extended its farming wards Bukit Mutap into land under dispute with Rh. Peribang across the temporarily agreed boundary. It is clear that the dispute should be settled as soon as possible.

179. It is estimated by the formula that Rh. Dian will require 1668 acres of land in the year 2000, and by using a figure of 8 acres per head that they will require 736 acres. It is recommended that an area of 3,910 acres approximately be reserved for this longhouse as shown on Figure 17. Final adjustments can be made when the exact positions of the boundaries have been located on the ground. It is also recommended that Rh. Dian's rights to jungle produce should be provided for in the proposed Bulau Forest Reserve/Communal Forest.

180. Immediately adjoining Rh. Dian is an area of some 1970 acres of land claimed by Rh. Penghulu Mancha. (Area I on Figure 17) It has been recommended that legal rights in this area should either be exchanged or bought out. There is also a block of State land of 960 claimed by Rh. Manan in the Ulu Sungai Seloi. It is recommended that this land be retained for Native use, and that in the long term the development of this land and the Rh. Dian reserve be considered as a whole. The total area of the block so comprised is approximately 6,840 acres. It is suggested that this should be developed in two parts, the southern half from Rh. Dian, and the Northern half from a new settlement to be developed in the Ulu S. Mutap Besar. The State land within the block would be used to provide lots for immigrants.

1. Umeh

181. Rh. Umeh has created legal customary rights over some 4,370 acres of which over 90% is agriculturally suitable land. The longhouse has not been granted any felling permits, but has felled 800 acres of primary forest illegally. Rh. Umeh claims the Sungai Bakas as its boundary for about one mile opposite Rh. Ladi. Here there are about 850 acres of legally created rights lying within Area II on Figure 17. There is no permanent cultivation of this land.

182. It is recommended that a total area of 4,960 be reserved for Rh. Umeh, of which 4,000 acres is agriculturally suitable. This is comfortably in excess of their requirement in the year 2000, but consists mainly of land already cleared, with minor boundary adjustments. It will be noted that the rights along the Sungai Bakas (Area II) have been excluded from the reserve. It is recommended if possible that these should be exchanged for an equal area of land within the block of illegal clearing along the Sungai Kalitang (Area IIa on Figure 17) as they are isolated from Rh. Umeh by two miles of jungle, which is to be incorporated in the Bakas-Sibuti Forest Reserve/Communal Forest. It is also recommended that an area of 300 acres of primary forest on very rugged land at Bukit Luis should be created a Forest Reserve/Communal Forest. It may also be necessary to define additional Forest rights for Rh. Umeh within the Bakas-Sibuti Forest Reserve/Communal Forest.

Rh. Unggam

183. Rh. Unggam had by 1959 created legal customary rights over some 3,980 acres of land of which all but 120 acres is suitable for agriculture. This longhouse did not clear any land illegally within the area under discussion, but has expanded across the water-shed into the Baram district. There, presumably on the strength of a Permit to Fell for 120 acres they have felled 310 acres. This matter is clearly one for investigation by the District Officers in both Miri and Baram Districts. as the watershed is the acknowledged boundary between the Upper Sibuti and the Bakong peoples.

184. The area reserved for Rh. Unggam is just that within the Miri District over which they have created legal rights. At 3,980 acres this is in excess of their requirement, which based on 8 acres of suitable land per head of population in the year 2000 is only 2,776 acres. It is also recommended that an area of some 720 acres on the boundary of the Miri District with the Baram District should be gazetted as the Unggam-Singkim Forest Reserve. This is in excess of the requirement of 1 acre/head of population anticipated in the year 2000.

Rh. Entebang

185. By 1959 Rh. Entebang had created legal customary rights over 3,310 acres of agriculturally suitable land, and felled 720 acres after that date of which 144 was covered by a Permit to Fell.

186. The estimated land requirement in the year 2000 is 1896 acres by the formula and 3,968 acres at the rate of 8 acres per head. As a considerable acreage of the illegal felling in the Ulu Sungai Meratan projects into a large block of State Land suitable for development it is recommended that this be excluded from the area reserved for the longhouse and retained by Government.

187. It is therefore recommended that an area of 3,500 acres, all agriculturally suitable land, is reserved for their use, as shown on Figure 17. An area of 830 acres of primary forest to be gazetted as the Menata Forest Reserve/Communal Forest is also proposed. This is some 330 acres in excess of the requirement at the rate of 1 acre per head of population in the year 2000. As the proposed reserve consists of agriculturally suitable land should the need arise (which is considered unlikely), an area could be excised for farming.

Rh. Ladi

188. By 1959 Rh. Ladi had created legal rights over 4,350 acres of land, all of which was suitable for agriculture. Of this an area of approximately 1,250 acres extends to the west of the trunk road, fronting it for a distance of over two miles (Area III on Figure 17). In addition Rh. Ladi have, since 1959, cleared a further 880 acres all on agriculturally suitable land, of which only 120 acres was covered by a Permit to Fell. The majority of the illegal felling is along the true left bank of the Sungai Bakas (Area III on Figure 17).

189. It is recommended that the area reserved for Rh. Ladi should be bounded on the west by the Miri/Bintulu Trunk Road, and that the 1,250 acres of land to the west of the road (Area III on Figure 17) should be surveyed and recorded. It is recommended, that claims be surveyed and recorded in the large area of land to the south of Sungai Ngedah which has been illegally felled. As far as possible an exchange of land should then be arranged. In view of the areas involved it will, however, be necessary to pay compensation for approximately four hundred acres to the west of the road.

190. It is therefore recommended that an area of 3,860 acres is reserved for the use of Rh. Ladi. This compares with a requirement for the year 2000 estimated at 1,733 acres by the formula, and 3,648 acres at the rate of 8 acres/head. An area estimated at 350 acres North of the proposed road and South of Sungai Ngedah has been provisionally reserved for Native use. This recommendation will be finalised after the location of the road and the siting of the new bazaar. It is also recommended that forest rights for Rh. Ladi be defined within the proposed Pakut Forest Reserve/Communal Forest which is some 570 acres in extent.

191. The land thus reserved for Rh. Ladi thus will consist of an uneconomically shaped area some six miles in length. It is recommended that in detailed planning that this reserve should be considered with Area II, and the area of 350 acres referred to in para 177. The whole block would thus be something over 4,800 acres in extent. It is suggested that this might be developed in two parts, the northern from Rh. Ladi, and the southern from a new settlement situated between Sungai Ngedah and the new proposed road. Area II, which it has been recommended should be exchanged with Rh. Umeh for illegally cleared land at Sungai Kalitang should be reserved to provide lots for Native immigrants to the area.

Rh. Anggon and Rh. Jelani

192. These two longhouses from the Spaoh group, which is the smallest of the four inhabiting the Lambir-Subis area. The group, which was originally Rh. Anggon, moved into the area in about 1942, and Rh. Jelani broke away in 1948. There is now a total of 29 doors, made up of Rh. Anggon which consists of 8 doors, and Rh. Jelani which consists of 21 doors. They occupy an uneconomically shaped area consisting of a strip some seven miles in length along the eastern bank of the Sungai Bakas. Both longhouses have been guilty of a certain amount of illegal felling (See Table 3).

193. The whole area occupied by both longhouses is under dispute, and their problems are difficult to separate, although there is a temporarily agreed farming boundary between the two. In view of the small size of the group it would clearly be desirable for the two houses to re-amalgamate if possible, for the split has already had adverse effects.

Thus Rh. Jelani is served by a school at Rh. Ladi which is five miles down stream. There are some indications that people are returning from Rh. Jelani, whose population remained virtually static between 1963 and 1966, to Rh. Anggon, whose population increased by 50% over the same period. This may well be due to the attraction of the school which is very near to Rh. Anggon; but it is nevertheless an indication that a solution based on re-amalgamation is feasible.

194. Pending investigation as to whether reconciliation is possible it is recommended that a reserve should be made for each longhouse based on the minimum area required to support an economic village community, i.e. at least 2,400 acres. Definite recommendations are not possible until the dispute has been solved, but in the meantime a block of land of about 1,000 acres west of Sungai Bakas opposite Rh. Jelani has been provisionally reserved for Native use. This land will not have been cleared of merchantable timber until 1970. It is recommended that forest rights for Rh. Anggon and Rh. Jelani be defined within the Bakas-Sibuti Forest Reserve/Communal Forest.

Rh. Bedit

195. Rh. Bedit currently occupies an area of 3,120 all of which is agriculturally suitable. In 1965 Rh. Bedit surrendered (on payment of compensation) 1,047 acres of land under customary rights to the State for the proposed C.D.C. oil palm estate.*

196. Rh. Bedit's land requirement in the year 2000 is 1,959 acres based on the formula, and 3,968 acres based on 8 acres per head. In view of the fact that there is no real shortage of land and because this house lies next to the Kabulu (Luak) Agricultural Experimental Station and should hence make good agricultural progress it is recommended that the 3,120 acres they already occupy be reserved for their use without addition.

*This included an area of 220 acres over which Rh. Bedit had created rights under Permit in 1963 and 1964.

However, it is emphasised that this longhouse will need encouragement, for despite the fact that they now express interest in oil palm it is a fact that up to 1966 they had not planted 1 acre of high yielding rubber, and only 9 acres of pepper. This is one of the reasons (see para 123) why Bedit has been selected as the site of the proposed oil palm pilot project. It has not proved possible to create a Communal Forest adjoining this longhouse, but the proposed Mutap Forest Reserve/Communal Forest is almost large enough to serve both Rh. Ngeribang and Rh. Bedit. Both of these houses originate from the same Bakong stock.

Rh. Ngeribang

197. Acreages have been calculated based on the temporary longhouse boundary agreed between Rh. Ngeribang and Rh. Dian; for a considerable proportion of the land farmed by Rh. Ngeribang is claimed by Rh. Dian. By 1959 Rh. Ngeribang had created legal customary rights over 2,160 acres of which 1,610 acres are only agriculturally suitable land, the rest being marginal by virtue of soil rather than terrain factors. They had also felled 570 acres after 1959, of which 400 acres were illegal. A considerable proportion of the illegal felling and a limited area of legal customary rights lies on the eastern side of the Miri/Bintulu trunk road. It has already been suggested that the area of illegal felling should be retained by the State for a possible Federal Land Development Authority Oil Palm Scheme. It is recommended that small isolated holdings of Native Customary Land lying within the proposed F.L.D.A. oil palm area to the east of the road should also be acquired, and that the road should form the western boundary of the land reserved for Rh. Ngeribang.

198. The land requirement for the year 2000 is estimated at 1,486 acres by the formula and 3,120 acres at the rate of eight acres per head. It is recommended that an area of approximately 3,630 acres of land be reserved for the use of Rh. Ngeribang, of which 3,080 are suitable for agriculture and 550 are marginal. This will more than meet the land requirement as assessed above. It is also recommended that a Forest Reserve/Communal Forest of 640 acres be created at Bukit Mutap, to be shared by Rh. Ngeribang and Rh. Bedit.

Land Policy within Native Area Land

199. It is recommended that the areas to be reserved for the Kedayans and for each Iban longhouse village should be demarcated on the ground and surveyed. This will ensure that once the problem has been settled a permanent record of village boundaries will remain for future reference. Each of these reserves should become a "Village Block" for the purpose of land records.

200. Within each reserve the boundaries of land covered by legal rights (including illegal felling which has been exchanged for legal rights) should be surveyed, and the primary forest and illegal felling thus demarcated should be declared to be State Land. Such land should only be released for farming when a clear need is demonstrated.

201. No more Permits to Fell should be issued in this area, with the possible exception in the case of Rh. Jelani who, taking into account the acreage of marginal land already felled, have an ostensible deficit of about 200 acres. However, no clear decisions can be taken in this area on the basis of a temporarily agreed farming boundary; and as there is a land dispute affecting the whole of the area occupied by the Spach Ibans, it is clear that this must first be settled, if necessary in court; and that no felling permit should be issued until after this has been done.

202. Migration into the area has been strictly controlled in the past, although, as has been noted, there is evidence that illegal migration has taken place. Once the longhouse reserves have been finalised and marked out on the ground, but not before, it is recommended that the prohibition of migration into the area be lifted, and that Natives should be permitted to move in and join any longhouse should that longhouse agree. It would be necessary for the receiving longhouse to guarantee any immigrant an holding of economic size (say 12 acres) within the longhouse reserve. This might be on State Land where this exists within the longhouse reserve, or on adjacent Native Area Land; but as long as it were properly recorded there would be no objection to a newcomer purchasing a holding from one of the existing villagers. The new immigrant would also require the right to farm padi until his cash crops begin to yield, and the right to erect his door within the payong rumah of the house he is joining.

203. Such a policy must envisage migration based on permanent agriculture; hence the part to be played by agricultural extension teams is of first importance. It must be made clear to the houses receiving the migrants that the village reserve is fixed, and that any increase in population must be supported by an increase in permanent cultivation in the area and not of hill padi farming land; and thus every effort must be made to encourage settled agriculture. Because of this it is essential that whilst migration should not be restricted in any way, careful records of the migrants should be kept, and Government must ensure that in every case the guarantees required of the recipient community are both given and honoured.

204. As was pointed out in para 141 unless such a policy is adopted much of the agriculturally suitable land in Lambir-Subis must continue to lie idle. Even by the year 2000, the labour supply available will be able to bring barely 1/5 of the area reserve for Natives under permanent cultivation unless migration is permitted and, indeed, encouraged.

Development within Native Area Land.

205. The following general principles for development are recommended:-

- (i) Development should proceed on the basis of the communities already established, with the rider that, from time to time, it may prove desirable or necessary to establish a new village. The provision of amenities in rural areas depends on a nucleated population. The decrease in land requirements which results in a change from shifting cultivation to settled agriculture means that villages of an economic size can be established within a reasonable distance of farming land. A village of approximately 200 families is normally regarded as desirable (See para 148). An extended "payong rumah" capable of holding a longhouse village of this size should be reserved by each community.

- (ii) The native peoples should be encouraged to establish permanent farming holdings preferably in blocks, with the aid, where appropriate, of the usual subsidies. This is in accordance with the agricultural policy detailed in Appendix III.
- (iii) Within the Native reserves minor roads and footpath/cycle tracks should be developed to ensure reasonable access from the village to the agricultural land. It has been normal practice amongst the Iban people to establish a farming dampa when the journey to their farming lands exceeds half an hour. It is recommended that the internal communications network of footpaths should ensure that farming lots are within half an hour of the village.
- (iv) Social services and amenities should be provided on a scale commensurate with the population and the funds available. Detailed proposals must await the detailed examination of the problems of each community. It should be noted that any increase in population by immigration will justify an increased scale of social services.

Implementation

206. In order to implement these recommendations a detailed study of each community reserve will be required. A development plan for each village is necessary to indicate:-

- (i) kampong reserve or extended payong rumah with which village expansion will take place.
- (ii) permanent farming holdings, crops to be cultivated, farming practice, etc.
- (iii) proposed communications network (i.e. minor roads and footpath/cycle tracks).
- (iv) proposed development of social services and amenities.

The preparation of these studies will require close co-operation between all departments. At the present time the Land and Survey Department is mapping the whole area from new air photography at a scale of 1:10,000 and these new topographical maps, which will be available before the end of 1967, will be the basis for detailed planning.

207. Financing these development plans will be a problem. It is recommended that funds for financing item (ii) above should be found from the normal Department of Agriculture Development Schemes. However, SDPC are no longer financing the small factory for the oil palm project at Danau (see para 8, Appendix III) and this may mean that the \$1.5 millions in the plan for agricultural diversification may not be enough to support the second pilot project as proposed at Rh. Bedit. In order to get oil palm smallholdings off to a good start it may prove necessary to divert funds intended for rubber subsidy into oil palm.

It is also suggested that a large proportion of the necessary funds for items (ii) and (iv) above could be obtained from the timber cess, which in the Lambir-Subis area is expected to produce \$420,000/- between 1967 and 1970 (see para 89).

The Balance of State Land

208. As the timber is cleared off the State land it is proposed, with the exception of the proposed Forest Reserves and Communal Forests, that it should be utilised for agricultural development. Figure 14 and Table 10 show the rate at which such land will become available for development. It should be noted that the land regarded as immediately available includes 5,360 acres of degraded primary forest, which will not be exploited as it does not contain timber in economic quantities. The reason for the poor quality of the forests in this area is not known; but the soils have been specially investigated by the Soils Division of the Department of Agriculture and have been found to be suitable for agriculture.

209. The potential for development is clearly great. By the end of First Malaysia Development Plan period over 50,500 acres of land will have been cleared of merchantable timber, prior to agricultural development. Even taking into account the fact that the land cleared in 1970 could not be used in this Development Plan period, and deducting 2000 acres which is reserved for future expansion of Iban longhouse reserves, development could be commenced on some 44,000 acres of agriculturally suitable land within the planning period. When this is compared with a total estimated requirement of 80,000 acres for the whole of Sarawak during the first Malaysia plan the significance of the area becomes apparent.

TABLE 10

AVAILABILITY OF STATE LAND FOR DEVELOPMENT

Land available for immediate development	=	15,000 acs.
Land available for development in 1967	=	9,200 acs.
Land available for development in 1968	=	12,700 acs.
Land available for development in 1969	=	9,100 acs.
Land available for development in 1970	=	<u>4,500 acs.</u>
Total	=	50,500 acs.
Land available for development in 1971	=	5,900 acs.
		<hr/>
Grand Total	=	56,400 acs.
		=====

Agricultural Development

210. In view of the capital required, of the potential labour problems, and of the economic need to push ahead with rural development as rapidly as possible, it is recommended that a number of approaches be tried simultaneously :-

- (i) Because of the ready availability of Government funds consideration should be given to establishing Land Development Schemes with the object of attracting landless or impoverished settlers from other Divisions. Such schemes are currently based on high yielding rubber and in order to enable development to commence rapidly it is recommended that the first one in the Lambir-Subis area should follow the established pattern.
- (ii) A block of two hundred ten acre units should be made available for alienation to selected persons to develop with their own resources.
- (iii) A number of Oil Palm Development Blocks, each large enough to provide for the planting of a minimum of 500 acres of oil palm, should be defined. Initially four such blocks are proposed.

