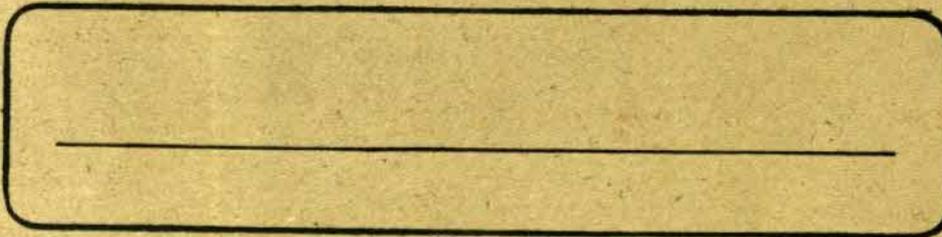


SUBJECT: MIRI-BENTULLU PROPOSED

DATE: DEVELOPMENT REGION.

FOURTH DIVISION - SARAWAK.

- 1971 -





*M. S. B.*

MIRI-BINTULU  
PROPOSED DEVELOPMENT REGION  
FOURTH DIVISION  
SARAWAK

TERMS OF REFERENCE  
SCOPE OF WORK AND GENERAL BACKGROUND INFORMATION

ECONOMIC PLANNING UNIT  
PRIME MINISTER'S DEPARTMENT  
MALAYSIA

STATE FINANCIAL SECRETARY'S OFFICE  
KUCHING  
SARAWAK

AUGUST, 1971

MIRI-BINTULU  
PROPOSED DEVELOPMENT REGION  
FOURTH DIVISION  
SARAWAK

TERMS OF REFERENCE

SCOPE OF WORK AND GENERAL BACKGROUND INFORMATION

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## TERMS OF REFERENCE

### Part I: Introduction

1. The population of Sarawak, which is concentrated in the First, Second, and western part of the Third Division, is increasing at a rapid rate, to the extent that land resources within and around the more intensively settled areas are proving insufficient to meet the traditional subsistence agriculture needs of the indigenous peoples or the permanent agricultural land requirements of the immigrant groups. Furthermore, opportunities in other sectors of the economy cannot fully satisfy the rising aspirations of both these groups within these areas. On the other hand, conditions in other parts of Sarawak, particularly in the Fourth Division, are favourable to settlement and development by people from outside the Division, and the State Government has accordingly identified an extensive region of predominantly unencumbered land with considerable agricultural and forestry potentials as suitable for priority development during the coming decades, primarily to meet the employment needs of a large proportion of the population from the more congested areas.

2. This Miri-Bintulu Region comprises approximately 3 million acres, or just under 4,700 square miles. It extends roughly from  $4^{\circ} 35'N$  to  $3^{\circ}N$  and from  $113^{\circ}E$  to  $114^{\circ} 35'E$ . It includes approximately 1,500,000 acres of land that is believed to be suitable for agriculture, of which approximately 1,000,000 acres is unencumbered State land that is not under cultivation at present. This constitutes the largest contiguous area of potential agricultural land in the State. Additional details about Sarawak and the Region are provided in the appendix.

3. It is the intention of the Federal Government and State Government of Sarawak that this region be developed, primarily to permanent agricultural settlement and large scale forest management, exploitation and processing, and to other economic activities which a close study of the region may show to be viable.

4. In order that such developments can be carried out in a systematic and expeditious manner, the Governments require the services of Consultants to carry out a feasibility study and

to prepare a perspective plan to guide the future development of the region over the longer term, and in addition, to draw up more detailed plans for specific areas and sectoral activities to be undertaken during the later part of the Second Malaysia Plan and during the Third Malaysia Plan (1976-80) within the context of the 20 year perspective masterplan. This feasibility study will be undertaken in two phases.

5. The plans will encompass public and private investment consistent with financial and managerial resources, and give special emphasis to the urgent need to improve the economic position of the rural population in the State as a whole and minimize rural underemployment and uneconomic practices. This emphasis is to be commensurate with the resettlement of the greatest number of people on holdings sufficient to provide reasonable incomes and to induce incentives for higher productivity and progress either through traditional, but greatly modified and more economic practices, or through the introduction of more modern agricultural systems, depending upon the social inclinations of particular settlement groups.