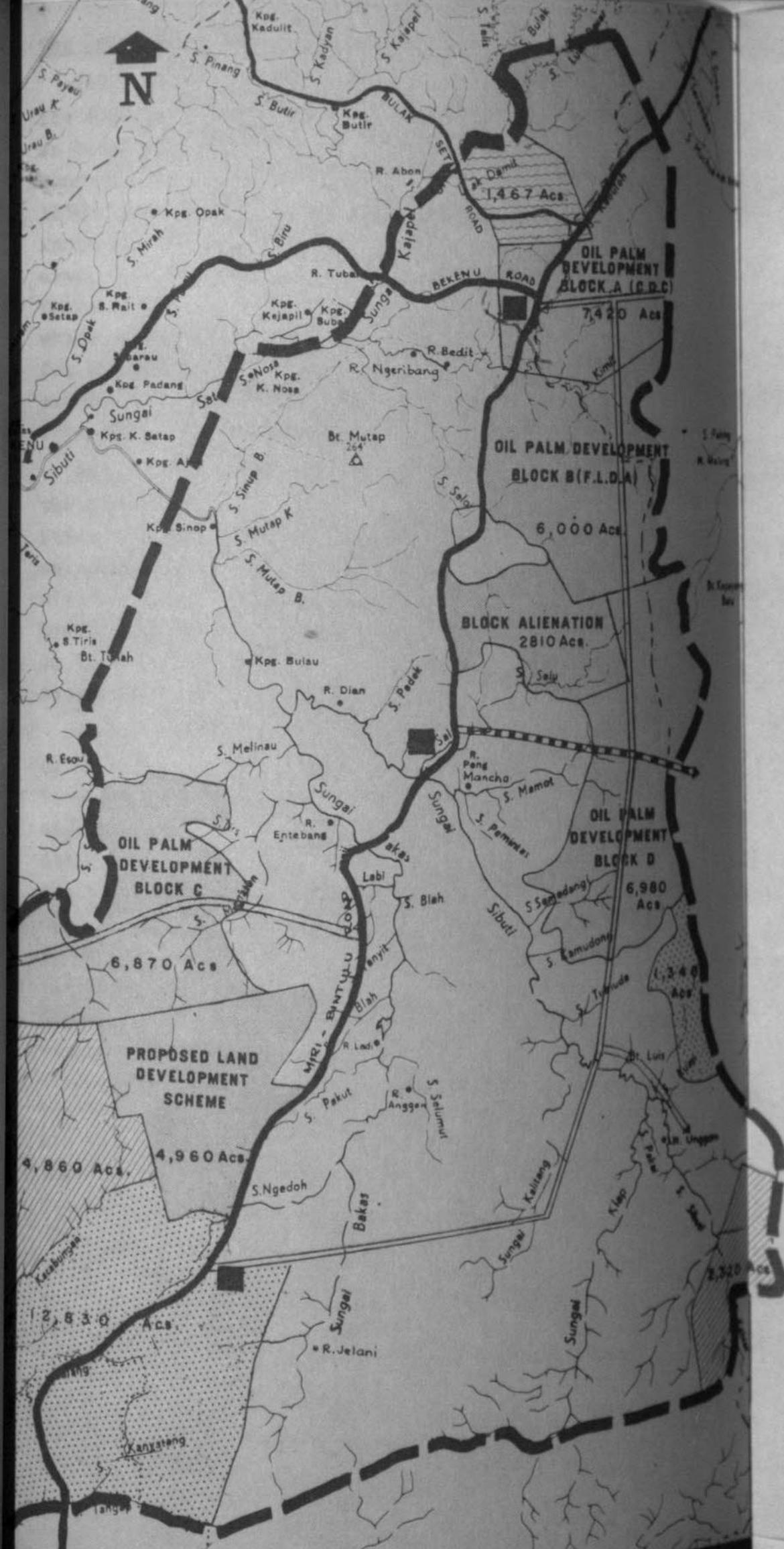
These proposals are illustrated on Figure 18.

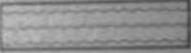
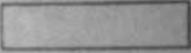
Implementation

211. The implementation of these proposals will require the following action:-

- (i) The final selection of the boundaries of each. This will be done on the basis of new Land & Survey Department 1:10,000 mapping and the boundaries so selected will be adjusted as necessary on the ground. Some sheets in this map series are already available, and the whole area should be covered by the end of November, 1967.
- (ii) The demarcation of these boundaries on the ground. This is especially important where proposals abut Native Customary Land.

DEVELOPMENT PROPOSALS: BALANCE OF STATE LAND



-  Kabuloh Agriculture Station
-  State Land proposed for immediate allocation
-  State Land available pre 1970
-  State Land available post 1970
-  Proposed bazaar
-  Road - actual alignment
-  Road - definite proposal
-  Road - tentative proposal (diagrammatic)

7 miles
SCALE 1:125,000

Prepared by Land & Survey Dept., Sarawak

The Land Development Schemes

212. Approximately 4960 acres has been allocated for Land Development Schemes; but this could be varied on detailed investigation without difficulty. Three quarters of the area is on State Land, but approximately 1250 acres of customary rights belonging to Rh. Ladi is included (See para 176). The survey of rights in this area, and claims in the area of illegal felling south of Sungai Ngedah should commence as soon as possible; after which negotiations for a land exchange can begin. Funds for acquiring the area of 400 acres which is over and above what could be exchanged should be made available from Head 57/01-3 "Acquisition of Land For Development".

213. Within the scheme area, which fronts onto the Miri-Bintulu trunk road, two sites each large enough for a village of approximately 200 families should be selected; one of which will serve the first Scheme which will be entirely on State land. An adequate area of State land to enable planting to start has been logged in 1967, and the whole scheme area will have been exploited by the end of 1968.

214. As it stands the first Scheme satisfies Stage I of the paper "Planning Criteria and Procedure For Land Development Scheme"* (RPS "B") and Stage II is not appropriate. A Stage III investigation to include a semi-detailed soil survey and detailed investigation of the village sites should be commenced as soon as possible, to enable Phase I to be fully approved in time for planting to commence in 1968. The 1:10,000 Mapping required for the semi-detailed soil survey will be available by early November, 1967. All settlers in this Land Development Scheme will be, by definition, from outside the area, and could well originate in other Divisions of Sarawak. Previous experience has shown that the farmers of Sarawak are not unwilling to pioneer new areas; the history of the peopling of the Lambir-Subis area itself clearly demonstrates this as far as Natives are concerned, and there are numerous examples of pioneer Chinese communities in the Fourth Division: the Sibiew rubber block at Bintulu or the Foochow settlement at Lubok Nibong on the S. Baram are cases in point.

*See Appendix VIII.

Nevertheless the Government investment in a Land Development Scheme is such that everything must be done, prior to its commencement, to ensure it is a success. It is therefore recommended that contemporaneously with the commencement of the Stage III investigation the scheme should be advertised to enable an assessment of numbers of potential settlers to be made. It is also recommended that Government should examine the possibility of resettling those Dayak farmers from the Second Division whose land has been overfarmed, and which is nearing dereliction. The ultimate viability of the Scheme will clearly depend on the response to these two approaches.

215. Early attention should be given to the problem of siting the processing factory, in view of the heavy water requirements of such a factory. This factory could also process the rubber from the holdings of R.P.S. "A" high yielding rubber which have already been planted, or which may be planted in the early stages of the development of Lambir-Subis before oil palm becomes widespread. The factory should be financed and run by the Sarawak Development Finance Corporation. An estimate of the cost of such a factory at Sarikei by S.D.F.C. appears as Appendix VII.

The Block Alienation Scheme

216. An area of approximately 2810 acres of State land has been allocated for this purpose. It is intended that the ten acre units should be leased either singly, or in blocks of up to 100 acres to form small estates, depending on demand. These holdings should be opened up using the developer's own capital, but normal subsidies should be made available. Settlers should be advised of the prospects of oil palm; but there should be no compulsion to grow this crop. Any holdings growing oil palm could be linked to a factory service either of Oil Palm Development Blocks B or D. Similarly any rubber produced could be processed in the factory referred to in Para 202 above.

217. Within the Scheme a reserve for a village settlement should be included. This should provide for a village centre to include sites for the full range of village facilities, although initially it will only be possible to provide a school and a few shops. A variety of residential lots should be provided; ranging in size and character from half acre lots with room for a house, and a vegetable and fruit garden, to two acre

lots which would form a small mixed farming lot for labourers employed on the small estates. There should be no compulsion (contrast Land Development Schemes) to live in the village; but the reserve should be large enough for every inhabitant of the Scheme to have a house there, and utilise such social services as might be available, should he so wish.

218. The area proposed fronts onto the trunk road for ease of development. It is being logged at the present time, and some 1600 acres of land should be available by the end of 1967; the remainder by the end of 1969. 1:10,000 mapping will be ready by November 1967, and subject to internal access being available the first lots could be advertised in mid 1968.

219. With this object in view it is recommended that the logging roads within the area should be examined immediately with a view to seeing how far they can be improved to provide the necessary access. If access provided in this way would not be adequate a spur road through the area will be necessary. In either event finance should be provided from Federal Head 126/31 "Other Rural Projects" (c.f. access roads in the Sekuau Block Alienation Scheme in the Third Division).

Oil Palm Development Blocks

220. Negotiations for the development of two of the blocks proposed have already been commenced. However, as has been stated in para 132 it is essential for the economic provision of bulking facilities that production of palm oil be raised to a minimum of 20,000 tons per annum as soon as possible. It is therefore recommended that two additional blocks should be advertised without delay for development as oil palm estates. In order to stimulate interest in these blocks it is also recommended that consideration be given to alienating land for oil palm estates free of premium; and subject only to annual rent. Instead of paying premium such estates would be required to make up and maintain to an acceptable standard certain estate roads. These roads would be open to the public; but would probably be subject to a weight restriction.

Block A.

221. Negotiations with the Commonwealth Development Corporation, who plan to develop an oil palm estate, are well advanced. It is their intention to plant 5,000 acres with oil palm, and an area of approximately 7,420 acres has been reserved for this purpose, to include provision for 2 acre mixed farming lots for estate workers (See para 129).

222. The negotiations to date have made no mention of the proposal to replace the payment of premium by a requirement to open certain estate roads to the public (see para 220 above). Access through the estate to land on the Bakong valley with a similar development potential (See Reconnaissance Soil Map Figure 4) is highly desirable, and this recommendation should be taken up with the Corporation at the earliest opportunity.

223. The Corporation have themselves carried out detailed investigations in the area. They will be responsible, in consultation with Government, for the internal planning of the estate. This will include the final location of the "public" estate roads, diagrammatic proposals for which are shown on Figure 18. The reserve for mixed farming lots will be located, and the boundaries of the estate finalised after full agreement between the Corporation and Government has been reached. It is understood that this could be before the end of 1967.

Block B.

224. Block B consists of an area of 6000 acres situated to the South of Block A, of which 5920 acres are State land (including some 270 acres of illegal felling) and eighty acres are Native Customary Land. These rights should be surveyed and acquired as soon as possible.

225. The State Government has proposed that this project should be implemented by the Federal Land Development Authority as an oil palm scheme and to this end the F.L.D.A. standard proforma "Inventory for Preliminary Investigation of Potential Development Areas" has been completed and submitted by the State Government to the Federal Government. Subject to slight amendments in area on final boundary survey there is no reason why the Authority should not enter the area immediately to conduct detailed investigations.

226. Should the F.L.D.A. decide to go ahead they should liaise with the Land and Survey Department at all stages of planning, in order to ensure that development is co-ordinated with that of adjoining areas. Already enough land has been cleared to enable planting to start, and the block will have been almost entirely cleared by the end of 1968.

227. If this block proves to be unsuitable for an F.L.D.A. scheme it should be advertised for development as a private estate, to be subject to the same terms and conditions as the estates proposed for Blocks C & D.

Block C

228. Block C consists of an area of approximately 6870 acres situated about two miles west of the trunk road. It is recommended that this block should be advertised for private development as an oil palm estate. The majority of it is covered by degraded primary forest of no commercial value, or has already been logged; although a limited area will not be exploited until 1969. This latter would not be affected by the estate planting programme which would be likely to exceed 500-1000 acres/annum. Hence, subject to slight amendments in area on final boundary survey, and to the rights of timber extraction being reserved, there is no reason why this estate should not be alienated as soon as the terms and conditions of the lease have been approved. These should provide for the construction and maintenance of a public road to an acceptable standard to and through the estate as shown diagrammatically on Figure 18.

Block D

229. This comprises an area of approximately 6980 acres of State land situated immediately to the south of Block B, and at a distance of just over two miles to the east of the trunk road. It is dependent for access on the first section of the Beluru feeder road, construction of which was originally scheduled to commence in November 1969, and every effort should be made to expedite the construction of this road.

230. About 3,550 acres will have been cleared by the end of 1967 and the remainder is scheduled for exploitation in 1969 and 1970. As in the case of Block C this would not hold up the estate planting programme, and hence subject to reservation of timber rights the whole area could be advertised as soon as the Beluru feeder road is re-instated into the road programme, for immediate temporary access is available by logging road. The conditions of alienation should provide for the construction and maintenance of a public road (diagrammatically shown on Figure 18.) to an acceptable standard, on an agreed alignment northwards and southwards from the Beluru spur road to the edge of the estate.

Development Reserve

231. No proposals have been made for areas becoming available after logging later in the plan, as these are regarded as a development reserve. Before a decision is taken as to their allocation problems and progress in each of the above schemes should be carefully reviewed, with a view to choosing the most effective type or types of development.

Land Classification

232. The proposed land classification is shown on Figure 19. This gives legal effect to the development proposals shown on Figures 16, 17 and 18. The main areas to be classified as Forest Reserve and Communal Forest are not differentiated. The decision as to which areas will become Forest Reserve and which Communal Forest will be taken after detailed investigation by the Forest Department. It may be necessary to create at a later stage other small Forest Reserves on areas of very steep land unsuitable for agriculture after detailed mapping and investigation.

233. Of the total area it is proposed to classify all the land reserved exclusively for Native use as Native Area Land i.e., about 50,750 acres. With the growth of settled agriculture it will become ever more important for land holdings to be properly defined and recorded. In due course it will be the intention to complete legal settlement and issue Native Area leases to land at present held under Native Customary Rights.

234. About 42% of the total area is recommended for classification as Mixed Zone Land. This is all State land (with the exception of a small areas of Native customary rights which it has been recommended should either be exchanged for other land, or purchased by Government) and is to be used for Government schemes and estates. This land is in two main blocks, one in the N.E., and the other in the S. W., occupying the watershed areas.

235. It is also the intention, after more detailed investigations, to gazette areas of town land at the sites of the three main urban settlements. Detailed proposals for Land Classification within town land will be made at a later date.

236. The Kabulu Agricultural Experimental Station of 1476 acres at Luak has already been gazetted a Government Reserve vide Gazette Notification No.2152 dated on 27.11.64.

Urban Development

237. In addition to the village centres three larger urban settlements are planned. To date such urban facilities as there are have been provided by Bekenu, which lies about 3 miles outside of the area on the Sungai Sibuti. Bekenu was well placed relative to the communications network when the rivers provided the most convenient means of transport. It is sited at the head of sea going launch navigation, and below the confluence of the major tributaries.

238. With the construction of the Miri-Bintulu trunk road such centrality as was formerly possessed by Sibuti has now disappeared. Although it is true that Bekenu will be served by a feeder road some 9 miles in length, it will be at the end of the spur. Fortunately Bekenu is not at the moment very large. With the intensification of agricultural development the town ought to be able to survive as a small market town serving the surrounding agricultural area.

239. There will be a clear pressure for a new centre to develop where the old "spine route" of the area (i.e. S. Sibuti/ S. Bakas) crosses the new "spine route" (i.e. the Miri Bintulu Trunk road). This pressure will be emphasised by the fact that the junction of the Beluru spur with the trunk road also occurs in this vicinity. Such a site too would also have the advantage of being near the only two sizeable rivers in the area, which will considerably ease problems of future water supply.

240. It is thus envisaged that a vigorous new settlement and bazaar may be expected at this spot. It is extremely likely that there will be pressure to move the Government Office from Bekenu in due course (c.f. the move from Niah to Batu Niah already planned), and it is logical site for one of the Government Secondary Schools which will be required. It has the drawback that it cannot be located on State Land but will have to be sited on Native Customary Land. It is therefore recommended that an immediate detailed investigation be undertaken and that an absolute minimum of 100 acres of land should be acquired now. Funds should be made available from Head 57/01-3 "Acquisition of land for Development".

241. The two other sites recommended for development are also adjacent to road junctions; the first where the Bekenu Spur and the proposed feeder road from the Bakong join the trunk road; and the second where the proposed feeder road from the Ulu S. Sibuti joins the trunk road. Both of these will be sited on State land, and it is recommended that after detailed investigation an adequate reserve for future development should be made. In both of these sites it is likely that water supply will pose problems; but this applies over almost the whole of the Lambir-Subis area. Implementation of these proposals will mean that there will be Bazaars at about ten mile spacings along the trunk road.

Social Services

Education

242. The Lambir-Subis area might be expected to support an eventual population of about 50,000 i.e. enough to support forty primary streams and say (if the present policy is maintained) twelve secondary streams. The minimum desirable unit is a one stream primary school, with one teacher for each year.

243. This has been accepted as the major factor in defining minimum desirable settlement size. A village (or settlement) of 200 families will support a one stream primary school and it is on this basis that the settlement pattern is planned. It is anticipated, however, that on estates such as the proposed C.D.C. oil palm estate it will be possible to have a two or even three stream primary school. Primary Schools will, in accordance with Government Policy continue to be the responsibility of the local authority, in this case the Subis District Council.

244. It is recommended in principle that secondary school sites (25 acres each) should be reserved now associated with the three small towns which are planned, so that services such as water supply and electricity supply may eventually be shared; although in detail, because of water supply problems it may well be that this policy may have to be modified. The first school will probably be best sited at the Beluru Spur bazaar, central to the area.

245. Adult education, both theoretical at night school, and practical by ways of Home Demonstrators and Agricultural Extension teams must be emphasised if the hoped for improvements in agricultural techniques and living standards are to be achieved. In this context the nucleated pattern of settlement proposed will considerably ease the organisational problems involved. Adult education is, as far as the pupils are concerned, definitely a spare time occupation, and hence must be on the spot. In this context the Adult Education Community Centre to be financed from timber cess funds which has been proposed for Bekenu will have little if any impact on the people of Lambir-Subis; which requires its own adult educational services.

Other Social Services

246. These include Local Authority clinics, community centres, sporting facilities, Cooperative shops, places of worship* etc., which benefit the community most when placed centrally to the housing in a nucleated settlement pattern. It is therefore recommended that in each village centre, sites for these uses (including a football field) should be reserved. Construction will depend on the availability of funds⁺ and the extent to which the people respond to the spirit of gotong royong or self-help.

Communications

247. The decision to concentrate on oil palm emphasises the need for a basic net of feeder roads in the area to support the trunk road. One such feeder road, to Bekenu, is at present under construction. Construction of a second feeder road, to Beluru, was originally planned to commence in November 1967. The viability of this road has now been queried. However, to enable proposed Oil Palm Development Block D to be developed it is essential for at least the first five miles of this road to be constructed. It is therefore recommended that construction of the first five miles be authorised immediately. Funds to make a start are available in 1967 under Head 66/30-5.

*As provided in Land Development Schemes.

+The timber cess might provide part of the necessary finance.

248. Tentative proposals for new roads are shown on Figures 16, 17 and 18. These are required partly to provide access to and through the Oil Palm Development Blocks, and partly to give access to good agricultural land in the South east corner of the area which is remote from the Trunk road. It has been proposed that those sections of this road network which lie within the Oil Palm Development Blocks should be constructed and maintained to an agreed standard by the developers (See para 220). It is also recommended that those sections of the network which lie to the South of Oil Palm Development Block D should be constructed by Government as feeder roads. The proposals consist of a loop some ten miles in length back to the trunk road, and a spur which would start in the vicinity of Rh. Umeh and serve the Ulu Sibuti. There are no funds available for this proposal in the 1966-70 First Malaysia Plan, but it should be examined and costed for inclusion either when the Plan is reviewed in 1968 or in the next Development Plan.

249. In addition to the basic trunk and feeder roads there will be a need for minor roads, equivalent in standard and function to estate roads, throughout those areas where oil palm is to be planted on smallholdings; whilst a less dense network of minor roads supplemented by footpaths/cycle tracks will be required elsewhere. It is recommended that funds be made available immediately to enable the Divisional Engineer to improve timber extraction roads wherever possible to enable them to fulfil this function. As suggested in para 206 funds to finance this might come from the timber cess. Maintenance of such roads, which will probably not be up to P.W.D. feeder road standards should be the responsibility of the Local Authority, as the P.W.D., with its high degree of mechanisation, is not organised for such work.

250. The question of Port Development has been dealt with at some length in paras 131 to 133. It is, however, worth emphasising again that a rapid decision concerning exporting facilities for palm oil is fundamental to the whole planning of the Lambir-Subis area.

SUMMARY OF RECOMMENDATIONS

251. The recommendations summarised below are based on the assumption that the policies suggested in Chapter XI are acceptable. Should alternative policies be adopted it will be necessary to examine the physical implications of any changes and to reframe the recommended land use to conform with policy directives.

Forest Reserves/Communal Forests

252. Forest Reserves/Communal Forests totalling 25,000 acres should be created. These have been defined on the following principles:

- (i) Forest which is on peat or topographically rugged land should be retained in permanent forest estate (either Forest Reserve or Communal Forest).
- (ii) Communal Forests should be created at the minimum rate of 1 acre/head of native population.

Native Area Land

253. 50,750 acres shall be classified as Native Area Land and shall be retained for the exclusive use of the natives currently living in the area, their descendants and such immigrants as they agree may and are permitted to join them.

254. These areas should be developed according to the following principles:

- (i) Development should proceed on the basis of the communities already established; nucleated populations of 200 families approximately should be encouraged to facilitate the provision of both agricultural advice and social services.
- (ii) The Native peoples should be encouraged to establish permanent farming holdings preferably in blocks with the aid, where appropriate, of the usual subsidies.
- (iii) An adequate network of minor roads and footpath/cycle tracks should be developed to ensure reasonable access from the village/longhouse to the agricultural land.
- (iv) Social services and amenities should be provided on a scale commensurate with the population and the funds available.

Balance of State Land

255. To expedite development a number of simultaneous approaches are recommended:

- (i) A Land Development Scheme based on R.P.S. "B" should be finalised. A one-village unit (200 families, 1600 acres of rubber) should be commenced in 1968.
- (ii) A Block Alienation Scheme of 200 ten acre units to be alienated either singly or in blocks of up to 100 acres should be prepared immediately. These holdings should be developed by developers with their own resources, but with usual subsidy assistance.
- (iii) Four Oil Palm Development Blocks should be established, the first for development by C.D.C., the second by F.L.D.A., and the third and fourth to be advertised for private development as oil palm estates.
- (iv) The remaining area of State Land should be retained as a development reserve pending an assessment of the relative success of these varying approaches.

Land Classification

256. The whole area should be reclassified to give legal effect to these recommendations.

Urban Settlement

257. Three larger urban settlements should be planned, the largest of which should be where the trunk road crosses the Sungai Sibuti and Sungai Bakas. This is also at the junction of the Beluru spur road. Land should be reserved now to enable the Government station at Bekenu eventually to be moved to this new site, which will be more central to the area.

Education

- 258. (i) Every attempt should be made to create primary schools of a minimum of one complete stream; i.e. with a supporting population of approximately 200 families.

- (ii) Three secondary schools will eventually be required, and sites should be reserved in each of the three larger urban settlements referred to above.
- (iii) In view of its potential impact on rural development the importance of adult education should be emphasised.

Other Social Services

259. These should be provided on a scale commensurate with population and funds available. To ensure optimum efficiency they should be developed against a background of a nucleated settlement pattern.

Communications

260. (i) The construction of the first five miles of the proposed Beluru feeder road should be authorised immediately as being required for the development of this area.
- (ii) The road network should be extended by:-
- (a) requiring the developers of the Oil Palm Development Blocks to construct and maintain to an agreed standard certain roads which shall be open to the public.
 - (b) constructing a new feeder loop to open up the south eastern part of the Lambir-Subis Area, with a spur to the ulu Sibuti.
- (iii) Timber extraction roads should be improved wherever possible to provide improved access to smallholdings. These should be supplemented where necessary by footpaths/cycle tracks.

APPENDICES

STAH AK BARAT
 c/o Field Force Hq.,
 Kuching.
 1st November, 1963.

The Minister for Natural Resources,
 The State of Sarawak,
 Federation of Malaysia,
KUCHING.

Dear Sir,

TANAH PESAKA PENGHULU BARAT

We, the undersigned beg most respectfully to submit this appeal for your kind and sympathetic consideration the plight that affects us and those who are closely akin to us in the Upper Sibuti River, Bekenu in the Fourth Division.

2. The importance of the subject of our appeal here depends very much on your wise judgment for the administration of justice. That is the kind of justice that will ease the tension of suspense and uncertainty harboured by the inhabitants of Upper Sibuti. Those inhabitants that were affected most are the people living in the long houses at Pidek, Mamut, Kelitang and Quap.

3. Before going into any lengthy explanation on the subject matter we would first submit the facts of the appeal. The late Penghulu Barat (Ex-Sgt/Major, the Sarawak Rangers of the Brooke regime) applied for a sizeable piece of land from the last and late Rajah of Sarawak. This was granted and he (late Penghulu Barat) got that fairly sizeable area in the upper Sibuti. It was an accepted fact that this gift should become a perpetuity in recognition of the long, continuous and loyal service of the late Penghulu Barat with the Rajah's military Force. The area applied for and granted to him was all that area bounded by the following uncharted rivers and streams. Mainly situate at the upper lowlands of the main Sibuti river the boundary commences from where it forked with the Bakas river. That was way back in 1934. Then the area was not inhabited and tapped by any racial group. It was still a wild country. The area given to the late Penghulu Barat includes that part of lowland from the sources of any streams, rivulets - natural or man-made, flowing downstream from both banks to where the Sibuti river forked (tributary) with the Bakas river. All that area drained by streams and rivulets from their sources to the true right hand bank of the Bakas river to where it forked with the Sibuti river. One of the special privileges granted was that only the late Penghulu Barat's picked relatives and followers (the majority of whom were ex-Sarawak Rangers) originally were allowed to settle and cultivate the land. There was no hard and fast rules set as to land tenure. New migrants interested on rubber planting were encouraged to do so and similarly with padi farming by tapping the rich soil and virgin jungle. The settlers are free to live according to his need and till the land according to own's choice. They were and are enjoying the privilege of being exempted from holding land titles until to-day. It is with much regret to state here that almost all the documents pertaining to this issue were lost during the enemy's occupation of the country in World War II.

4. As the years rolled away the original settlers had to break "camp" and move to places where they are closer to their farms and cultivations and so to-day we have longhouses at Nanga Pidek, Mamut (original landing place of the batch of migrants (pindah), Kelitang and Quap in that order.

5. The last and late Rajah of Sarawak has made it specifically clear that the "Adat Lama" of the system of land tenure and customary farming rights of the Sea Dayak people should be respected. In the case of the late Penghulu Barat it was a unique one which merits its privilege and respect. One of the signatories to this appeal is the daughter of the late Penghulu Barat and it really pained us to know that this very principle of the freedom to enjoy the few remaining privileges of the "Adat Lama" was exploited. We refer to the indication of the Section Forest Officer, Fourth Division to issue or has issued a licence to a certain Trading Company to extract timber from an area which includes the land in which Rumahs Lutin, Umeh, Banging and Dian farm. Thus means covering the whole of the Ulu Sibuti. Rumah Lutin is at Quap, Rumah Umeh at Kalitang, Rumah Banging at Mamut and Rumah Dian at Nanga Pidek.

6. Now that the State of Sarawak had achieved and gained its independence it would be fatalistic to do away with the "Adat Lama" which we all cherished and believed being enshrined in the State's Constitution. Because of the act to deprive the followers of the late Penghulu Barat and forfeit what is left of this special privilege that we appeal to you as our Minister for Natural Resources to intervene on our behalf the intended action.

7. We do understand and are fully aware of Government's policy to boost the economy of the country and State but to our orthodox belief this intended exploitation can never solve the problem and the frustration which the people living in that particular area will endure in the future. By exercising this forceful act it is thought amounting to guillotining the basic principles of the "Adat Lama". Where are then contentedness and living in happiness? The inhabitants living in the Sibuti lowlands (the area where we came from) would surely feel proud and eager to support the government to the full if the "Adat Lama" is respected and upheld. We have now our own Government, elected representatives, and we ourselves are running our own affairs. Therefore, it is our firm believe that in you and your other colleagues whom we put all our trust to ~~champion any cause~~ which was of British relic - ~~to divide and rule~~, be set aside.

8. Trusting that, Sir, you will not take this matter lightly for its final outcome depends very much on your wise judgment.

Thanking you in anticipation.

We have the honour to be,
Sir,
Yours respectfully,

her mark
.....
(SIAH AK BARAT)

his mark
.....
(ATG. T.R. UNGGAM AK KALANG)
of Rumah Lutin, Quap, Ulu Sibuti.

c.c. The Chief Minister,
The State of Sarawak,
KUCHING.

Official Memorandum

FROM Executive Officer, Internal Migration Committee at Miri.	TO District Officer, Miri
SUBJECT Sibuti Sub-district	COPIES TO: See below.
OUR REF. DATE	YOUR REF. dated
No.11 in IMC-1/59. 25.9.59	

1.1. This is a very prosperous area, exporting large quantities of both hill-and wet-padi and a small amount of rubber and coffee. Nearly all of the Iban houses have vast areas of land, averaging three times the area considered by the I.M.C. to be adequate for their needs. The Malay-Kedayan areas are also well-off for land but they cultivate a much smaller area of land per family and depend slightly more on other crops such as sugar-cane, bananas, pineapple, tapioca and planted fruit trees. On the basis of the present area of land held by the two races, which is 100 acres per Malay Kedayan family and 300 acres per Iban family, the Iban have far too much land and are thereby encouraged to use it wastefully; I propose, therefore, in para. 3.1 to reduce this disparity by utilising 40,000 acres of Iban land at present unused, as a F.R.

1.2. You informed me that house boundaries are all clearly defined and copies thumb-printed by the T.R. so I was surprised to find that in few cases do they agree with the locally accepted boundaries and many T.R. do not have a surat tanah. I suppose it would not be profitable now to enquire into the long rentis boundaries and vast areas given in Mr. Lascelles's map but I wish to point out that while I agree with you that natural boundaries are far more desirable, the creation of customary rights on these boundaries has forced me to follow them and, in some cases, to extend them.

1.3. There are several political and administrative problems awaiting settlement which, although in no way my concern, impinge on land problems. I have to mention them here as I have had to take into account in my recommendations. First and foremost is the position of Penghulu Barat. Some houses support him and are following his excellent administrative system and his very debatable farming system while others accuse him of every vice they can think of, from neglect of his duties to stealing rice from his school children. In my view Barat was one of the best Penghulus in the country and has enforced his enlightened ways on most of the T.R. in his area but, with the exception of Lutin, Umeh and Dian, the others are all bitterly envious of the vast area of land he, Umeh and Lutin "own". If, therefore, Barat and Umeh could be persuaded to give up some land and Lutin be persuaded to accept a few more doors (the area is too inaccessible for another house) in my opinion the prime cause of the intense dislike for Barat would be removed. A secondary cause is Barat's insistence on clearing roads and rivers and building good houses; in general doing things in a rational and workmanlike way instead of the usual feckless ramshackle Iban way. He is also now too old to travel.

"7. From K. Serungut TLB proceed upriver to watershed, thence Baram district boundary to Batu Lintang then to the source of the Bakas thence TRB Bakas to Kuala Serungut".

This is a narrow strip of land 6 miles long and 1 mile wide. If Anggon is allowed to remain, I recommend a rentis E-W just north of Jelani's house, making Anggon's boundaries TRB S. Bakas, TLB S. Serungut to the rentis between them, 1800 acres all good hill land and a few good swamps. Jelani will then have the area south of the rentis, TRB S. Bakas to a point 1/2 mile south of the proposed FR rentis on Tinggi's boundary, thence due E -W by rentis to the S. Kelad, TLB S. Kelad to Umeh's land (mentioned later) thence TLB S. Wong, TLB S. Serungut back to the rentis boundary with Anggon, 3300 acres all good hill land, a few swamps and much empran.

2.4. Rh. Lutin TLB Sibuti 27 doors

"1. A rentis from batu opposite S. Kelad to Bukit Lui, thence Ulu Kemedong which Umeh and Barat boundaries, turn slightly SE to follow Baram boundary to Ulu Sibuti, thence turns E to batu at S. Kebiar. P.S. An area between batu at S. Kelad and S. Kebiar will be investigated by Forest Dept. Meanwhile he may farm the temuda between Kebiar and Klad".

This does not make sense as K. Kebiar is due W of Ulu Sibuti and, as no action appears to have been taken on the P.S. they are now farming well down the Klad and Kebiar. I had great difficulty in tracing these boundaries and spent hours trying to find the alleged batu and belian puks. I recommend from Kuala Kelad up the TRB to 1 mile beyond the rentis boundary of Umeh and Jelani which is the narrowest point between the Kelad and Kebiar, due E to the Kebiar, thence down to its Kuala (which is marked by a stone puk which I have seen) thence along the existing boundary of temuda and VJ (recognised as FR by Lutin but not gazetted and marked with a FR plate) NNW by N to meet the existing but barely visible rentis on the Ulu Kemedang from near Bukit Tekam to Bukit Lui and to S. Sibuti opposite Kuala Kelad. These very long artificial boundaries are just visible now but will be lost in a few year's time unless they are recut now. 6500 acres all good hill land except a few small rock outcrops, many small swamps and vast areas of empran used as "harap hujan" padi.

2.5. Rh. Umeh TLB Sibuti 35 doors

"2. TLB Ulu Kemedang to its Kuala, follow rentis to belian puk at S. Bakas, TLB Bakas to K. Serungut, TLB Serungut to K. Wong thence NW(?) TLB S. Kelad to its Kuala thence rentis Bukit Lui to Ulu Kemedong".

Although this vast area is large enough for well over 100 doors it is impossible now to adjust its boundaries as it is completely surrounded by other houses. All I can recommend is another house of 35 doors (or the creation of a Mixed Zone) in the Ulu Kelitang. There is a long strip of kerangas and deep peat parallel to the Bakas across the Kelitang nearly to the Kelad; it is not very wide and could well be used as a boundary in the future. As far as I am aware Umeh has no temuda W and S of this line (the temuda I have seen is very old - probably Penan, more than 40 years) so it would be wise to fix this in the near future before he can create any customary rights over it.

It contains some excellent swamp but has the disadvantage of being a long narrow strip on the Bakas and Serungut. Umeh has now 11,000 acres of good hill and swamp plus 1500 acres of deep peat and kerangas.

2.6. Rh. Penghulu Barat TRB Sibuti (Mamut) 47 doors

"3. TRB Kemedang to its Kuala thence follow rentis to belian puk and due North to Sg. Labi turn NE to meet S. Rian and follow TRB S. Seloi until it reaches Baram Dist boundary thence to ulu Kemedang".

This is a very defective definition as the whole of the W side is open. This is another vast area of land and it is indicative of the lack of detailed knowledge of farming land in your Office that when I called in on this house last year and advised your predecessor that they had too much land I was told that of his 15,000 acres 12,000 was still VJ and, under the Land Code this could not be touched without your permission. The facts are that he has about 3,500 acres of VJ, 7,000 acres of 5 - 15 year old temuda (very poor in parts, much grass, Scleria spp. and labok), 4000 acres of 1 - 5 year old temuda, and about 700 acres of rubber, coffee and fruit trees. I have visited every part of this vast domain and hope that I am able to visit it again in 10 years' time. I am prepared to prophesy that it will consist of rubber, coffee and grazing land, except for the very few swamps where padi will still grow. Even the best hill land will not stand the intensive padi farming as practised in the Sibuti District. These Dyaks have been making a very handsome living out of the huge areas given them in the past. A few, like Barat are perspicacious enough to see where this is leading them and are now prepared to call a halt but it is too late to save anything but VJ, and Barat has agreed that all his remaining VJ shall be put under a FR. In any case, of course, it is too far from the house to interest anyone but the keen hunters who are equally pleased that it shall not be felled at the moment. The boundary with Dian (para. 2.7 below) is undefined and it is essential that a rentis be cut from the stone near K. Salu. As will be seen later, several problems have arisen over failure to keep rentis boundaries cleared annually. I regret now that I agreed with your statement in 67 in B/24/54 dated 3.4.59 that rentisses need not be maintained annually as several of these boundaries are now lost together with the belian or stone "puks" and I wasted much time trying to find them. As there is no possibility of changing his boundaries while Barat is alive, I recommend they be confirmed, except that the boundary along the Baram District will now follow the boundary of temuda and VJ as agreed with Barat, 14,000 acres of good hill land, much empran and very little true swamp.

2.7 Rh. Dian TRB Sibuti 36 doors

"4. Kuala Duang up TRB until it meets right hand bank of S. Mutap thence to Kuala Seloi until it meets the boundary between Rh. Dian and P. Barat."