#### Part II: Study Requirements

6. The feasibility study shall be carried out as follows:-

(a) Phase I

7. Analyse relevant socio-economic data, and particularly those data concerned with human resources within the State as a whole, and with natural resources within the region, and where necessary survey and collect additional data sufficient to:-

- (1) put forward broad land use proposals in the form of a zonation plan, sufficient to guide development over the long term;
- (2) identify the socio-economic needs of the peoples within and outside the region who are likely to provide the bulk of the future population for the region, in so far as this is possible over a 20 year perspective plan period;

- (3) assess the probable scale of development needs within the region, by sectors, necessary to meet the employment targets arising from (2);
- (4) locate an area, or areas, within which such development needs as assessed in (3) might be best sited;
- (5) make proposals for undertaking specific sectoral studies and preparing project plans, encompassed within the 20 year perspective plan, in the area(s) identified under (4) above, in the form of separate investible packages, to cover priority developments which will take place during the later years of the Second Malaysia Plan and in the Third Malaysia Plan.

(b) Phase II

8. Within the context of the broad perspective plan prepared during Phase I, the Consultants will prepare a semi-detailed masterplan, sufficient to meet projected settlement requirements for 20 years (currently estimated at about <sup>a</sup>/<sub>quarter</sub> of a million acres of permanent crop land), and supplemented by detailed project plans for short-term sectoral activities, in the form of investible packages, to cover immediate development requirements during the later part of the Second Malaysia Plan and the Third Malaysia Plan (currently estimated at about 50,000 acres of permanent crop land). These plans will require the survey or collection of additional data to supplement existing information sufficient to:-

- (1) determine the optimum cropping pattern and the agricultural sector programme required to achieve this;
- (2) advise on changes necessary in current forest exploitation programmes sufficient to ensure that land acquisition needs for agriculture are not prejudiced by forest clearance delays;
- (3) utilize and conserve the inland water resources in an optimum manner to meet

potable and industrial, including crop processing and irrigation, requirements;

- (4) locate public communication and transportation facilities, including port requirements for the export of produce from the Region and the Fourth Division;
- (5) locate sites for major centres of population and industrial facilities for processing the agricultural, forest and other products; and
- (6) determine the institutional, including marketing and management needs required by the individual programmes as outlined above.

SCOPE OF WORK

Part I: Introduction

(a) General Strategy

9. It is the intention of the Governments to develop the region on similar lines to the Johore and Pahang Tenggara Regions of West Malaysia, modified as necessary to suit the socio-economic conditions of Sarawak and the physical conditions of the region itself.

10. Assuming that the necessary studies commence early in 1972 and are completed in 1974, major development could start in 1975, the last year of the Second Malaysia Plan, and continue throughout the Third Malaysia Plan.

11. Agricultural development will be the central theme of the development programme. Once areas suitable for permanent agriculture have been selected, land will be developed to accommodate settlers, the majority of whom are expected to come from the First, Second and Third Divisions, at the same time safeguarding the legitimate interests of present farm communities in the region. Whereas rubber and oil palm will probably be the main crops in the areas to be developed, possibilities for crop diversification must be explored, and exploited fully.

12. Forest exploitation will be the second major activity, based on permanent forest reserves and timber cleared from land scheduled for future agricultural development. Processing of timber and agricultural products should be done within the region as much as possible, to form the basis of a future manufacturing industry. The establishment of other industries must follow whenever opportunities appear attractive. The availability of gas in Miri could be an important factor in this respect. A planned development of a modern service sector must complement the basic development programme in the primary sector in order to establish viable communities.

13. Proper planning must assure that new townships and villages are attractive places to live in, and are supplied with modern amenities including clean water and electricity and

adequate health and educational services. Transport planning will cover the systematic development of feeder roads and the construction of adequate port facilities. In regard to the latter, it will be necessary to improve lighterage facilities and to explore possible locations of one or more adequate coastal ports which can accommodate vessels and barges up to possibly 1,000 DWT. The possibility of developing a port of higher standards sometime in the future should also be explored carefully.