This is a classical example of meaningless boundaries; the Duang does not meet the S. Mutap; the line to K. Seloi is unfixed and Rh. Grang (Embit) has taken advantage of his to use land shown on the map in the Kubu as Dian's (but it is more likely to be Kedayan land);

the boundary in the Ulu Seloi is similarly unfixed, and it is precisely the boundary between Dian and Barat which we wish to know. Furthermore the area between K. Bakas and S. Bah and S. Rian is Dian's but there is no mention of this on the Kubu map nor in the list of boundaries (but 15 acres is still retained by Barat at the extreme Kuala Bakas.) The main reason for the assumption by Dian that Grang is stealing his land is the incorrect alignment of the path between the two houses on the Kubu sketch-map. The path follows the western edge of Dian's land to a point near B. Mutap but it then turns NW and goes direct to Grang's house; it does not at any point cross the Seloi. Another version of the W boundary is that it follows an old Company rentis; it well may but no rentis is visible even to Iban eyes and certainly not to mine. It is always fatal to give houses a long "corridor" - the far end is rarely reached and never farmed if it can possibly be avoided. Dian does not know his boundaries on the Seloi and has probably never been there. However, as he feels that Rh. Grang have stolen his land, I recommend a rentis boundary from Kuala Duang to S. Mutap Simpang Dua on the present line which is clearly known to both Kedayans and Rh. Dian, thence direct to Bukit Mutap, thence due E to the Saloi, thence down the mythical and unknown boundary with Barat which he has promised to reopen and "clean" to the stone puk opposite K. Sepit on the Sibuti, thence S. Bah, S. Rian, TRB S. Bakas to K. Duang. This avoids nearly all the land in dispute with Rh. Grang. About 4,500 acres all good hillland and much swamp.

2.8 Rh. Gerang (Embit) Kuala Seloi 28 doors

"8. From K. Seloi upriver TRB to watershed thence Baram Dist. boundary to the source of the Setap, TLB Setap to K. Seloi".

This would be an eminently satisfactory boundary if the TR had kept to it but, as mentioned above (para. 2.7 Rh. Dian) he is farming across the Seloi and down the Setap to Kuala Merah, by permission of the Kedayans who claim the land. In my opinion this broken-down house has far more than 28 doors and some recent inmates admitted arriving from Sebauh a couple of months ago. I recommend therefore from Kuala Merahi TRB to its source below Bukit Mutap (Bukit Payong) thence following the proposed E-W rentis boundary with Dian to the S. Seloi, thence following an unnamed tributary of the Seloi to a similar one of the Setap (roughly following the existing boundary of VJ and temuda) to Kuala Kebuloh on the Setap, thence TLB Setap to Kuala Merahi. The VJ SE of K. Kebuloh is of no use to the house as it is more than three hours distant and is being eaten into from the Bakong. 4,500 acres of good hill land, extensive swamps and empran. He is possibly renting land to Chinese on the TLB of the Setap.

2.9 Rh. Bedit (Gudang Tengah) TRB Setap 36 doors

"9. From K. Luak to Kuala Seleh (Teles) then follow S. Seleh until it reaches boundary of Gudang Tengah".

This is completely useless and may be intended for Rh. Tubam. The boundary followed by Bedit is from Kuala Kejapil, TRB. Setap to Kuala Kebuloh thence N up the Kebuloh with no definite boundary across to S. Luak thence back down to Kuala Kejapil.

I recommend that this be confirmed with a rentis boundary from Kuala Seleh (Teles) to K. Kabuloh 4,500 acres of good hill land with much excellent swamp. This is a house comparable with those of Barat and Lutin and I am sure the TR would benefit from more frequent visits from the Penghulu. The land in the Ulu Kebuloh is being farmed by Rh. Bungai from the Bakong. I would recommend that they be fined and expelled for felling Crown Land without permission but for the fact that I find that the whole Baram-Miri boundary was moved from the watershed a few years ago just in order to make this lawful. In my opinion this was a thoroughly bad decision; any action taken against them now will incur the odium of inconsistency.

2.10 RH. Tubam S. Luak 27 doors

"10. From K. Luak proceed upriver to K. Seleh, TRB Seleh to its watershed then due W to meet S. Kejapil, downstream due SW to meet K. Luak".

This is fairly satisfactory. As, however the main streams are named differently on the various maps, I have marked the locally-known borders. Owing to bad weather and sickness I did not check these and have the impression that the area is a very difficult one from the point of view of drainage. If these boundaries are correct, 2,500 acres of empran, swamp, and many small hills. Although this is a relatively small area, the predominance of empran and swamp makes it far more than sufficient for 27 doors.

2.11 Rh. Esau S. Tiris 42 doors

"11. K. Kuhap TRB to its watershed, cross to Ulu Separoh down to its Kuala, S. Tiris back to K. Kuhap".

I did not visit this house, having gone over its farming land very thoroughly in 1958 when I reported to your predecessor that they were short of land. He replied that they could use swamp land at the Ulu Tiris Padi Scheme and I accepted this; but I wonder if the TR has been so informed? The land is in a Kedayan area and he may well believe he has no right to it. I ask because the TR has been to visit Lutin and has asked for land in the Ulu Kebiar and intends to move there shortly.

3.1. Proposed Forest or Road Reserve.

In the DPW's plans for major roads it is suggested that the watershed of the Suai, Niah, Sibuti with the Baram should be followed to Miri from the Ulu Jelalong. I consider this an admirable route, although not without some drawbacks (see para. 4.1) but there are large rock outcrops, unfortunately the thin sandstones and sandy grey shales of the Setap Series for the most part, just barely usable as road metal. The area has great potentialities as MZ after logging operations and is suitable for rubber, pepper, vegetables (with Miri and Seria as a market) and padi. I therefore propose that the existing Iban houses which have far more land than they need, be forbidden to fell any more VJ and, to this end, a FR be created running from the Lambier FR to the Niah (Extension) FR and to Gunong Subis P.F. From N to S the boundaries are, in the East the Bakong District Boundary, in the West, S. Teles, Rh. Bedit, K. Kebuloh, Rh. Grang, Rh. Penghulu Barat, Rh. Lutin, Rh. Umeh. Rh. Jelani, Rh. Tinggi, Rh. Entabang to the most

westerly tributary of the Minatan (Genatan), S. Separoh (Rh. Esau) thence into Niah sub-district, Rh. Undi, Malay land, Rh. Ugop, G. Subis PF. Rh. Lesang, Rh. Lagan, Niah FR., Rh. Penghulu Manggoi, Rh. Gawan, Ulu Niah to the Bakong boundary.

3.2. The whole of this area is either VJ in excess of the reasonable requirements of the Iban houses concerned or else is Govt. Land, some of which is at present being illegally felled by Iban. If action is taken on this NOW it will benefit the Iban by giving them forest for hunting game, timber for boats, houses, etc., rotans, damar, and other jungle produce for at least 10 more years and will make land available for logging timber when the road is built and for MZ thereafter. Finally, it will save large sums in compensation for extinction of customary rights when the road is to be built. About 40,000 acres within the Sibuti sub-district.

4.1 Geological and geographical information.

The Sibuti River is co-terminous with the S.Temam from the Bakong. At high water it is possible to take a perahu through the channels in the swamp which forms the source of both rivers.

4.2. The natural border between the Niah-Sibuti and the Bakong is not as shown on L & S Dept. maps but is a low horste (or, possible, a laccolith) locally known as Bukit Kisau and Batu Lintang as shown on the attached map.

4.3. Between the Bakas and the Sibuti is a long narrow strip of deep peat with a few kerangas hills. I am unable to say whether this is an old course of the Bakas-Sibuti or whether it is a synclinal fold, probably the latter.

4.4. There are several minor corrections, mainly of river names and changes of Iban house sites. They are all marked on the map.

4.5 The continuation of streams to their source beyond the points shown on L & S Dept. maps is approximate and is intended to indicate the general direction, tanjongs being omitted.

5.1 Population Density. All figures are approximate and intended to give a general picture, not a detailed survey.

Area, Sibuti sub-district	230,000 acres
Iban areas (present boundaries)	120,000 "
Malay-Kedayan areas	100,000 "
Deep peat kerangas, land under title and errors of measurement	10,000 "
Population Malay Kedayan	4,500 persons
Iban	2,200 "
Chinese	625 "
Average no. of acres per family	
Malay-Kedayan	100 Acres
Iban	300 "

If all my proposals are accepted and 40,000 acres of Iban land is made into FR the Iban acres per family is reduced to 200 i.e. only twice as much as they need instead of three times as much.

5.2. Acres per door (family) Iban houses.

Entabang	120
Tinggi	180
Anggon	250
Jelani	220
Lutin	290
Umeh	340 (but another house is proposed in this area)
Barat	300
Dian	120
Grang	160
Bedit	120
Tubam	90
Esau	70

5.3. If swamp land is taken at ten times the value of hill land, all the above, with the exception of Entabang and Barat who have little swamp are very much better off.

6.1 I trust that, if any of the above recommendations should meet with your approval, you will take action promptly as one more year will probably see the end of VJ at Entabang, Tubam and Esau and two more years at Anggon and Grang.

(Sgd:) W. Adams
Executive Officer,
Internal Migration Committee.

c.c. The Honourable the Resident, 4th Division.
Conservator of Forests, Kuching.
Sarawak Administrative Officer, Benua.

RELIGIOUS CONNOTATIONS OF PADI PLANTINGAMONGST THE IBAN PEOPLES*

From the outset it must be stressed that in studying Iban cultivation of padi, we are concerned with a larger problem than the description and analysis of agricultural techniques in a subsistence economy. To the Iban, growing of padi is a ritual undertaking, and their whole system of agriculture is based on an elaborate fertility cult. It is in drawing attention to the significance of this cult that the anthropologist has a special contribution to make. The vast majority of the Iban people are still 'pagan', but they are, nonetheless, an extremely religious people, and ritual pervades every aspect of their lives. The gulf which separates them from the practical and scientific world of the West is vast; and in terms of human development it is to be measured in at least several thousands of years. If the Iban are to be understood this fundamental fact must be faced, and any policy which does not take it into account is predestined to end in frustration and failure.

It is the fervent conviction of the Iban that their padi is a spirit, that it possess a soul, a personality of its own, and it is this belief that permeates the whole of their agricultural practice. In "The Golden Bough", James Frazer describes Dayak belief in these well-known words: "..... the life of the ritual is founded on the simple conception of the rice as animated by a soul like that which these people attribute to mankind. They explain the phenomena of reproduction, growth, decay and death in the rice on the same principles on which they explain the corresponding phenomena in human beings. They imagine that in the fibres of the plant, as in the body of man, there is a certain vital element, which is so far independent of the plant that it may for a time be completely separated from it without fatal effects, though if its absence be prolonged beyond certain limits the plant will wither and die. This vital yet separable element is what, for the want of a better word, we must call the soul of a plant, just as a similar vital separable element is commonly supposed to constitute the soul of man; and this theory or myth of the plant-soul is built the whole worship of cereals, just as on the theory or myth of the human soul is built the whole worship of the dead - a towering superstructure reared on a slender and precarious foundation".

Every Iban bilek family possesses a strain of sacred rice called padi. Although all kinds of padi are animated by spirits, most important of these are the spirits which dwell in the padi pun, for these are 'the lords of padi' (raja antu padi magang). Year by year each bilek family plants, in the middle of its farm, a small plot of padi pun, and this spot becomes a centre for the performance of manifold rites. It is through their padi pun that the spirits communicate with the rest of padi spirits. A good example of this is the ritual known as gawai memali umai, which is performed when young padi is attacked by disease. A member of each bilek family (it is usual for the whole longhouse community to join in the rites) goes to the farm, and with due ceremony digs up a single clump of padi pun. Back in the longhouse, the clump for each participating bilek family is placed in a temporary shrine (ranyai), and for one whole night various gods (chief of them is Pulang Gana, the god of fertility), and celestial spirit-mediums are invoked, so that, using their marvellous powers, they may medicine the ailing padi. Early the next morning, the shrine is opened, and each clump taken back to the farm whence it came.

As he carefully re-plants his precious padi pun, the Iban farmer utters these words:

"Oh sacred padi,
You the opulent, you the distinguished,
Our padi of highest rank;
Oh sacred padi,
Here, I am planting you:
Keep watch o'er your children,
Keep watch o'er your people,
Over the little ones, over the young ones.
Oh do not be laggard, do not be lazy,
Lest there be sickness, lest there be ailing;
You must visit your people, visit your children,
You who have been treated by Pulang Gana;
Oh do not neglect to give succour,
Oh do not tire, do not fail in your duty."

This sampi also gives some inkling of the attitudes of respect and deference which the Iban adopt towards their padi. It is their constant concern to avoid any action which might give offence to the padi spirits. Thus if ever any padi is spilt when being fetched from the storage bins, it is always most dutifully retrieved, and words of apology are whispered. But should padi fall beneath the longhouse, where pigs roam and the mire lies thick, retrieval is often impossible and a special ritual, to make amends for the mishap, has to be performed. A piece of firewood (lutik) - which is intended to symbolize a tangga, or ladder - is cast beneath the house, and a stream of water - symbolizing the ladder's railing - is poured upon it from a gourd. Then, waving a cock, to propitiate the occasion, the officiant calls to the fallen padi spirits:

"Oh beloved, let this, my brand, be your ladder -
your route of return; and this water your
ladder's railing.
Oh beloved, I did not wittingly cast you away!
Oh bless you, now I retrieve you: come back
to room and to parlour, to the bark bin, your
enfolding abode, your resting place, your
sleeping place, your habitation, and home.
And may our padi be plenteous, our crops be
abundant;
Oh come back suffering not headache or chill!"

Indeed, the padi spirits are looked upon as possessing a society of their own, and the Iban behave towards them, and address them just as though they were real persons. Thus we find an Iban farmer summoning the padi spirits at the end of the harvest in these words:

"Oh you padi spirits, harken now to my call!
Be you fishing, or hunting, or setting your
traps;
I bid you return, I beckon, I summon you all:
All boys, all girls, all fathers, all mothers,
All grandsires, all grandams,
All kith and kin - of family and of tribe."

And when the padi spirits have been conducted back to the longhouse - a trail of puffed rice (rendai) is scattered for them to tread - they are welcomed with ceremony such as the Iban reserve for their most distinguished guests.

A family's padi pun may never be sold or given away, and to it there are attached a series of ritual prohibitions, or pemali. In many cases, for example, it is taboo to enter a farm after having previously (i.e. on the same day) touched or eaten pork. To break such a pemali is to offend the padi spirits, and run the risk of their being frightened away; offenders are heavily penalised, the fine exacted from them laid at the foot of the growing padi, a cock sacrificed in expiation, and prayers of atonement uttered. These pemali apply to all the members of a longhouse and to strangers as well; ignorance of their nature affords no excuse, and, although transgression may have been entirely inadvertent, the penalties still operate. Every bilek family has its own particular set of prohibitions; often they may be ten or more in number, and there is wide variation from family to family. In carrying out my field research it was always necessary to ascertain well in advance the pemali of any farm which I proposed visiting, and then to modify my diet and behaviour in the manner required.

I was made aware of the extraordinary strength of Iban belief in their padi cult a few months after my arrival in the Sut. I had brought with me the equipment necessary to carry out a simple plane-table survey, so that accurate measurements of farm land could be obtained. In the course of a discussion with a specially arranged meeting of senior members of the longhouse, I put forward my research proposals. In general they were acceded to with alacrity and throughout the whole of my period of research I was accorded remarkable cooperation and helpfulness), but to the suggestion that I should survey farm land, there was immediate and hostile opposition. It was said that once before a survey party had visited the Baleh, and that in ensuing years, there had been disastrously bad harvests; the padi spirits, disturbed by the brusque ways of the surveyors, had taken offence and fled. From the emotion which accompanied its expression, it was clear that this was a fervently held opinion, but accurate survey was an important part of my work and I had gone to considerable trouble in bringing equipment all the way from England. I set myself about doing all I could to combat the idea that it was harmful. I employed arguments of many kinds. My research, I said, was aimed at helping the Iban, at finding ways to improve their crops; in other parts of Sarawak the best bountiful harvests had followed extensive surveying; they were mistaken in thinking that the padi spirits, who belonged to the Iban, could take offence at the actions of a European, whose adat was entirely different, but I would be glad to perform sacrificial rites before embarking on my work, and I would observe all other pemali with scrupulous care. But my audience was adamant. By this time the discussion had been going on for about two hours, and realizing that further attempts at persuasion would be futile, I resorted to stronger arguments. My research, I reiterated, was intended to help the Iban, they must trust the Government; Government knew best in saying that their land should be surveyed. But this slight threat of coercion provoked a fierce reaction. His eyes flaming and his voice suffused with emotion, Nyala - the mai romah - averred that the Government could shoot them and burn down their longhouses, but they would not submit to having their padi farms surveyed. The others present sprang to his support, and for several minutes there a rattle of disturbed voices. If I were not to jeopardize the whole of my research, retreat was imperative; I was compelled to disavow my plans and

and apologize for my effrontery.¹

On subsequent occasions I tried, by more devious methods, to persuade individual Iban to let me survey their farms - but without success. I discovered however, that it was the surveyor's chain to which most objection was taken. By using a prismatic compass and a measuring line of fine twine, I did manage to make hurried and surreptitious surveys of several farms (umai), but finding myself under suspicion, I was obliged to abandon even this. Finally I resorted to pacing - with as nonchalant an air as I could command - and sights taken from the shelter of friendly stumps. Despite this ban on surveying, I was permitted to visit most of the farms of Rumah Nyala whenever I chose (provided, of course that I obeyed the various pemali), and when it was found that I was seriously interested in Iban methods, I was invited to many more padi rituals than I had time to attend. It is when the padi is being sown, and during the early stages of growth that ritual prohibitions are at their most stringent, and during these periods two bilek families would not allow me to set foot on their farms; but in these cases, the prohibition (pemali ngendik tegalan) also applied to most of the other members of the longhouse. Later in the year, these restrictions were relaxed however, so that in course of time I was able to make repeated and detailed inspections of all farms. As will be seen later, repeated visits were always necessary, first to plot the area of jungle felled, and then to mark in the actual extent of the padi crop. In the course of successive visits I was able to compile a series of sketch maps. In almost all cases these maps were based on a series of measurements - by pacing - of the major dimensions of a farm, and then, the sketching in of its outline and other principal features, from several different vantage points (i.e. adjacent spurs and ridges). This method was aided by the fact that the boundaries of Iban farm plots are always very plainly demarcated against the surrounding jungle from which they have been cleared. In only two instances was it possible to make more elaborate surveys, and both were clandestine operations, undertaken soon after reaping had been completed. In general then, my data on farm acreages are based on sketch maps and careful estimates, not (as I had planned) on detailed plane-table surveys. In passing it may be noted that the survey of Iban hill farms is no easy task. Very often they are situated on extremely steep slopes (i.e. 35° - 40°), broken by confined and precipitous gullies and cluttered with massive accumulations of fallen timber.

¹It is interesting to note that Izikowitz encountered similar difficulties when doing field research among the Lamet (of French Indo-China), who practice shifting cultivation, and have a padi cult closely resembling that of the Iban. He describes how he attempted to map farm land, but the Lamet were very suspicious, and when he was setting up a pole to use as a measuring point in triangulation, there were loud protests that harm would result to "the owners as well as the soul of rice". Izikowitz continued his survey, using a lance instead of a pole - the spirits (so it was said) being afraid of the point of the lance; but within a few days the owner of the land did fall ill, and Izikowitz was absolutely forbidden to continue with his mapping. (Izikowitz, "Lamet", p.282)

Government surveyor, by exerting sufficient pressure, might possibly get his way, but an anthropologist could not afford to do this, for the success of his work depends on the maintenance of goodwill among the people he is living with and studying.

DEPARTMENT OF AGRICULTUREDEVELOPMENT PLAN BRIEF, 1967Agriculture, Rubber Planting, Livestock, Freshwater Fisheries.Responsible Department - AgricultureAGRICULTURAL POLICY

At the core of Agricultural Policy is the need to give Sarawak's hill padi farmers the opportunity to break away from subsistence level shifting agriculture. Hill padi gives only small yields (AV.150 gantangs per acre) after laborious felling of jungle for one crop only, whereas swamp padi can give much better yields year after year on land that is properly drained and cultivated. The hill lands can be planted with rubber and other tree crops to provide a better living, whilst coconuts are encouraged as the cash crop on the coastal and lower riverine areas. The development of oil palms is the most hopeful crop for further diversification.

A secondary feature of policy is to increase the supply of protein in the diet by stimulating the livestock industry and fish ponds.

Agricultural Education and Research programmes figure largely in the Department's 5-Year Development Plan.

Development Schemes:

1. RUBBER PLANTING \$61,000,000
- Scheme 'A' - \$41,000,000 Primarily for smallholders
- 5-Year programme - New Planting - 58,660 acres
 Re Planting - 15,800 "
- Assistance Given - New Planting - (\$400 per ac.
 Re Planting - (\$600 spread
 over 5
 years
- Assisted Planting - Planting material and
 fertilizer only.

1967 Programme

<u>Division</u>	<u>New Planting</u>	<u>Re Planting</u>
1st	2,900	519 $\frac{1}{2}$
2nd	2,400	360
3rd/UR	2,230	235
3rd/LR	870	350
4th	2,340	150 $\frac{1}{2}$
5th	1,250	185
Estate	-	200
STATE	12,000	2,000

- Problems:
- Fair allocation to Divisions
 - Fair selection of applicants
 - Satisfying the demand
 - Supervision
 - The farmer's part in the effort

Scheme 'B' - \$20,000,000

Block Planting

8 acres 2-year old rubber handed over to settler.

Programme

<u>Year</u>	<u>Acreage</u>
1966	6,500)
1967	6,200) subject to
1968	6,200) available funds
1969	6,000)
1970	6,100)
<hr/>	
STATE	31,000

Rubber Planting Problems: a) Method of planting
 b) Definition of 3-acre lot
 c) Processing
 d) Forward planning

Note: Scheme 'B' is associated with Land Development Schemes and land settlement problems are dealt with by the State Development Officer under that heading.

2. COCONUT PLANTING

For subsidised planting of the following acreage

\$9,000,000
 (with \$2,196,000 required after 1970)

<u>Year</u>	<u>Acreage</u>
1966	7,500
1967	9,200
1968	10,650
1969	11,200
1970	9,400
<hr/>	
TOTAL	47,950

Assistance Given: Planting material, fertilizer and drainage and cash subsidy. Total value \$209/- spread over 4 years. Also free seedlings for household planting. A sum of \$50 is available to assist in the erection of a kiln.

Problems: a) Drainage
 b) Administration
 c) Economics of crop

3. PADI PLANTING

A. Assistance to Padi Planters Scheme \$3,125,000

Assistance is provided in the form of drainage, survey and layout, tools, watergates and cash subsidy to amplify the communal effort. With proper drainage, water control and improved cultivation methods, low lying swampy land can become productive wet padi land. Schemes are usually confined to smaller swamps (under 300 acres) and assistance limited to \$75/- per acre (maximum). Larger Schemes for drainage are the concern of the Drainage and Irrigation branch of the Public Works Department. Emphasis is on drainage rather than irrigation.

Programme:

1966 - 1970 - 36,000 acres

1967 - 6,000 acres

Problems: a) Staff for survey and layout
 b) Stimulating the communal effort
 c) Lack of cultivation aids (e.g. buffaloes, machinery)

B. Buffalo Development/Training Scheme

In all Divisions except the Fifth the use of buffaloes for padi cultivation is not traditional as animals are either non-existent or very few in number. This scheme plans to introduce 200 buffaloes per year and train farmers how to manage and handle them.

Problems: a) Source of buffaloes and transport
 b) Lack of tradition in buffalo care and handling

4. LIVESTOCK SCHEMES

\$3,658,600

Buffaloes: (outlined under Padi Planting, above)

Pedigree Pigs:

Supply of pedigree pigs for commercial producers from Departmental piggeries.

Rural Pig Subsidy:

Assistance in the form of improved stock, feed and building materials is provided to give progressive smallholders in rural areas a good start in this form of farming activity. A conscientious farmer who feeds farm produce in addition to the concentrated food provided as subsidy, and at the same time, cares well for his animal can become self-sufficient in this form of enterprise. The unit of assistance under this scheme will be given to ex-trainees of the Farmers Training Centre.

Cattle:

The rearing of cattle is not very common and management generally backward. There is a great need to assist interested farmers and encourage them in appropriate ways and the Cattle Subsidy Scheme provides for such assistance as fencing, building materials, water tanks, calf feed and, on occasion, breeding stock. The value of assistance per farmer or unit is \$250/-.

Poultry:

Incubators for custom hatching.

1967 Programme

Pig Units - 570
Cattle 60

Problems: a) Proper feeding
b) Marketing
c) Animal husbandry experience

\$ 399,000

5. FRUIT SUBSIDY

To encourage and assist smallholders to plant fruit trees for the family and community needs and where possible, for sale. The main types are improved varieties of rambutan, durian and oranges, which will improve supply and quality. The small-holder is expected to prepare the land and planting holes before receiving fruit trees, fertilizer and fencing materials. A unit of assistance consists of 30 fruit trees and is valued at \$100/-.

1967 Programme

370 Units

Problems: Equitable selection of participants

\$ 914,000

6. GOOD FARMING SUBSIDYA. Good Farming

To encourage selected progressive smallholders to diversify their farming and follow an agreed farm plan including food and cash crops and livestock. The assistance is given in the form of seed, fertilizer, fencing, building materials etc. as appropriate to a unit limit of \$200/- per farmer.

1967 Programme

325 Units

Problems: Staff of sufficient experience to work out farm plan.

B. Off Season Cropping

Off season cropping of wet padi land is also encouraged and assisted under this scheme to the unit value of \$75/- per acre for the supply of seed, fertilizer and machinery hire where this is possible.

Double cropping of padi in Sarawak cannot be general for a number of reasons and off-season cropping provides an alternative with such crops as groundnuts, sweet potatoes, tobacco, soya bean etc.

Assistance will be given where interest is shown.

1967 Programme

460 acres

Problems: a) Land cultivation
b) Supervision
c) Agronomic problems.

7. FISH PONDS

\$1,500,000

The fish-pond subsidy scheme provides tools, drainage pipes, fertilizer, fish fry and a cash subsidy to encourage the construction of ponds and culture of fish.

The Development of prawn farming, oyster culture etc., in the coastal brackish water area is also being developed. There is also a fisheries research programme. A considerable amount of training is necessary.

- Problems: a) Ensuring productivity
b) Getting accurate records

1967 Programme

630 acres of Freshwater Ponds
300 acres of Brackishwater Ponds

8. AGRICULTURAL DIVERSIFICATION

\$5,000,000

As a result of research Oil Palm has been selected as the most hopeful crop for diversification to reduce reliance on Rubber and Pepper. Two pilot scheme areas of about 600 acres each, have been selected and are under investigation. Participants will receive a planting subsidy and later small factories financed and operated by the Sarawak Development Finance Corporation will be constructed.

AGRICULTURAL EDUCATIONStaff Training

The new School of Agriculture nears completion and will accommodate 36 men and 24 women (Home Demonstrators).

Farmers Training

Apart from specific training in Rubber planting and processing, buffalo management, fish ponds and livestock management, the Farm Institute organisation of Farmers' Training Centres is regarded as one of the most promising lines of extension for the young farmer. The training consists of a very practical, do-it yourself type of course over 14 weeks on the main Sarawak crops and livestock. The students return home with a set of tools, seeds, plants etc., and are able to make a start at farming on their own. Follow-up is an important part of the programme. By 1970 there should be 12 centres functioning, giving training to about 1,000 students per year. One centre is scheduled for construction in 1966.

- Problems: a) Staffing
b) Normal difficulties of site selection, building etc.

AGRICULTURAL RESEARCH

The provision of facilities for the programme of Research is now well advanced:

Laboratories for Chemist, Entomologist, Plant Pathologist and Agronomists are due for completion in April 1967.

Opening up of adjacent field station has commenced.

1 General station operative.

4 Padi stations operative.

2 Oil Palm stations operative.

1 Peat station - site chosen and clearing and drainage in hand.
Facilities for field experiments available on 4 commodity stations.

The following divisions of research are functioning:

Agricultural Chemistry

Soil Survey

Pepper Agronomy

Cocoa and Fruit Agronomy

Oil Palm Agronomy

Rice Agronomy and Botany

Soils Agronomy

Entomology

Plant Pathology

Problems: Adequate numbers of experienced staff of all grades.

Blue - Print for expansion of secondary and vocational Education in Sarawak
under the First Malaysian Plan

A revised blue-print for expansion of secondary education in Sarawak for the next five years is now being prepared by the Education Department. This is the result of the advice given and recommendations made by a UNESCO Mission who visited the State recently. The UNESCO Mission has stressed that as a general policy the World Bank would only support educational projects justified by economic and manpower needs of the State and not by political considerations. It is expected that the revised blue-print will be ready in a few days time for submission to the World Bank through the Ministry of Education.

If secondary and primary enrolments expand at the present rate there would be an increase of 122,500 pupils over the figure for 1966 by the beginning of 1972. The breakdown is as follows:-

(i)	<u>SECONDARY</u>			<u>PRIMARY</u>
	<u>Government/Aided</u>	<u>Private</u>	<u>Total</u>	
1972	37,200	21,500	58,700	228,100
1966	15,200	15,000	30,200	134,100
Increase	<u>22,000</u>	<u>6,500</u>	<u>28,500</u>	<u>94,000</u>

(ii) The number of pupils in Form 3, Form V and Form 6 in 1972 is estimated to be as follows:-

Form 3	11,000
Form V	5,100
Form 6	600

The main recommendations made and advice given by the UNESCO Team are as follows:-

- (i) The present curriculum for secondary schools is too academic and greater emphasis should be paid to Science, Mathematics and practical subjects like Industrial Arts, Wood/Metal Work, Agricultural Science and Husbandry, Commerce and Home Economics. In view of the large numbers of Form 3 and Form V pupils expected by 1972, a revision of the secondary school curriculum is very essential so that these pupils would be fitted to find employment when they leave school.
- (ii) The number of courses and enrolments in the Vocational School, Kuching should be further expanded.
- (iii) The number of periods for Physical Education, Art and Crafts should also be increased slightly.
- (iv) The standards of school buildings, workshops, laboratories, library facilities, home economics room and equipment should be improved slightly so as to harmonise with the standards prevalent in West Malaysia. Other specialist rooms should also be provided.
- (v) The teacher training programme should be step up rapidly so as to produce enough trained teachers to staff the expanded school system. It is estimated that 3,810 additional trained teachers would be required by 1972,

comprising the following categories:-

Senior Secondary Teachers	=	322
Junior Secondary Teachers	=	788
Primary Teachers	=	<u>2,700</u>
Total		<u>3,810</u>

In 1966, of the 666 teachers in Government and Aided Secondary Schools in Sarawak, 192 of them were recruited from abroad or foreign aid personnel. 50 of them are Indian contract teachers and 142 are foreign aid personnel from U.S.A., Canada, Australia, New Zealand and United Kingdom. This number does not include another 70 foreign aid volunteers engaged in professional work in the Education Department, Teacher Training Colleges and Primary schools.

- (vi) The Federal Ministry of Education should be requested to assist in the training of specialist teachers for secondary schools in West Malaysia for subjects like Industrial Arts, Agricultural Science, Commerce and Home Economics, etc.

As a result of these recommendations by the UNESCO Experts the estimated cost of the educational projects in Sarawak will be increased from \$10,000,000 to \$24,500,000.

The World Bank is expected to send an Appraisal Team to visit Sarawak in April or May this year after it has received the revised blueprint from Sarawak.

IN SARAWAK

The heavy dependence that rests on rubber both in the agricultural sector of the Sarawak economy and overall has been recognised as a dangerous feature and given rise to a main objective of the 1966-70 Development Plan to discover and develop alternative crops which can diversify agricultural production. The sum of \$5,000,000 has been provided for the purpose.

The most promising crop for development is considered to be the African Oil Palm (*Elaeis guineensis*), which grows well and has shown promise in an experiment during recent years. Oil palm specialists are sanguine that the crop can produce as favourably in Sarawak as in neighbouring Malaya and Sabah and it is significant that the Commonwealth Development Corporation are far advanced in their planning to set up a large estate and factory in the North Division. The reason why oil palms have not been developed earlier is probably because the crop has been regarded to-date in South East Asia as essentially for large estates requiring a minimum of 2,000 acres to supply a full scale factory. This does not fit in with the Sarawak pattern and policies of small-holding agriculture and, as a result, little effort was made to introduce the crop particularly as satisfactory small processing units were not available. Sporadic plantings may, however, be found at Kanowit and Long Lama where the original palms still survive and grow healthily despite neglect. Sporadic palms growing as ornament in many other places demonstrate that they are suited climatically - survive and fruit on some of the poorest soils.

The plan now proposed for oil palm results from the comparatively recent development of efficient small factories with a capacity of $1\frac{1}{2}$ tons of fresh fruit bunches per hour. Areas of upto 600 acres can be handled by one of these factories and the quality of the oil produced compares favourably and can compete with oil from a full scale factory. There should be no difficulty in finding a ready market for the oil produced and the subsequent discussion and calculations assume an average price for palm oil of \$35 per picul at Singapore. This estimate is somewhat below the long term forecasts made in Malaya for the oil palm industry there. The prices of palm oil in dollars per picul are shown for comparison in Appendix 5 for the post war years.

Oil palms have certain advantages for the small-holder over rubber, the most important being maturity at four years compared with six and more favourable conditions for intercropping in the early years. Income per family per day worked can be greater than for rubber and estimates of income that a farmer is likely to obtain from 12 acres of oil palms in Sarawak is shown in Appendix I. This is the proof offered that oil palms are an economic proposition for the small-holder and can provide him with a reasonable living from the fifth year onwards.

The disadvantages of oil palm as compared with rubber are the more difficult and expensive processing requiring an expensive factory and the much greater attention that has to be paid to quality. Picking of the fruit at the correct stage, reasonable handling and undelayed processing are essential while the produce must be exported before deterioration sets in. A much greater degree of discipline is required of farmers if the factory is to be economic; while its management is a critical factor. As the organisation of oil palm planting must evolve from the design and limitations of the small factory its operation for the processing of fruit is next described.

The Factory

A plan of the factory is shown at Appendix 6.

Processing of the fruit is divided into the following stages:-

1. Fruit collection
2. Fruit sterilisation
3. Stripping bunches and fruit digestion
4. Separation of oil from fruit
5. Purification of oil
6. Nut separation
7. Cracking and separation of kernels.

The oil palms should be grown no more than 4 miles from the factory if the tractor/trailer transport envisaged is to be economic but in certain situations other transport (e.g. river) may be used when the maximum distance from the factory would have to be reconsidered. The collection of fruit would be the responsibility of the factory and fruit weighed onto the trailers by a tally clerk.

On arrival at the factory the fruit are placed in the sterilisers which operate from a simple, atmospheric pressure, steam boiler. The two sterilisers are filled and emptied alternately being operated by two labourers who push the sterilised fruit into the stripper. The remaining processes of stripping, pressing and oil separation are mechanised but a number of labourers are required to operate the press and change oil drums as they become full. The mechanic in charge would tend the steam boiler and supervise the labourers. The kernels require drying after cracking and separation in a tray bath. This would be done on a simple drying platform using steam from the boiler. Kernels would be bagged and sold and the oil sent away in conventional 4 gallon drums or other suitable containers evolved.

Capacity of Factory

The maximum capacity of the factory is $1\frac{1}{2}$ tons of fresh fruit bunches per hour. It may be expected to process fruit from 600 acres of palms but in practice the processing of fruit from as little as 400 acres would still be economic. It is pertinent to mention at this point that the eventual aim might be to unite a number of small schemes, with their individual factories, into a larger scheme with a full scale industrial mill. This concept might influence a decision on factory ownership as the small factories could then be moved on to another scheme. It also makes it desirable to select the initial schemes in areas with potential for expansion.

Cost of Factory

It is estimated that the cost of a factory will be about \$156,000, but in addition \$30,300 is required for tractors and trailers, \$80,000 for 9 miles of roads suitable for tractors and trailers and \$21,700 for the purchase of drums for shipping the oil. The total cost is therefore \$288,000.

Working capital of factory

Each factory would require \$120,000 working capital.

Note

It has been assumed that Capital cost and Working Capitals for the factory would be in the form of a loan and Appendix 3 gives loan requirements and repayment for the factory.

Profitability of factory

Appendix 2 shows calculated costs and returns for the factory from the third year of life of the oil palms to the twenty fifth. These estimates are necessarily very arbitrary in that it is not easy to impute labour costs twenty years hence. The yields assumed are shown in Appendix 4. If lower yields are obtained or if less than 600 acres come into production the factory charges will have to be raised accordingly. The level of factory charges set is equivalent to \$300 per ton of oil produced or \$39 per ton of fresh fruit bunches delivered to the factory. The estimates show that the factory working at full capacity should be in a position to pay a small dividend in its ninth year of operation (i.e. when the palms are twelve years old) and raise this dividend quite considerably in subsequent years. After the twenty second year of operation it is likely that the problems of plant replacement will arise.

Shipping and handling

Provided satisfactory discipline can be achieved to ensure that fruit is picked at the right stage and handled with reasonable care as far as the factory without undue delay the oil produced should be of a sufficiently high standard to allow shipment in sterilised barrels as far as Singapore. The maximum time lapse between production and delivery in Singapore should be 30 days if quality is to be maintained but this should create no difficulty if the oil palm units are sited near main roads and rivers. It is desirable that the factories should be near ports with a weekly shipping service to Singapore (i.e. Kuching, Sarikei, Sibu, Miri, Brunei or Labuan). Capacity required for each mill would be at least 15 tons of oil per week, and the cost from factory to Singapore should not be more than \$25 per ton. This figure should be easily achieved in many areas suitable for oil palms.