14. New settlers in the area will come from various racial communities and from different geographical areas. Settlement patterns will have to be flexible to accommodate the different groups of settlers and to assure that each group of settlers and each individual will make a positive contribution to a balanced and integrated development of the new areas.

(b) Areas of Emphasis

15. In line with the major emphasis on agriculture and forestry, at least initially, a first requirement is to develop a broad land use classification of the whole area: demarkating areas to be reserved for modern agriculture, traditional agriculture, permanent forest exploitation, conservation, mining and urban settlement.

16. Basic information with respect to forestry is already being collected by a UNDP/FAO team and plans for forest industry development will be prepared independently by this same team. Most of the region is covered already by a reconnaissance soil survey, and the unsurveyed areas will be similarly covered by the Department of Agriculture before the regional study commences.

17. Once broad zonation and perspective plans have been prepared, a semi-detailed master plan sufficient for 20 years requirements must be prepared for the settlement of about a quarter of a million acres, to be supplemented by detailed project plans for shorter term sectoral activities in the form of investible packages for about 50,000 acres to be developed mainly during the Third Malaysia Plan. Much attention will have to be given to the selection of suitable crops aiming at a maximum diversification within the limits imposed by soils, climate and future markets.

18. Local processing of agricultural and forest products must be maximized and some attention must be given to the possibility of introducing other industries not directly related to agriculture and forestry.

19. Semi-detailed and detailed soil surveying will be necessary within the masterplan and agricultural project plan areas, and the soil mapping programme must be supplemented by detailed terrain analysis, particularly for those areas where the amplitude of relief is low and the ground slope relatively high, giving rise to complex patterns of micro-relief which are very difficult, if not impossible, to distinguish from published maps or aerial photographs.

20. Transport planning will centre on the construction of feeder roads and the proper phasing and construction of adequate port facilities. Townships and villages must be provided with an adequate supply of water and electricity and health and educational facilities.

21. Sociological studies related to the problems of settlement are of particular importance and must be emphasised. Settlers will come mainly from the First, Second and Third Divisions and belong to different racial communities with contrasting social and cultural backgrounds, occupational patterns and ways of life. Appropriate surveys must be conducted to ascertain which groups and individuals are likely candidates for settlement, how migration can be made attractive to various groups and individuals and under which conditions they should be settled. Settlement patterns may have to be quite flexible, encompassing settlements with emphasis on individuals through various forms of cooperative settlements, community settlements and possibly public or private estates employing wage labourers.

22. Finally, the study will have to cover such aspects as overall phasing, financing, organization and management, and training of specialists required in the area during the development period.

23. As previously indicated, the study will take about two years, sub-divided into two distinct phases of about one year each.

Part II: Detailed Guidelines

(a) Phase I

24. This phase of the study has several interrelated objectives. The consultants will prepare in the first phase a zonation plan, containing broad land use zoning proposals. The consultants will further prepare a long term perspective plan, containing in broad outline socio-economic development proposals for the region as a whole, over a 20 year period.

25. The consultants will locate about a quarter of a million acres most suitable for the development of settled agriculture and select about 50,000 acres in one or a few blocks for immediate development. These areas will be the subject of more detailed planning during phase II of the study. Finally, the consultants will during phase I collect information and study particular problems of development as a preparation for more detailed planning in phase II. A particular problem of development to be studied in detail during phase I is the socio-administrative problem related to settlement and migration.

Zonation Plan

26. This plan, which will include proposals for broad zonation of the region in future land use terms, will be based mainly on an analysis of all the available relevant physical resource data, and will require a familiarisation by the Consultants staff with the present conditions in the region, possible future land use needs and basic land resource capabilities. No substantial programmes of field survey should be necessary during this phase, except in so far as these might assist the completion of phase II. This is because a reconnaissance soil survey and a forest inventory have already been completed for most areas, which are believed to provide sufficient information for general planning purposes, while geological indications suggest that there are minimal mining potentials. A recently completed 1:50,000 topographic map cover and a total aerial photographic cover provide a wealth of detail which will afford an excellent opportunity for desk study sufficient to meet the needs of the zonation plan.

Perspective Plan

27. Based on 20 year projected development of the main sectoral activities, primarily agriculture and forestry, and processing industries directly related to these activities, the consultants will, in broad outline, project the structure of a balanced economy and society, including industry in general, commerce and other tertiary activities and services. The projections, will, in order of magnitude, indicate the contribution to national income by sector and include estimates of the population in the area, by occupation and level of skill, as is consistent with the broad economic projections.

28. The consultants will discuss policies required to support a development as projected over a 20 year period with particular attention to:-

(1) Manpower: The consultants will compare the requirements for particular skills in broad groups and levels, indicated by the projected occupational structure with the characteristics of the likely settler population. The consultants will estimate, in the light of this comparison, requirements for general and specialised education and training within the Development Region and in Sarawak as a whole, and the possible need to supplement temporarily skills not sufficiently available in Sarawak by imported skills.

(2) Financing: The consultants will, in order of magnitude, estimate the overall financing requirements over the 20 year period, the generation of funds to be supplied from outside the area by official and private sources and relate these requirements to global macro-economic projections of the supply of funds in Sarawak and Malaysia over the same period.

(3) Exports and Imports: The consultants will estimate, in orders of magnitude, export proceeds, import requirements and import savings consistent with the overall structure of the economy as projected.

(4) Settlement pattern and infrastructural requirements: The consultants will, in broad outline, suggest a settlement pattern, covering urban, semi-urban and rural settlements, as is

consistent with the overall structure of the economy. The consultants will discuss the demand for and possible sources of supply of power, water and sewage systems and the need for educational, health and other public facilities and will prepare a phased investment plan for these facilities.

(5) Transport: The consultants will project future transport requirements, internal and external, consistent with overall development. The consultants will prepare a schedule of phased additions and improvements to the existing facilities based on present and expected costs of investment and operation. The consultants will particularly investigate the possibilities with respect to port construction in or near the Region and recommend a phased programme of construction of port facilities designed to meet the demand for transport at reasonable cost.

The consultants will review all information regarding possible port construction available from official and private agencies (Sarawak Shell Berhad) and, where necessary, guide and assist in further survey work. If desirable, model studies should be undertaken on a modest scale in order to facilitate the formulation of concrete projects in the second phase of the study.

(6) Administration and Organisation: The consultants will give careful consideration to the organisational and administrative implications of the perspective plan. They will suggest a framework of public administration required to support and sustain the projected development. Where appropriate, alternative solutions will be discussed such as, for example, a phased expansion and improvement of existing agencies and organisations or the establishment of new institutions.

Similar implications and requirements in the private sector concerning such activities as marketing of produce and products, extension of credit to various sectors and the provision of other services will be discussed as well. The possible role of cooperatives and similar institutions is considered to be a particular relevant subject of discussion in these areas.

(7) Social aspects related to settlement: The consultants will undertake sociological surveys and studies in the First, Second and Third Divisions of Sarawak among the various (racial, rural, urban) communities which will supply settlers to the development area.

These surveys must be designed to determine how many people of various background and categories will or can be attracted to settle in the new area as farmers or in other occupations. The surveys must be "operational" so as to assist in designing realistic policies with respect to recruitment and transfer of settlers, possible training programmes, and type of settlement and communities to be planned in the new area in order to achieve an orderly establishment of a harmonious, integrated society in the new area. The surveys will pay some attention to possible repercussions, or desirable adjustments in emigrant areas.

Sociological studies and surveys of a somewhat different nature are required in the development area in order to design policies which will guarantee satisfactory integration of the existing population in the area and the neighbouring Ulu Baram in the new society to be developed, recognising the legitimate interests of the existing population.

(b) Phase II

29. Based on the results of phase I of the study, an area or areas suitable for settled agriculture as required over the 20 year perspective plan period (provisionally estimated at about a quarter of a million acres), will be selected for which the consultants will prepare a semi-detailed masterplan. This semi-detailed plan will cover such aspects as schedule of development, possible crops, exploitation systems, settlement pattern including related infrastructural and service facilities needs and the transport network, all related to the overall development of the region, as envisaged in the perspective plan. Maps illustrating this semi-detailed plan will generally be on a scale of 1:50,000.