Factory organisation

The financing, organisation and management of the factory and its relation with the producers it serves is the most important and critical consideration which can spell success or disaster for these schemes. It must be assumed that the farmer's major item of expenditure will be the factory charges for processing, collection, maintenance of roads etc. and that these charges will be deducted at source. Payment for fruit would be based on market price for oil less factory charges but market price is much reduced for inferior quality oil and this results primarily from the delivery of low quality fruit. Clearly the factory must have the authority to penalise a producer for delivering low quality fruit or even to reject fruit entirely. One is faced with the problem that the factories are too small to employ managerial staff, too large to be run by a producers co-operative and probably too complex to be run initially by a small company formed by the smallholders themselves. Possible approaches to the problem are outlined in Appendix 10 which must influence the method of finance, organisation and management, but there is time while palms are growing to work out these principles and details. The important thing now is to decide whether there is enough information available and that there is sufficient confidence in the project to justify the placing of an order for seed early in 1966, and to start interesting growers in suitable selected areas.

The Cultivation of Oil Palms

Oil Palms are a new crop for Sarawak and although the Department of Agriculture is satisfied that it can become an important industry it must be recognised that neither the staff of the Department nor the farmer are familiar with it. The small factory for organised smallholders is largely untried in South East Asia, but Oil Palms are not a difficult crop to grow and a proper approach to farmers should overcome any difficulties.

Seed would be obtained from Malaya and nurserying undertaken in Kawak by the Department of Agriculture at strategic places where it was intended to interest smallholders in the initial schemes. Normally nursery plants are transplanted at 8-9 months but can be held in the nursery as long as 15 months; thus there is time available for the selection of areas and the approach to growers. In the first schemes it must be understood that Government approaches persons in selected area to find out if they are interested and persuade them to participate. There can be no calling for applications or allocation of units to Divisions on the pilot schemes and the choice of areas must be left entirely in the hands of the Department of Agriculture. Layout of holdings, land preparation, drainage, planting, fertilising, maintenance, road construction etc. would be planned and directly supervised by the Department of Agriculture who would also operate the planting subsidy scheme. When harvesting commences, instruction in timing and methods of picking would be given.

Planting Subsidy

It is proposed that the planting subsidy shall be as follows:-

<u>Year</u>	<u>Planting Material</u>	<u>\$50.00/acre</u>	
Year 1	Fertilizer	\$18.38	"
	Drainage	\$20.00	"
	Cash	\$25.00	"
	Total		\$113.38
Year 2	Fertilizer	\$11.03	"
	Drainage	\$10.00	"
	Cash	\$25.00	"
	Total		\$ 46.03
Year 3	Fertilizer	\$11.03	"
	Drainage	\$10.00	"
	Cash	\$25.00	"
	Total		\$ 46.03
Year 4	Fertilizer	\$11.03	"
	Cash	\$25.00	"
	Total		\$ 36.03
	Grand Total		<u>\$241.47</u>

Say \$250.00

In addition a bulldozer would be provided for every three schemes to construct and maintain roads. The following two conditions will attach to the individual subsidy:

1. The subsidy may be for between six and fifteen acres of palms only.

2. Farmers entering the scheme will be required to declare what acreage of rubber and pepper they have under cultivation. Normally farmer's having more than four acres of high yielding rubber or its equivalent in pepper will not be allowed to plant the maximum acreage as they would not have the family labour resources available to establish and maintain it as well as attending to their other activities. A simple means of calculating the acreage that could be approved for an individual farmer is shown in Appendix 8.

Implementation

It will be realised from the foregoing that the implementation of this scheme will involve a considerable amount of planning in great detail if Oil Palms for Smallholders in Sarawak are to be developed successfully. It is proposed to appoint an experienced Agricultural Officer as Agricultural Officer (Oil Palm Development) in early 1966 whose functions would be:-

- (a) To select areas where Oil Palm Schemes can be started from all points of view; soil suitability, potential expansion, favourable transport facilities, suitable factory site, etc.
- (b) Having selected suitable areas to interest the required number of smallholders in conjunction with Divisional Officers in the project.
- (c) To order seed, select nursery sites and supervise the nursering of the required numbers of palms.
- (d) To supervise the lay-out of holdings construction of roads, land preparation, drainage works, planting and maintenance of holdings.
- (e) To be responsible for operating the planting subsidy scheme.
- (f) To provide information, while acting as Secretary to a Policy Committee, which would enable a decision to be made on the most suitable form of ownership for the factories and the system of management to be employed. Also to make proposals to the Committee for the marketing of the oil and who would be responsible.
- (g) To co-ordinate orders for factories machinery etc. and the timing of their erection.
- (h) To plan harvesting procedure and train farmers.

Development Programme

It is proposed that 6,000 acres of oil palms be planted in the 1966-1970 period as follows:-

<u>Year</u>	<u>Nursery planting acres equivalent</u>	<u>Field planting acres</u>	<u>Factories No.</u>
1966	1,000		
1967	1,500	1,000	
1968	1,500	1,500	2
1969	2,000	1,500	3
1970	2,000	2,000	3
1971		2,000	4
1972			4
Total for plan period			
	8,000	6,000	8
Implied carry over to 1970-75		2,000	8

The cost of achieving these targets in terms of subsidies and planting materials has been calculated and is shown as appendix 7. These costs totaling \$1,255,505 would be met from the funds provided in the 1966-1970 development plan under the Crop Diversification vote.

Income and Expenditure of farmer with 12 acres of oil palm.

Appendix 1

Income

Expenditure

Year	Yield of oil		Yield of kernels M. & Piculs	Bonus	Total	Tools rent etc. etc.	Factory charges at \$17.8/pl.	Fertiliser	Total Expendi- ture	Net Income	Net income per a. th used	Net income man day used
	Piculs	M. \$30/pl.										
1				3	1-2-3 = 4	250		220.50	470.50		9 + 12	10
2						250		132.30	382.30			
3						250		132.30	382.30			
4	56.96	1,768.80	13.74	311.95	2,082.75	250	1,052.44	132.30	1,434.74	648.01	54.00	28
5	117.93	3,537.90	27.48	627.52	4,165.82	250	2,105.05	220.50	2,575.55	1,590.27	132.52	28
6	175.90	5,307.00	41.22	941.80	6,248.88	250	3,157.67	220.50	3,628.17	2,620.71	218.38	28
7	208.49	6,014.70	46.71	1,067.32	7,082.02	250	3,578.75	220.50	4,049.25	3,032.77	252.73	35
8	212.28	6,368.40	49.49	1,130.85	7,499.25	250	3,789.20	220.50	4,259.70	3,239.55	269.96	38
9	224.07	6,722.10	52.21	1,193.00	7,915.10	250	3,999.65	220.50	4,470.15	3,444.95	297.08	38
10	235.87	7,076.10	54.96	1,255.84	8,331.94	250	4,210.28	220.50	4,680.78	3,651.16	304.26	38
11	235.87	7,076.10	54.96	1,255.84	8,331.94	250	4,210.28	220.50	4,680.78	3,651.16	304.26	38
12	235.87	7,076.10	54.96	1,255.84	8,331.94	250	4,210.28	220.50	4,680.78	3,651.16	304.26	38
13	235.87	7,076.10	54.96	1,255.84	8,331.94	250	4,210.28	220.50	4,680.78	3,651.16	304.26	38
14	235.87	7,076.10	54.96	1,255.84	8,331.94	250	4,210.28	220.50	4,680.78	3,651.16	304.26	38
15	235.87	7,076.10	54.96	1,255.84	8,331.94	250	4,210.28	220.50	4,680.78	3,651.16	304.26	38
16	235.87	7,076.10	54.96	1,255.84	8,331.94	250	4,210.28	220.50	4,680.78	3,651.16	304.26	38
17	235.87	7,076.10	54.96	1,255.84	8,331.94	250	4,210.28	220.50	4,680.78	3,651.16	304.26	38
18	235.87	7,076.10	54.96	1,255.84	8,331.94	250	4,210.28	220.50	4,680.78	3,651.16	304.26	38
19	235.87	7,076.10	54.96	1,255.84	8,331.94	250	4,210.28	220.50	4,680.78	3,651.16	304.26	38
20	235.87	7,076.10	54.96	1,255.84	8,331.94	250	4,210.28	220.50	4,680.78	3,651.16	304.26	38
21	235.87	7,076.10	54.96	1,255.84	8,331.94	250	4,210.28	220.50	4,680.78	3,651.16	304.26	38
22	235.87	7,076.10	54.96	1,255.84	8,331.94	250	4,210.28	220.50	4,680.78	3,651.16	304.26	38
23	235.87	7,076.10	54.96	1,255.84	8,331.94	250	4,210.28	220.50	4,680.78	3,651.16	304.26	38
24	235.87	7,076.10	54.96	1,255.84	8,331.94	250	4,210.28	220.50	4,680.78	3,651.16	304.26	38
25	235.87	7,076.10	54.96	1,255.84	8,331.94	250	4,210.28	220.50	4,680.78	3,651.16	304.26	38
Total	4,164.55	142,935.50	1,110.21	25,568.36	196,384.86	6,250	85,047.24	5,247.90	96,545.14			

	Yr. 4-6 (days/ month)	Yr. 7 inwards
Cutting	6	8
Carrying	12	20
Weeding	6	6
Odd job	4	4
	28	38

Year	Capital Account	Income
	Capital cost of plant \$280,000 Loan outstanding \$280,000 Working capital \$120,000 Total \$400,000	Working capital: \$120,000 Processing charges \$ 26,340 675.4 tons fib. at \$39.00/tons.
	Working Account	
	Expenditure	
4	(a) Processing: \$ 1,825 Running cost of plant 12½% of \$15,000 187 10% allowance of the above running cost 10,000 Running cost of transport \$10,000 7,200 1 mandor wages \$600 x 12 months 7,200 12 labourers (at \$5.00 x 25 days x 12 months) 26,600 (b) Interest and capital repayment: 28,000 7% interest on loan of \$400,000 14,000 (c) Depreciation: 5% on \$280,000 1,250 Repair allowance at 12½% of \$10,000 1,312 Total 91,312	Balance brought forward 55,028 2025.4 tons fib. at \$33.00/ton 78,990 Total \$146,340
5	Balance carried forward \$146,340 (a) Running cost of plant 37½% of \$15,000 5,625 10% allowance of the above running cost 10,000 Running cost of transport 7,200 1 mandor wages 36,000 15 labourers x \$2,400 20,000 (b) 5% interest on loan of \$400,000 28,000 7% interest on loan of \$400,000 13,300 (c) Depreciation: 5% on 266,000 3,750 Repair allowance at 37½% of \$10,000 3,750 Total 124,437	Balance brought forward 134,018 4050 tons fib. at \$39.00/ton 157,970 Total 291,988
6	Balance carried forward 291,988 (a) Running cost of plant 75% of \$15,000 31,250 5% allowance of the above running cost 10,000 Running cost of transport 7,200 1 mandor wages 43,200 15 labourers x \$2,400 40,000 (b) 10% of loan \$400,000 28,000 7% interest on \$360,000 26,600 (c) Depreciation: 5% on \$252,700 12,635 Repair allowance at 75% of \$10,000 7,500 Total 158,947	Balance brought forward 167,551 4530 tons fib. at \$39.00/ton 179,010 Total 346,561
7	Balance carried forward 346,561 (a) Running cost of plant 85% of \$15,000 12,750 3% allowance of the above running cost 382 Running cost of transport 10,000 1 mandor wages 7,200 21 labourers x \$2,400 50,400 (b) 10% of loan \$400,000 40,000 7% interest on \$340,000 23,800 (c) Depreciation: 5% on \$240,065 12,004 Repair allowance 65% of \$10,000 8,500 Total 165,036	Balance brought forward 187,614 4530 tons fib. at \$39.00/ton 179,010 Total 366,624

Year	Expenditure		Income
6	(a) Running cost of plant 90% of \$15,000	\$ 13,500	Balance B/F \$ 22,378
	Running cost of transport	10,000	4,560 tons ffb. at \$19.00/ton 189,540
	1 motor wages	7,200	
	24 labourers x \$2,400	57,600	
	10% of loan \$400,000	40,000	
	7% interest on \$300,000	21,000	
	5% depreciation of plant \$28,061	11,403	
	Repair allowance 90% of \$10,000	9,000	
	Total	163,703	
	Balance C/F	42,413	212,118
9	(a) Running cost of plant 100% of \$15,000	15,000	Balance B/F 42,415
	Running cost of transport	10,000	5,130 tons ffb. at \$39.00/ton 200,070
	1 motor and 24 labourers	64,800	
	15% of loan \$100,000	60,000	
	7% interest on \$200,000	18,200	
	5% depreciation of plant \$216,658	10,533	
	Repair allowance 100% of \$10,000	10,000	
	Total	186,533	
	Balance C/F	53,652	242,485
10	(a) Running cost of plant	242,485	Balance B/F 53,652
	Running cost of transport	15,000	5,400 tons ffb. at \$39.00/ton 210,600
	1 motor and 24 labourers	10,000	
	15% of loan \$400,000	64,800	
	7% interest on \$300,000	60,000	
	5% depreciation of plant \$205,825	14,000	
	Repair allowance	10,291	
	Total	164,971	
	Balance C/F	80,161	264,252
11	(a) Running cost of plant, transport & wages	264,252	Balance B/F 80,161
	15% of loan \$400,000	89,800	5,400 tons ffb. at \$39.00/ton 210,600
	7% interest on \$140,000	60,000	
	5% depreciation of plant \$195,534	9,800	
	Repair allowance	9,777	
	Total	10,000	
	Balance C/F	119,377	280,761
12	(a) Running cost of plant, transport & wages	280,761	Balance B/F 111,384
	15% of loan \$400,000	89,800	5,400 tons ffb. at \$39.00/ton 210,600
	7% interest on \$80,000	60,000	
	5% depreciation of plant \$185,757	5,600	
	Repair allowance	9,288	
	Dividend at \$10.00/ton ffb.	10,000	
	Total	54,000	
	Balance C/F	226,658	321,984
13	(a) Running cost of plant, transport & wages	321,984	Balance B/F 93,296
	Balance of loan	89,600	5,400 tons ffb. at \$39.00/ton 210,600
	7% interest on \$20,000	20,000	
	5% depreciation of plant, \$176,469	1,400	
	Repair allowance	8,823	
	Dividend at \$15.00/ton ffb.	10,000	
	Total	81,000	
	Balance C/F	211,023	303,896
14	(a) Running cost of plant, transport & wages	303,896	Balance B/F 92,873
	Currenting loss and interest	69,800	5,400 tons ffb. at \$39.00/ton 210,600
	5% appreciation of plant \$167,646	8,382	
	Repair allowance	10,000	
	Dividend at \$15.00/ton ffb.	189,182	
	Total	114,291	
	Balance C/F	303,473	303,473

Year	Expenditure		Income
15	(a) Running cost of plant, transport & wages	\$ 89,800	Balance B/F
	(c) 5% depreciation of plant, \$159,264	7,963	5,400 tons ffb. at \$39.00/ton
	Repair allowance	10,000	
	(d) Dividend at \$20.00/ton ffb.	215,763	
	Total	109,128	
	Balance C/F	324,891	
16	(a) Running cost of plant, transport & wages	89,800	Balance B/F
	(c) 5% depreciation of plant, \$151,301	7,565	5,400 tons ffb. at \$39.00/ton
	Repair allowance	10,000	
	(d) Dividend at \$20.00/ton ffb.	108,000	
	Total	215,365	
	Balance C/F	104,363	
17	(a) Running cost of plant, transport & wages	319,728	Balance B/F
	(c) 5% depreciation of plant, \$143,736	89,800	5,400 tons ffb. at \$39.00/ton
	Repair allowance	7,187	
	(d) Dividend at \$20.00/ton ffb.	10,000	
	Total	214,987	
	Balance C/F	99,976	
18	(a) Running cost of plant, transport & wages	314,963	Balance B/F
	(c) 5% depreciation of plant, \$136,549	89,800	5,400 tons ffb. at \$39.00/ton
	Repair allowance	6,827	
	(d) Dividend at \$20.00/ton ffb.	10,000	
	Total	214,627	
	Balance C/F	92,249	
19	(a) Running cost of plant, transport & wages	310,576	Balance B/F
	(c) 5% depreciation of plant, \$129,719	89,800	5,400 tons ffb. at \$39.00/ton
	Repair allowance	6,486	
	(d) Dividend at \$20.00/ton ffb.	10,000	
	Total	214,286	
	Balance C/F	92,263	
20	(a) Running cost of plant, transport & wages	306,549	Balance B/F
	(c) 5% depreciation of plant, \$123,233	89,800	5,400 tons ffb. at \$39.00/ton
	Repair allowance	6,162	
	(d) Dividend at \$20.00/ton ffb.	10,000	
	Total	213,963	
	Balance C/F	88,901	
21	(a) Running cost of plant, transport & wages	302,863	Balance B/F
	(c) 5% depreciation of plant, \$117,071	89,800	5,400 tons ffb. at \$39.00/ton
	Repair allowance	5,854	
	(d) Dividend at \$20.00/ton ffb.	10,000	
	Total	213,654	
	Balance C/F	85,847	
22	(a) Running cost of plant, transport & wages	299,501	Balance B/F
	(c) 5% depreciation of plant, \$111,217	89,800	5,400 tons ffb. at \$39.00/ton
	Repair allowance	5,581	
	(d) Dividend at \$20.00/ton ffb.	10,000	
	Total	213,361	
	Balance C/F	83,086	
23	(a) Running cost of plant, transport & wages	296,447	Balance B/F
	(c) 5% depreciation of plant, \$105,656	89,800	5,400 tons ffb. at \$39.00/ton
	Repair allowance	5,283	
	(d) Dividend at \$20.00/ton ffb.	10,000	
	Total	213,083	
	Balance C/F	80,563	
	Total	293,656	

Year	Income				
24	Balance B/F	\$ 80,603			210,600
	5,400 tons ffb. at \$39.00/ton				
	Extentiture	\$ 89,800			
	(a) Running cost of plant, transport & wages	5,019			
	(c) 5% depreciation of plant, \$100,373	10,000			
	Repair allowance	108,000			
	(d) Dividend at \$20.00/ton ffb.	212,819			
	Total	78,384			
	Balance C/F	291,203			291,203
25	Balance B/F	89,800			210,600
	5,400 tons ffb. at \$39.00/ton	4,768			
	(a) Running cost of plant, transport & wages	10,000			
	(c) 5% depreciation of plant, \$95,354	108,000			
	Repair allowance	212,568			
	(d) Dividend at \$20.00/ton ffb.	76,416			
	Total	266,984			
	Balance C/F				288,984