30. Out of the quarter million acres, the consultants will select about 50,000 acres which may be developed over the first five or six years of the masterplan period. Within these 50,000 nucleus acres of land allocated to agricultural development, in one or more blocks, the consultants will prepare a detailed projects plan covering all sectors, activities and institutional aspects.

31. The details of the projects plan must be sufficient to provide concrete guidance for immediate implementation and to facilitate orderly development under the existing planning and budget procedures of the Federal and State Governments. Suitable projects or project packages must be prepared up to internationally accepted standards so as to permit an evaluation of their economic justification. The plan must include specific recommendations regarding institutional arrangements necessary to guarantee development as planned and regarding policies necessary to guarantee that the private sector will play the role which has been allocated to it.

32. The following subjects will be studied during this phase of the study with varying degree of detail as determined by the different nature of the two plans:-

(1) Soils and Topography: The object of these studies is to determine the pattern of soils and terrain characteristics within the masterplan and agricultural project plan areas in detail sufficient to justify the phase II plans. This implies a degree of semi-detailed soil survey within the masterplan areas and possibly detailed survey within the 6 year project plan areas. These studies shall include:-

(a) Terrain classification, based on compilation from topographic and aerial photographic sources and on ground investigations.

The classification used should be devised following discussions with the Soil Survey Division, Department of Agriculture and should employ gradient limits used in the soil suitability classification (see below). Special attention must be given to the problem of distinguishing those forest covered areas of deeply gullied terrain in which the amplitude of relief is less than 100 feet, and which are accordingly very difficult to recognise by conventional aerial photographic interpretation techniques.

(b) Soil Suitability Classification, derived from semi-detailed or detailed soil surveys and the results of the terrain studies.

It is expected that sufficient soils and other pertinent information will be available before the commencement of the study for the consultants to identify those areas which will be developed in the early years of the masterplan period during the early stages of the Phase I studies, thus permitting the commencement of semi-detailed or detailed soil survey field work before the start of phase II.

The soil classification to be used shall be that developed by the Soil Survey Division, Department of Agriculture, and the soils should be mapped at the level of family or series consociation units. Compound and complex units at the family or series level should be avoided wherever possible. Phase distinctions of agricultural significance shall also be mapped where the scale allows. Close liaison will be maintained with the senior staff of the Soil Survey Division during the course of these studies, and the Department of Agriculture will provide correlation services and will make available all relevant records, reports and maps prepared previously for this region and surrounding areas.

The soil suitability classification, which will be a re-interpretation from the basic soil and terrain classification data will be guided as far as practicable by the classification recently standardized for Malaysia, details of which will also be provided by the Soil Survey Division.

(2) Agriculture (agronomic and agricultural economic): These studies will be designed to evaluate the crop or crops most suited, in both agronomic and economic terms, to particular areas within the masterplan and project plan areas. They will include a consideration of the possibilities for new economic crops as well as expanding those crops such as rubber, oil palm, coconuts and pepper which are already established in the region. Animal husbandry, particularly the possibility of cattle rearing should be covered, as should freshwater fisheries on both a commercial and smallholders scale.

Consideration should be given to the possible introduction of drainage and irrigation facilities in selected areas, such as swamps suitable for double cropping of padi. The possibility of developing alluvial soils along the rivers in conjunction with the neighbouring high land may require particular attention in this context.

Relevant aspects of marketing and production economics, jointly with more general economic aspects such as desirable income levels, must be combined with agronomic aspects in the evaluation and selection of crops, cropping patterns, farm size and farm organisation.

(3) Forestry: An inventory and survey of the significant forest resources is being completed by the UNDP/FAO team and the Forest Department, as well as pre-investment studies for the establishment of timber industries and necessary infrastructures for the evacuation of timber products internally and externally. Accordingly plans will have been formulated for forest management and the development of timber industries in the region and very little further efforts are required in this area.

Since these plans have been formulated without adequate reference to other developments in the region, particularly of agriculture, it will be necessary that they are studied and modified as necessary to conform with other development activities, with particular attention being given to the zonation between forestry and other land use and to the phasing of forest exploitation with land development in the semi-detailed masterplan.

In this connection it will be necessary for the consultants to liaise closely with the Forest Department and the UNDP/FAO Project personnel, the latter being available till August 1973, from whom data and plans relating to forestry development are to be obtained.

(4) Mining: Geological data for the region indicates that metalliferous mineral exploitation possibilities are very limited, and no additional geological surveys or mineral prospection exercises are warranted in view of the fact that conflicts in land use allocation likely to arise from this cause are minimal.

In recent years useful roadstone sources have been identified in close proximity to the new Miri-Bintulu highway, while hydrogeological conditions are not encouraging in terms of underground water supply prospects, so that no significant input of geological expertise is necessary to meet the objectives of the regional study. Technical advice on these matters can be provided by staff of the Geological Survey when required by the Consultants.

(5) Water Resources and Hydrology: The consultants will assess the long term requirements of water for urban, industrial and agricultural use, locate the possible sources of water supply and propose a phased schedule of investments. Detailed projects will be prepared for facilities required during the first 6 years of development with due regard to costs and longer term developments.

The possible changes in the regime and discharges of rivers as a result of use of water for various purposes, of discharge of waste water and of development activities in general will be studied. Necessary water management or conservancy measures should be indicated, whenever flooding, silting and pollution in the lower reaches of the rivers are expected to increase beyond acceptable limits. Due weight must be given to the transport function of the rivers in this context.

(6) Industry, Commerce and Services: The consultants will make detailed projections of the developments in these sectors over the first six years as determined, directly or indirectly, by the developments in the primary sectors or as justified, possible and desirable as autonomous activities.

The Consultants will discuss the role of the private sector in these activities and suggest, with necessary details of organisation, manpower and financing, any supporting activities which may be desirable in the public sector. The consultants will moreover discuss additions to or changes in existing policies as may be desirable.

Direct public participation in these areas of activity must be developed in detail as projects.

(7) Settlement Pattern and Infrastructural Facilities: The consultants will recommend suitable settlement

patterns for new townships and villages or expansions to existing towns and villages.

The consultants will determine the requirement of power, water and sewage, select the most economic methods of supply and prepare projects as necessary. The consultants will further determine the requirements of social services such as health and educational facilities for each township and village.

(8) Transport: The consultants will prepare transport projects, whether they are port facilities, main roads, rural roads or other facilities, as required over the first six years of development. The consultants will estimate the requirements for transport equipment and prepare suitable projects whenever public transport operations are recommended.

(9) Manpower: The consultants will prepare detailed manpower projections for the first six years for the public and private sector and compare these projections with characteristics of the settlers .

The consultants will recommend suitable short term programmes of training and recruitment as may be necessary to overcome temporary shortages of manpower of particular levels and skills.

(10) Financing: The consultants will prepare detailed funding requirements for the six year period, for the public and the private sector. The consultants will suggest a feasible financial programme to meet the funding requirements.

(11) Administration and Organisation: The consultants will recommend suitable institutional arrangements necessary to implement the first six years of the development programme within the context of the longer term Masterplan. Institutional arrangements may cover the whole field between farmers associations or cooperatives to the general framework within which the Governments must implement the programme and must guide the different groups and sectors in a joint effort of harmonious development.

The consultants will pay particular attention to the institutional arrangements regarding the transfer to and settlement on the area of people of different origin and background.

Part III: Administrative Aspects of  
the Study

(a) Submission of Proposals

33. The Terms of Reference and the Scope of Work included in this document will be the basis of a contractual agreement with the consultant firm(s) selected to execute the study. Proposals submitted by invited consultant firms should be consistent with these requirements, although the Governments will give careful consideration to adjustments or amendments proposed by consultants, provided such suggestions are explicit and properly substantiated.

34. Consultant firms submitting proposals are expected to provide a detailed schedule of work, phasing the component parts of the study to the production times of the interim and final reports, and are expected to submit a detailed list of qualified and experienced personnel to be assigned to the study. It is estimated that the study will require about 300 man months time of specialist personnel expended over a period of about two years, possibly distributed as follows:-

Agriculture, including soil science, agronomy,  
agricultural economics and forestry. 30%

Physical infrastructure, including town  
planning, transport, marine and  
water engineering. 30% ?