Appendix 3

Loan requirement and repayment

Year	Loan required	Interest paid 7% per annum	Loan repaid	Loan outstanding	
1	\$400,000				
2				\$400,000	
3				\$400,000	
4			\$ 28,000		\$380,000
5			\$ 28,000	\$ 20,000	\$340,000
6			\$ 26,600	\$ 40,000	\$300,000
7			\$ 23,800	\$ 40,000	\$260,000
8			\$ 21,000	\$ 40,000	\$200,000
9			\$ 18,200	\$ 60,000	\$140,000
10			\$ 14,000	\$ 60,000	\$ 80,000
11			\$ 9,800	\$ 60,000	\$ 20,000
12			\$ 5,600	\$ 60,000	Nil.
13			\$ 1,400	\$ 20,000	
Total	\$400,000	\$176,400	\$400,000		

Appendix 4

Yield of Palm Oil

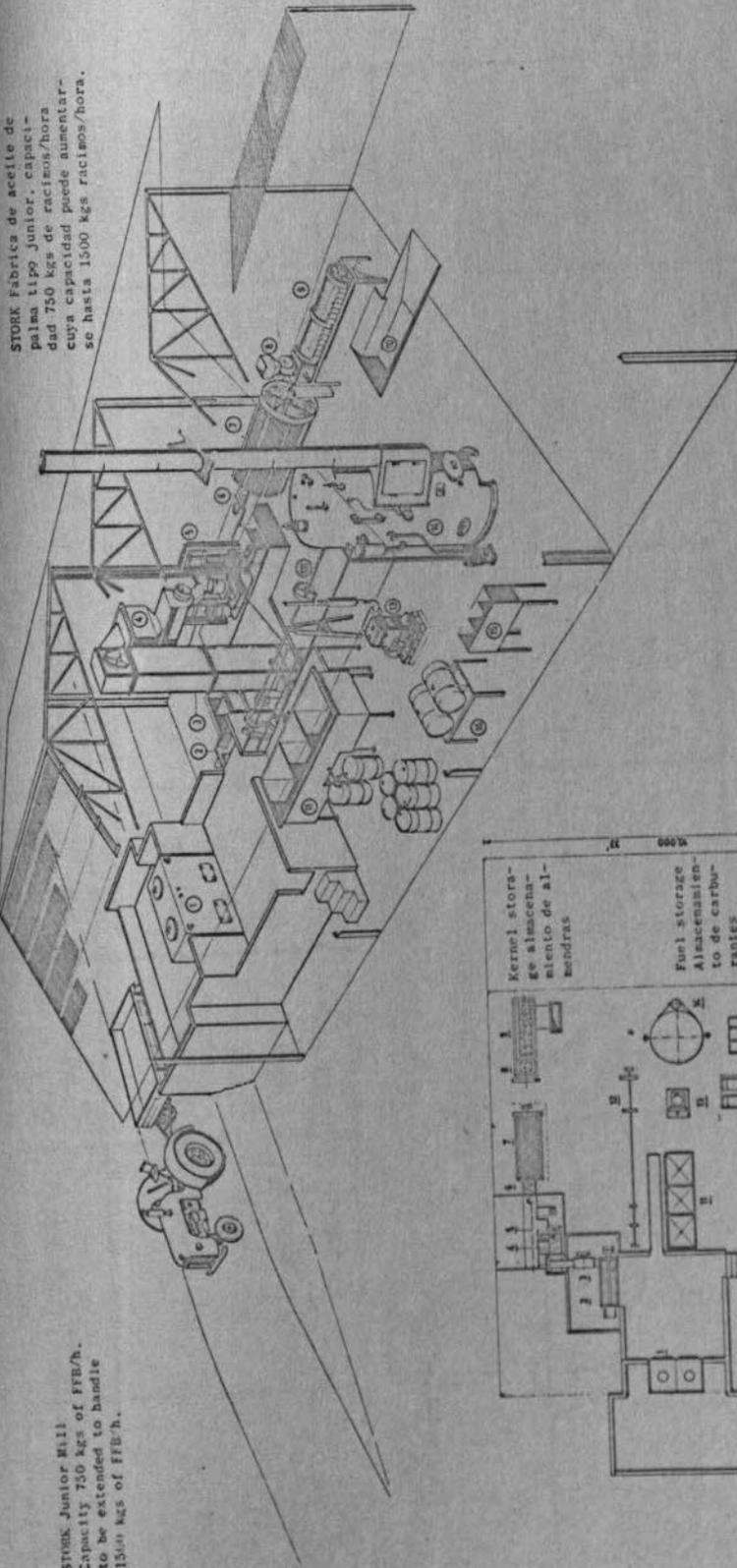
Year	Yield %	F.F.B. 9 tons/ac.	F.F.B. 600 ac. (Tons)	Oil Ext. rate at 13% (Tons)	Price at \$504/ton (M\$)
10	100	9.00	5,400	702.00	353,808.00
9	95	8.55	5,130	666.90	336,117.60
8	90	8.10	4,860	631.80	318,427.20
7	85	7.65	4,590	596.70	300,736.80
6	75	6.75	4,050 (only 75%, 450 acres)	526.50	265,356.00
5	50	4.50	2,025 (only 50% 300 acres)	263.25	132,678.00
4	25	2.25	675	87.75	44,226.00

Appendix 5

Palm oil prices in \$/Picul
(1939 - 1965)

<u>Year</u>	<u>\$ per picul</u>
1939	7.54
1940	8.44
1941	9.34
1942	13.39
1943	19.01
1944	
1945	
1946	26.33
1947	44.66
1948	
1949	
1950	
1951	55.53
1952	51.75
1953	53.55
1954	49.05
1955	42.30
1956	42.97
1957	43.65
1958	38.59
1959	
1960	37.24
1961	37.91
1962	35.21
1963	36.67
1964	38.93
1965 January - June	46.35

STORK Junior Mill
Capacity 750 kgs of FFB/h.
To be extended to handle
1500 kgs of FFB/h.



STORK Fábrica de aceite de palma tipo Junior. Capacidad 750 kgs de racimos/hora cuya capacidad puede aumentarse hasta 1500 kgs racimos/hora.

1. Sterilizer
2. Bunch stripper
3. Fruchtentwurzler
4. Digester
5. Hydraulic press
6. Cake breaker conveyor
7. Rasp depercargor
8. Nut cracker

9. Cracked mixture screen
10. Clay bath separator
11. Clarifier
12. Transmission
13. Diesel engine
14. Steam boiler with feed water pump
15. Feed water tank
16. Fuel oil tanks

1. Esterilizador
2. Desfrutador
3. Elevador de frutas
4. Malaxador
5. Prensa hidráulica
6. Transportador de tortas
7. Desulpador
8. Cascaror

9. Criba rotativa
10. Separador de bano
11. Clarificador
12. Transmision
13. Motor diesel
14. Caldera de vapor
15. Tanque de agua de alimentacion
16. Tanque de combustible

601700/302

0265

Year	Nursery Planting	Field Planting	Fertilizer M\$.	Drainage M\$.	Cash Subsidy M\$	Bulldozer M\$	Total M\$.
1966	\$ 50,000						50,000
1967	\$ 75,000	1,000 acres	18,380	20,000	25,000	35,000	173,380
1968	\$ 75,000	1,500 acres	38,600	40,000	62,500	35,000	251,100
1969	\$100,000	1,500 acres	55,145	55,000	100,000	35,000	345,145
1970	\$100,000	2,000 acres	80,880	70,000	150,000	35,000	435,880
1,255,505							
<u>Implied carryover 1971 - 1974</u>							
1971		2,000 acres	91,910	75,000	175,000	35,000	376,910
1972			60,665	40,000	137,500		238,165
1973			44,120	20,000	100,000		164,120
1974			22,060		50,000		72,060
Grand Total							851,255
Grand Total							2,106,760

Appendix 8

The calculation of maximum acreage eligible for oil palm planting subsidy, using data obtained from application form.

- (1) Acreage of high yielding rubber + $\frac{\text{No. of pepper vines}}{100}$ = Available acres
- (2) No. of working family members without non-farm employment x 240 = Available labour
- (3) Available labour - Available acres x 48 = Surplus labour
- (4) $\frac{\text{Surplus labour}}{38}$ = Maximum acreage of oil palms.

Two examples:

A. A family planting padi consisting of two adults farming full time and two adults working in a sawmill.

- (1) = 0
- (2) 2 x 240 = 480
- (3) 480 - (0 x 48) = 480
- (4) $\frac{480}{38}$ = 12.63 acres of oil-palms

B. A family of five adults one of whom works in a factory, having ~~three hundred~~ pepper vines and six acres of high yielding rubber.

- (1) 6 + $\frac{300}{100}$ = 9
- (2) 4 x 240 = 960
- (3) 960 - (9 x 48) = 528
- (4) $\frac{528}{38}$ = 13.89 acres of oil palms

Note: An average Iban family with three adult members and three acres of high yielding rubber would just qualify for the full acreage of 15.

Oil Palm Subsidy

(per acre entitlement of subsidy in cash & kind)

	1st year	2nd year	3rd year	4th year	Total
Planting materials	\$ 50.00				\$ 50.00
Fertilizer	\$ 18.38	11.03	11.03	11.03	51.47
Drainage	\$ 20.00	10.00	10.00		40.00
Cash Subsidy	\$ 25.00	25.00	25.00	25.00	100.00
Total each year	\$113.38	46.03	46.03	36.03	241.47

The alternative systems of management open
for the oil-palm factories

Undoubtedly the major problem confronting these small factories will be organisation and management. The factories are too small to employ managerial staff, too large to be run by a producers cooperative, and probably too complex initially to be run by a small company formed from amongst the smallholders. The main paper assumes that the factories will be erected by loan finance but the source of the loan funds is left open because of the fundamental problem of factory control. Nevertheless the possibility of the Sarawak Development Finance Corporation is mentioned as a possible source of funds while the "Crop Diversification" vote need not be excluded. It is felt that efficient factory management will result if the tightest possible loan repayment conditions are laid down and it is quite definite that any suggestions about communal non-paid labour in the factory must be resisted. The factories must be definite business enterprises with proper management and subject to proper controls.

There are three fundamentally different alternative solutions to the management problems of these small factories:

1. Control may be vested in a government department directly.
 2. Control may be vested in a company whose voting shareholders may be the participant farmers or the government or both.
 3. An independent corporation could be set up by government to manage all the factories collectively.
- Without entering into any of these suggestions in detail it is possible to outline very briefly the advantages and disadvantages of each alternative.

1. Advantages:
 - a) No legislation required.
 - b) Existing staff with some level of technical skill could be made available.

Disadvantages:

- a) It is undesirable in principle for a Government Department to run a commercial undertaking and it probably would not do it very well.

- b) Managerial flexibility would be severely limited because of the nature of government financial controls.
- c) The farmers could place the government in a very difficult position over factory charges.

2. Advantages:
- a) The farmers are given a direct interest in the control of a company that affects their personal income.
 - b) No new legislation would be required.
 - c) Financial and managerial flexibility could be retained.

Disadvantages: a) Smallholders level of education, generally limits their ability to participate usefully in such a scheme.

- b) The managerial burden could only be spread over one scheme, thus raising the overhead costs considerably above the level that such a factory could pay.

3. Advantages:
- a) Managerial and financial flexibility could be retained.
 - b) Overhead costs would eventually be spread over all the schemes considerably lessening the burden of management and possibly other costs for each scheme.
 - c) Farmers could be represented on such a corporation.

Disadvantages: a) Legislation would be required.

- b) The possibility of 'industrial action' (i.e. some form of collective bargaining) arises, but might be less likely than at 1.
- c) Such a corporation might be difficult to staff given the present position of the managerial staff market in Malaysia.

No recommendations as such are made in this report as all three possibilities will have to be considered further before a decision can be taken.

Staff requirements and costs

	1966	1967	1968	1969	1970
Agricultural Officer	1	1	1	1	1
Asst. Agric. Officer			1	1	1
Agricultural Assts.	1*	2	4	6	6
Junior Agric. Assts.	4*	10	16	24	32

Ratio of AA's to JAA. 1 : 4

2 JAA's per scheme

Agricultural Officer - seconded from Field Services.

* Staff seconded from field services in 1966.

Estimated cost of staff from - State Recurrent Estimates

Salaries	(1967	\$ 23,160
	(1968	\$ 43,980
	(1969	\$ 66,444
	(1970	\$ 90,468
	Total	\$ 224,052
		=====

Other staff costs:

Other Charges \$20,000 per annum	\$ 80,000	} \$280,000 } Could be a charge } against Crop Diversi- } fication Vote.
Capital - Housing etc.	\$200,000	
Total	\$504,052	
Say	\$500,000	

Appendix 12

Estimated Yields of Palm Oil & Kernel

r	Field Planting (acres)	Yield of oil		Yield of Kernel		Total Value
		Tons	M\$504/Ton	Tons	M\$383.88/Ton	
7	1000					
8	1500					
9	1500					
0	2000	292.26	147,299	68.45	26,276	173,575
1	2000	1023.51	515,849	238.99	91,743	607,592
2		2193.45	1,105,498	511.91	196,512	1,302,010
3		3722.1	1,876,346	880.06	337,837	2,214,193
4		5615.77	2,830,348	1309.23	502,587	3,332,935
5		7107.74	3,582,300	1656.26	635,805	4,218,105
6		8160.72	4,113,002	1901.50	729,947	4,842,949
7		8687.81	4,378,656	2023.53	776,792	5,155,448
8		9009.54	4,540,808	2098.82	805,695	5,346,503
9		9244.06	4,659,006	2153.58	826,716	5,485,722
0		9361.92	4,718,407	2180.96	837,226	5,555,633
1		9361.92	4,718,407	2180.96	837,226	5,555,633
L		73,781.61	37,185,931	7804.25	6,604,367	43,790,298

APPENDIX VII

Heveacrumb Factory to deal with 8,000 lbs. a day
Estimated Capital Costs

	\$	\$
12 tanks with bulkers and associated equipment	24,000	
Crumbler	26,000	
Drier	50,000	
Press	20,000	
Installation, building and internal services	<u>70,000</u>	190,000
Tanks and equipment for scrap processing	20,000	
Building, installation and services	<u>10,000</u>	30,000
Water supply system (5,000 gallons an hour storage if night pumping only)	50,000 <u>25,000</u>	75,000
Diesel generator 80 KWH		60,000
Housing - Manager	25,000	
Fitter	10,000	
Jaga	<u>5,000</u>	40,000
Lorry with tank	15,000	
Churns say 50 of 10 gallons each @ \$100	5,000	
Collection stations say 10 @ \$500 each	<u>5,000</u>	<u>25,000</u>
		420,000
Contingencies		30,000
		<u>\$450,000</u>

PLANNING CRITERIA AND PROCEDURE FOR LAND
DEVELOPMENT SCHEMES (RPS"B")

Introduction

Now that the pressure for starting new Land Development Schemes (RPS"B") is somewhat reduced, it is possible to establish certain minimum criteria and procedure for planting purposes for schemes proposed in the future. The criteria set out below are by no means comprehensive, nor in every case are they objective, yet they will serve as guidelines by which it will be possible to arrive at intelligent decisions on the future Land Development Schemes. Similarly, the procedure (as outlined arbitrarily in five stages) is meant to act as a general directive which will facilitate the consideration of a number of proposals without requiring exhaustive investigation in the preliminary stages.

Criteria and Procedure

The Division should designate an area(s) for a proposed Land Development Scheme(s) on the basis of the following criteria:-

- (i) Soil Suitability. In order for the scheme to be acceptable the soils in the area must be indicated as dominantly suitable for planting rubber. This is to be determined on the basis of reconnaissance soil surveys.
- (ii) Terrain Suitability. In order for the scheme to be acceptable the terrain in the area must be dominantly suitable for planting rubber. This is to be determined on the basis of reconnaissance terrain surveys.
- (iii) Suitable Village Site. In order for a scheme to be acceptable the Department of Lands and Surveys must indicate that a possible village site is likely to exist in the area.
- (iv) Geological Clearance. In order for a scheme to be acceptable the area in question must be given a geological clearance. This can be ascertained by writing to the Director of Geological Survey, Kuching.

Page II

Once an area is selected by the Division which meets the above criteria, the Divisional Development Officer should approach the people living in the area to determine their attitude towards the proposed scheme, and more specifically, if they wish to participate in the scheme under the conditions set out in earlier SDPC papers. The Divisional Development Officer should not, however, commit the Government in any way to the implementation of the scheme at this stage. If the response is unfavourable, the scheme will be shelved. The scheme can be activated if, at a later date, the people should change their minds.

Page III

If the response is favourable and is indicated in a firm commitment the following two steps should be taken by the Division:-

- (i) A request should be made to the Director of Agriculture through the State Development Office for a semi-detailed soil and terrain survey of the area in question.
- (ii) The approximate costs should be determined for constructing the water supply, providing access to the scheme, and for acquiring the land in question.

When the results of (i) and (ii) are obtained, the proposal should be submitted to the Working Sub-Committee of the SDPC through the State Development Office. The proposal should be accompanied by the information required above, the results of the semi-detailed soil and terrain survey and a map of the area of 1 to 50,000 (showing perimeter of the area, proposed source(s) of water, proposed village site(s), existing roads, and proposed access roads). All information on which the Division based its decision should be forwarded to the Working Sub-Committee.

Page IV

On the basis of the information at hand, the Working Sub-Committee will then decide whether or not the proposed Land Development Scheme should be recommended for approval in principle by the SDPC. The two important factors to be considered are the evaluation by the Department of Agriculture of the semi-detailed soil and terrain survey and the estimated overhead costs as mentioned above.

Page V

Upon approval in principle by the SDPC, the Division will then be asked to undertake detailed planning which will involve detailed costing and phasing of work to be done. This is to be based on the Planned Progress Charts. When completed, this material is to be submitted to the Working Sub-Committee for final consideration. Upon approval by the SDPC, work on the scheme shall proceed.

Schemes Approved

Ten Land Development Schemes (RPS"B") have thus far been approved in principle by the SDPC. The present position regarding these schemes is summarized in the table attached to this paper.

The position regarding the extension (i.e. another scheme) of the Sibintek, Meradong and Lambir Land Development Schemes is not entirely clear. The information that is available leaves some doubt as to the desirability of proceeding with these extensions. Thus even if it can be argued that these extensions have been approved in principle by virtue of the approval of the "first-half", it is now recommended that no action be undertaken or commitments made on these proposed schemes until each has been considered individually and approved or rejected by the SDPC (in accordance with the criteria and procedure set out above).

Future Schemes

Although the targets in terms of the number of Land Development Schemes, have not been met in full, a fair start has been made. With many of the organizational problems resolved, it will be possible to accelerate the programme in the later years of the 1966-1970 Development Plan. Furthermore, the consequences of proceeding too rapidly have been readily apparent.

It is recommended that from this point the Divisional Development Officers be instructed to begin preparing proposals for new Land Development Schemes in accordance with the planning criteria and procedure set out above. This should be a continuous process, and the number of proposals per Division need to be limited only by the demands on available staff. Proposals will be requested from the Divisions approximately every six months (January and July).