Socio-economics, including sociology, regional  
and transport economics. 30%

Other disciplines, including special consul-  
tants and principals. 10%

(b) Coordination and Logistics

35. The study will be sponsored jointly by the Federal Government of Malaysia and the State Government of Sarawak. The two Governments will set up a joint Steering Committee to which the Consultants will be responsible and which will facilitate coordination between the Consultants and all Government Agencies. The Office of the State Financial Secretary will act as Secretariat to the Steering Committee.

36. The Consultants will set up headquarters in Miri, the capital of the Fourth Division, where adequate facilities are available both for work and living. To facilitate field work in the development area, the State Government will make simple facilities available in Bintulu or elsewhere as necessary. The State Government will also make some office space available in Kuching to accommodate consultants when visiting the State Capital. The State Government will further appoint a coordinator in Kuching to facilitate contacts with Federal and State government agencies and a liaison officer in Miri, to facilitate day by day contacts with government agencies in the Fourth Division and to assist in general administrative matters.

(c) Reports

37. The results of Phase I of the study will be submitted to the Steering Committee in two substantive reports. One report will contain the Zonation Plan and can probably be submitted after about 6 months and the other report will contain the Perspective Plan, to be submitted at the end of Phase I. These reports will be reviewed and discussed within the Governments and between the Governments and the Consultants. The Government will then give the necessary approvals and directives as required for more detailed planning in Phase II such as, for example, regarding the selection of areas to be included in the Masterplan and the detailed Projects Plan.

38. The Masterplan report and the detailed Projects Plan report will be submitted at the end of phase II in one or more documents as required. The Consultants are expected to schedule the work in a way which will permit the Government to review and discuss drafts of these reports in time for inclusion of pertinent observations and decisions in the official final reports.

APPENDIX

GENERAL BACKGROUND INFORMATION

Part I : Sarawak State

1. The State of Sarawak, is situated in the north-western part of the island of Borneo (Kalimantan). A British protectorate under the Rajah Brooke's since 1888, Sarawak became a British colony after the second world war. On attaining independence in 1963 it became a constituent State in the Federation of Malaysia, as did Sabah, it's neighbour to the north-east.
2. Sarawak covers an area of 48,250 square miles. The interior is mountainous and very sparsely inhabited. Most of the population is concentrated in the foothills and on the extensive coastal plains, dissected by many small and some large rivers. Lying between 1 and 5 degrees north of the equator, the climate in the foothills and the plains is generally hot and humid. Mean daily temperatures are between 72°F and 88°F with little variation from month to month. Mean annual rainfall in the coastal plains varies from 125 to 160 inches. Rainfall is highest during the "Landas" (N.E. monsoon) season from October to February but is fairly well distributed throughout the year. Mean relative humidity is not very high, generally varying from 65% to 75%, (2 p.m.)
3. The total population amounts to about 1 million of which about half can be described as indigenous while the others consist of immigrant Chinese and Malays, most of whom have been settled for many generations. The most important groups are: Chinese (33%), Ibans or Sea Dayaks (29%), Malays (18%), Bidayuks or Land Dayaks (8.5%), and Melanaus (5.5%). The population is heavily concentrated in a relatively small area of the State in the First and Second Divisions and the western part of the Third Division, roughly between Kuching and Sibiu. The population is as yet little urbanized. Kuching, the capital, is the largest town with about 75,000 inhabitants. In 1960, more than 80% of the economically active population was engaged in agriculture, forestry and fishing and less than 4% in manufacturing.
4. Foreign trade is dominated by oil and petroleum products. About 6 million tons of crude oil were imported by pipeline

from Brunei in 1969, of which about 3 million tons were re-exported as crude and 3 million tons as refined products from the refinery at Lutong, near Miri. Local production of crude oil amounted to about 440,000 tons in 1969 but is increasing rapidly as a result of new off-shore wells. Further off-shore drilling is in progress. Apart from oil, the major export products are timber (M\$ 186 mln. in 1969) pepper (M\$ 53 mln. in 1969) and rubber (M\$ 50 mln. in 1969). Imports are spread over many products, with rice as the main item (M\$ 25 mln. in 1969).

5. Kuching has daily airservices to and from Singapore, Kuala Lumpur and Kota Kinabalu (Sabah) and to and from a number of towns in Sarawak. The major general cargo ports are Kuching and Sibu, which are river ports of limited accessibility. Both ports are being improved and expanded to make them accessible for ships up to about 15,000 tons.