Other Matters

Terminology. It is recommended that the term "Land Development Scheme" mean a village-unit, or more precisely, a village based on a minimum of 1600 acres for rubber with ample land for mixed farming.

Allocation Among Divisions. When the Land Development Scheme programme first began, each Division (except Fifth Division) was given an equivalent quota of acreage. It is now recommended, however, that the "quota-system" be abolished and that the selection of new Land Development Schemes be done on a State rather than Divisional basis.

Accounting. In order that the actual cost of each Land Development Scheme can be determined, thus providing a standard for future planning as well as a means of evaluating the entire programme at a future date, it is recommended that a simple accounting system be established in the State Development Office. This will require each controlling officer to prepare and forward to the State Development Officer an additional copy of every warrant involving a Land Development Scheme.

THE FARMSTEAD AND THE VILLAGE.

Summary of evidence.

A point which emerges from the preceding discussion and the material of Chapter 4 is the frequency with which the same orders of magnitude keep on recurring among peoples of widely different technical achievements and inhabiting areas with markedly different physical characteristics. Any distance up to about a kilometre from the dwelling is of such little moment for any but specialized systems of irrigation and garden farming that little adjustment is called for in either the pattern of settlement or of land use. Beyond about 1 kilometre, the costs of movement become sufficiently great to warrant some kind of response; at a distance of 3-4 kilometres the costs of cultivation necessitate a radical modification of the system of cultivation or settlement - for example by the establishment of subsidiary settlements - though adjustments are apparent before this point is reached. If the distances involved are actually greater than this, then it is necessary to look for some very powerful constraining reason which prevents the establishment of farmsteads nearer the land. Over much of the world, the present spontaneous tendency is to modify the patterns of rural settlement and land holding in such a manner that the distance separating the farmstead from the lands cultivated is reduced to something in the order of 1 or 2 kilometres, if the farmstead is not actually on the farm. Of course, there are parts of the world where this does not apply, such as the United States, Canada and Australia; these are regions of relatively recent agricultural settlement, where it was normal for the farmsteads to be placed on the holding at the time of acquisition.

*This is a quotation from page 148 of "Rural Settlement and Land Use" by Michael Chisholm, published by the Hutchison University Library. It draws conclusions about the effect of distance between the farmers dwelling and his land holding which are based on examples drawn from all over the world.

REFERENCES

- 1) Malaysia : Sarawak Development Plan 1964-68.
Sarawak Government Printing Office (1963)
- 2) First Malaysia Plan 1966-1970, Jabatan Cetak Kerajaan
(1965).
- 3) Adams, W., Internal Migration Committee Memorandum
No.11 in IMC/1/59. See Appendix II (1959)
- 4) Agriculture, Department of, Sarawak. A Digest of
Agricultural Statistics. Unpublished
Reports (1965 and 1966).
- 5) Agriculture, Department of, Sarawak. The Development
of an Oil Palm Industry in Sarawak. See
Appendix VI (1965).
- 6) Agriculture, Department of, Sarawak. Development Plan
Brief 1967. See Appendix IV (1967).
- 7) Chisholm M., Rural Settlement and Land Use. Hutchinson
University Library (1962).
- 8) Adams, W., Internal Migration Committee Memorandum
No.11 in IMC/1/59. See Appendix II (1959).
- 9) Agriculture, Department of, Sarawak. A Digest of
Agricultural Statistics. Unpublished
reports. (1965-66).

The Development of An Oil Palm Industry in
Sarawak. See Appendix VI (1965)

Development Plan Brief 1967. See Appendix
IV (1967).
- 10) Chisholm, M., Rural Settlement and Land Use. Hutchinson
University Library. (1962).
- 11) Civil Aviation and Meteorological Services, British Borneo
Territories. Rainfall Statistics of the
British Borneo Territories (1896-1957).
Sarawak Government Printing Office. (1961).
- 12) Education, Department of, Sarawak. A Blue-print for
Expansion of Secondary and Vocational
Education in Sarawak under the First
Malaysia Plan. See Appendix V (1967).
- 13) Freeman, J.R.D., Iban Agriculture. Her Majesty's
Stationery Office, London. (1962).

- 14) Gwilliam, R., Some Aspects of Physical Planning in Rural Areas. Unpublished report (1963).
- 15) Jones, L.W., Sarawak Report on the Census of Population taken on 15th June, 1960. Sarawak Government Printing Office. (1962).
- 16) Land Committee Report of the Land Committee 1962. Sarawak Government Printing Office.
- 17) Marine Department of Sarawak. Annual Department Report 1964. Sarawak Government Printing Office.
- 18) Medical Department of Sarawak. Kampong and Longhouse Register, 4th Division. Unpublished report 1963.
- 19) Meteorological Services, Malaya and Singapore. (1965-66). Monthly Abstract of Meteorological Observations for Malaya, Singapore, Sarawak and Sabah.
- 20) Richards, A.J.N., Land Law and Adat. Sarawak Government Printing Office. (1961).
- 21) Sandin, B., Iban Migration into Sibuti Area. Sarawak Museum Journal. Vol.VIV No.10 (1967).
- 22) Sarawak Government. The Laws of Sarawak, Cap.51, Vol. Vol. VII. Sarawak Government Printing Office. (1958).
- 23) Soil Survey Staff. A Classification of Sarawak Soils.
- 24) T'ien Ju-K'ang, The Chinese of Sarawak. Published for Department of Anthropology. The London School of Economic and Political Science. (1953).
- 25) Wall, J.R.D., Report on a Reconnaissance Soil Survey of the Bekenu-Niah Area, 4th Division. Department of Agriculture Soil Survey Report No.35. (1962).
- 26) Wilford, G.E., The Geology and Mineral Resources of Brunei and adjacent parts of Sarawak. Sarawak Government Printing Office (1960).

GLOSSARY

- Alienate : The sale lease or other disposal by a document of title of State Land by or on behalf of the Government of Sarawak.
- Anak : Child
- Anak biak : People of, followers of.
- Communal Forest : An area of forest constituted under the Forest Ordinance (Cap.126) for use subject, to such conditions as may be laid down, by a specific community.
- Dampa : The temporary or semi-permanent farming longhouse erected by the Ibans when the distance between the main longhouse and the hill padi farm becomes too great for convenience.
- F.L.D.A. : The Federal Land Development Authority. The main Federal Government agency for the block development of new land.
- Forest Reserve : One of the sub-categories of Reserved Land (See Land Classification) constituted under the Forests Ordinance (Cap.126); a Forest Reserve is the property of the Government subject to such rights privileges and conditions as are stated in the notification establishing the Reserve.
- Gantang : A measure of volume equal to one gallon; used for rice.
- High yielding Rubber : A general term for rubber which has either been grown from high yielding clones, or has been bud-grafted. In Sarawak this has largely been planted under the Rubber Planting Subsidy Scheme.
- Internal Migration Committee : A committee appointed by H.E. the Governor on 25.2.1956 basically to examine the question of resettling Ibans from the crowded areas of the Second and Third Divisions in more remote and unpopulated areas, although the actual terms of reference of the Committee were rather broader. The Committee was chaired by the Conservator of Forests, and had as members the Residents of each of the five Divisions, the Deputy Director of Agriculture and three other Government Officers by name. The Committee arranged through its Executive Officer for the resettlement of a number of Dayaks, largely in the Fourth Division, on the basis of shifting cultivation i.e. by giving resettled Dayaks a new area of virgin jungle to clear, burn and farm for hill padi.

The Committee continued to function until mid 1959 when it recommended its own discontinuation on the grounds that the problems of the overcrowded areas could be more satisfactorily met by other means.

Interior Area Land : All land which does not fall into one of the other four major categories into which land in Sarawak is classified (See Land Classification).

Kampong : Village

Land Classification : Land in Sarawak is divided into five major categories:-

- (i) Mixed Zone Land
- (ii) Native Area Land
- (iii) Native Customary Land
- (iv) Reserved Land
- (v) Interior Area Land

These are defined more fully under their own alphabetical headings.

Landas : The monsoon season.

Mixed Zone Land: One of the five major categories into which land in Sarawak is divided (See Land Classification). Land in this category may be occupied by a Native under customary tenure. As other classes of land cannot be alienated to non-Natives, the Chinese and other non-Natives may only hold this class of land. Land within this classification which is held under customary tenure can only be alienated after rights have been surrendered.

Nanga : River mouth.

Native : A Legal term covering specified groups peoples indigenous to Sarawak. Both the Ibans and Kedayans who have settled in the Lambir-Subis area are Natives.

Native Area Land : One of the five major categories into which land in Sarawak is alienated (see Land Classification). Only Natives may occupy and held title to this class of land. This land may also be held under Native customary tenure; and much of the area so classified still is.

- Native Customary Land : One of the five major categories into which land is divided in Sarawak (see Land Classification). All land held by Natives under customary tenure falls within this classification. Declaration of an area to be Mixed Zone Land or Native Area Land does not affect its classification as Native Customary Land, and it ceases to be so classified only when title is issued, when becomes either Mixed Zone Land or Native Area Land. Since 16th April 1955, new customary rights may only be created by felling old jungle under a permit issued by the District Officer.
- Penghulu : Area headman, usually with jurisdiction over a number of kampongs or longhouses. A Penghulu has certain defined legal functions.
- Reserved Land : One of the five major categories into which land is divided in Sarawak (see Land Classification). This class includes State Land which is used by, and reserved to, Government for various purposes and includes Forest Reserves and Protected Forests, National Parks, etc.
- R.P.S. "A" : Rubber Planting Scheme "A" is a continuation of the original Rubber Planting Scheme which came into existence on 1st January 1956. Its purpose is to encourage replanting with and new planting of high yielding types of rubber in accordance with modern methods of husbandry. Any owner of land in Sarawak may apply to participate in the scheme and the award of subsidies within the quotas specified annually is subject to rules. Under the 1964-68 Development Plan this Scheme became known as Scheme "A" to differentiate it from Scheme "B".
- R.P.S. "B" : Rubber Planting Scheme "B" is a new scheme initiated in the 1964-68 Development Plan. Under the Scheme High yielding rubber is planted in blocks and brought to two years old by Government; who then hand it over to settlers. The object of this has been twofold:
- (i) to ensure a high standard of husbandry in the first two years whilst the crop is becoming established.

- (ii) To assist the change from shifting cultivation to permanent agriculture. Especially in the first two years the demands of the rubber, (which is not yet in yield) and of hill padi (necessary for survival before permanent crops yield) are in conflict. The Scheme aims at handing over rubber when the labour intensive first two years are over.

All R.P.S. "B" rubber has so far been planted in connection with Land Development Schemes.

- Rumah (abbreviations Rh. or R) : house, or in Iban, longhouse (short for Rumah panjang). Iban longhouses are named after the headman e.g. Rumah Ladi, the longhouse whose Tuai Rumah (headman) is Ladi.
- S.D.F.C. : The Sarawak Development Finance Corporation is "a rural credit organisation financed by Government to make it possible for farmers to develop their holdings, and for fishermen to increase their catches".*
- Seedling Rubber : Sarawak term for rubber which is not high yielding (i.e. almost all rubber which has not been planted under the Rubber Planting Scheme.)
- Shifting Cultivation : In Sarawak terminology this refers to the bush fallow systems of farming hill padi used by the indigenous peoples. There are numerous farming systems adopted (see Freeman paras 261 to 306 for the Iban systems) some of which are harmful, and lead to the land becoming derelict. At best a system of land rotation is adopted, which involves a period of 7 to 11 or more years fallow after a crop of hill padi has been taken. At worst two or three crops are taken in successive years, after which the land becomes derelict, or to use the Iban term "tanah kusi".
- Sungai (abbreviated S.) : river

*Quotation from S.D.F.C. Brochure.

- Tanah kusi : derelict land resulting from over-farming of hill padi land.
- Temudak : Secondary Forest
- Ulu : The upper reaches of a river; but also used to describe the locality i.e. the area drained by the headwaters of a river. Thus "Ulu Sibuti" refers to the land drained by the headwaters of the S.Sibuti.

INDEX

	page (paragraph)
Agricultural Development	89 (210)
Agriculture, settled	52 (116)
Agriculture, settled (problems & policies)	52 (116)
Alienation, Block	91 (216)
Anggon, Rumah	81 (192)
Bakong, Ibans from	14 (27)
Bedit, Rumah	82 (195)
Block, Alienation	91 (216)
Blocks, Oil Palm Development	92 (220)
A, " " "	93 (221)
B, " " "	93 (224)
C, " " "	94 (228)
D, " " "	94 (229)
Capital, policy summary	4(13) ; 72 (162)
" , problems	61 (134)
Cess, timber	61 (134)
Climate	42 (87)
Classification, Land	11 (11)
Communal, Forest	6(23) ; 95 (232)
" " summary	5 (19)
Communications, policy	100 (252)
Communications	3(12) ; 72 (161)
" , port	8(27) ; 59 (131)
" , problems	43 ; 102 (260)
" , river	59 (131)
" , road	59 (131)
" , sea	43 (89)
" , road	45 (98)
" , sea	43 (89)
" , sea	23 (44)
Cropland	3 (11)
Cultivation, settled	71 (160)
" " policy	3(101) ; 71 (159)
" , Shifting	
" , settled problems & policy	50 (112)
" , Shifting (tenure)	50 (112)
Dian, Rumah	77 (177)
Development, agricultural	89 (210)
" , Land Schemes	90 (212)
" , Native Area	85 (205)
" , reserve	95 (231)
" , summary	1 (1)
" , urban	96 (231)
Education	7(25) ; 97(242) ; 101 (258)
" , recommendations	107 (258)
" , services	47 (102)
Employment	41 (84)
Entebang, Rumah	80 (185)

	page (paragraph)
Factors, physical	10
Facilities, port	59 (131)
Farming, methods	28 (56)
" " (Kedayans)	28 (57)
" " (Ibans)	28 (58)
" primary forest	28 (58)
" secondary forest	29 (59)
Farm, size of	29 (60)
Features, topographic	10 (6)
Forests, farming primary	28 (58)
" " secondary	29 (59)
" , Reserve/Communal	5 (19)
" , " " summary	100 (252)
" , recommendations	74 (168)
" , summary	99 (251)
Formula, application of	38 (77)
Geology	10 (5)
Government	27 (55)
Ibans, Bakong	14 (27)
" , farming methods	28 (58)
" , land use	26 (48)
" , land requirement	34 (69)
" , Native Area	75 (174)
" , occupation	18 (36)
" , people	13 (21)
" , Saribas	13 (24)
" , Spach	14 (26)
" , Undup	13 (22)
Illegal occupation of land	21 (43)
Implementation	86 (206); 89 (211)
Industry, employment in timber	41 (84)
" timber	41
Introduction	9 (1)
Jelani, Rumah	81 (192)
Kedayans, farming methods	28 (57)
" , land use	26 (48)
" , land requirements	33 (67)
" , Native Area	75 (171)
" , occupations	18 (35)
" , people	13 (21)
" , tenure	18 (35)
Labour, policy summary	4 (14) ; 61 (137)
" problems	61 (137)
" supply	72 (162)
Ladi, Rumah	80 (188)
Land, availability	88 (Table 10)
" balance of State	6 (22) ; 101 (255)
	87 (208)
" Classification	6 (23) ; 101 (256)
" illegal occupation of	21 (43)
" Native Area	5 (20) ; 100 (253)
" " " policy	84
" " " development	85 (205)

	page (paragraph)
Land, occupation and tenure	18 (34)
" present requirements	36 (74)
" requirements	33 (65)
" " Year 2000	37 (75)
" recommendations	75 (170)
" Schemes	90 (212)
" Suitability	10 (8)
" tenure (Policy Summary)	2 (9)
" "	18 (34) ; 50 (109)
" , use	23 (44)
" " Kedayan	26 (48)
" , use, Government	27 (55)
" , use, Iban	26 (50)
Mancha, Rumah Penghulu	77 (174)
Methods, farming	28 (58)
Native, Area land	5 (20)
" development	85 (205)
" , Ibans	75 (174)
" Area, Kedayans	75 (171)
" Area recommendations	75 (170)
Occupation, illegal	21 (43)
" and tenure, Land	18 (34)
Oil Palm Development Blocks	92 (220)
Padi, farming methods	28
Palm, oil	92 (220)
People	13
" Bakong Ibans	14 (27)
" Ibans	13 (21)
" Kedayans	13 (20)
" Saribas Ibans	13 (23)
" Spaoh Ibans	14 (26)
" Undup Ibans	13 (22)
Physical factors	10
Planning, village	68 (152)
Policies suggested	2
Policies, summary	70
" , tenure	2 (9)
Policy	50
Population	14 (29)
Port facilities	59 (131)
Present land requirement	36 (74)
Problems	50
Proposals, implementation	89 (211)
River communications	43 (89)
Recommendations	74 (168); 5 (18) ; 99 (251)
Requirements, land	33
Reserves, Forest	5 (18)
Roads	45 (98)

	page (paragraph)
Rumah Anggon	81 (192)
" Bedit	82 (195)
" Dian	77 (177)
" Entebang	80 (185)
" Jelani	81 (192)
" Ladi	80 (188)
" Penghulu Mancha	77 (174)
" Ngeribang	83 (197)
" Umeh	78 (181)
" Unggam	79 (183)
Rural settlement	4 (16)
" , " policy summary	72 (165); 64 (145)
" , " problems	64 (145)
Saribas, Ibans from	13 (23)
Sea communications	43 (89)
Schemes, Land Development	90 (212)
Schemes, Block Alienation	91 (216)
Settled cultivation	3 (11)
Settlement, rural	4 (16)
" , rural policy summary	72 (165); 64 (145)
" problems	64 (145)
" policy	72 (165)
Settlements urban	7 (24) ; 101 (257)
Services, education	47 (102)
" , social	7 (26)
" , other social	49 (106); 98 (246)
	102 (259)
Shifting, cultivation	3 (10)
Size, farms	29 (60)
Soils	10 (8)
Suitability, Land	10 (8)
Summary, recommended policy	70
Supply, labour	61 (137)
" " policy summary	72 (163)
" , water	4 (15)
" " problems & policy	63 (142); 72 (164)
Tenure, land	18 (34) ; 50 (109)
" policies	2 (9) ; 70 (158) ; 50 (109)
" problems	50 (109)
Timber, cess	42 (87)
Timber, employment	41 (84)
" industry	41 (81)
Topography	10 (6)
Umeh, Rumah	78 (181)
Undup, Ibans from	13 (22)
Unggam, Rumah	79 (183)
Unit, family	65 (148)
Urban development	96 (237)
Urban settlements	7 (24) ; 101 (257)
Use, Land	23 (44)
Villages, new	69 (155)
Village planning	68 (152)
Water, problems & policies	63 (142) ; 72 (164)
" supply	4 (15)