6. The State Government is located in Kuching. Administratively the State is divided into divisions and districts. The administration of each division is headed by a Resident, and of each district by a District Officer.

#### Agricultural Land Use - Problems and Potentials

7. In 1966, land use in Sarawak was as follows:-

Settlement and associated non-agricultural land	:	32,000 acres
Horticultural land, including fruit trees	:	20,000 "
Tree, palm and other permanent crops	:	930,000 "
Crop land	:	5,747,000 "
Unused land	:	418,000 "
Swamp forest	:	3,641,000 "
Dry forest	:	19,237,000 "
Swamp	:	430,000 "
		<hr/>
		30,455,000 "
		<hr/>

8. A very large part of the cropland is made up of secondary forest land held under so called "customary rights", by indigenous people and used principally for the planting of hill padi on a shifting cultivation basis. The shifting cultivation

of hill padi has been and still is the main occupation and way of life for a very large part of the indigenous people. The immigrant races, chiefly Chinese and Malays, on the other hand are "settled" people, growing such crops as rubber, pepper, coconuts and wet padi, or are engaged in urban type activities.

9. Customary rights established before April, 1955 are protected by law. The productivity of the cultivation system practiced in these areas is very low, which leads to a perpetuation of poverty and is extremely wasteful in land use, and for this and other reasons it is Government policy to reduce the extent of shifting cultivation as practiced by the indigenous races as far and fast as possible. The problems involved in settling a large part of the population as required under this policy are many and difficult however, and the Government believes that the elimination of shifting cultivation can only be effected through a long term programme, stretching over at least one, or perhaps two generations.

10. The concentration of the population in the First, Second and part of the Third Division, combined with the recent expansion of the population, has created a serious problem of land shortage in these areas. Indigenous communities, unable to expand into unoccupied virgin forest, have been forced to reduce the rotation cycle to periods of five to six year, far too short to permit recovery of soil fertility. An increasing number of families in the indigenous communities are landless. No land at all is available in these areas for expansion of settled agriculture as practiced principally by the Chinese and Malays and to a limited extent by the other races. This situation must necessarily result in a rapid increase in the category of unemployed, large numbers of whom are drifting to the towns. An increasing proportion of these unemployed have received primary and secondary education.

11. It is against this background of rapidly increasing pressure on land in the First, Second and part of the Third Division that the Government of Sarawak intends to develop relatively uninhabited areas in the Fourth Division for agriculture, and more specifically in the Miri-Bintulu Region, within which is the only extensive area, totalling approximately 1,000,000 acres, of predominantly unencumbered land in the State i.e. land not under cultivation at

the present time, and therefore available for planned development from within a total area amounting to approximately 1,500,000 acres of alienated State Land, customary rights; and including Forest Reserves, believed to be suitable for agriculture, as revealed by recent reconnaissance soil surveys.

12. As evidence of this intention, there is already the Lambir-Subis Development Block within the region in which the first two oil palm plantations in Sarawak are being developed by the Commonwealth Development Corporation and the State Development Finance Corporation. A basic road infrastructure for the region will be provided when a trunk road running between Miri and Bintulu is completed by the end of 1971.

13. It is estimated that perhaps a quarter of a million people in the First, Second and Third Divisions may have to be resettled over the next 20 or 30 years. A major portion will be settled as farmers, but many others must be placed in forestry extraction and processing and other secondary and tertiary activities, creating opportunities for an increasing number of people with secondary education. While many of these jobs will be made available within the divisions where the need is greatest, a large number, exact quantification of which is impossible on the basis of present data and knowledge, will have to move into the opportunity areas of the Miri-Bintulu Region, and this operation will call for a high degree of planning and organisation, the detailing of which will be a main purpose of the study.

## Part II: The Development Region

### Location

14. The proposed development region is located wholly in the Fourth Division of Sarawak and extends from the coast between the Sarawak/Brunei border and the Batang Kemana to the edge of the interior highlands, covering an area of about 3.5 million acres, or just under 5,500 square miles, and extends between  $3^{\circ}\text{N}$  to  $4^{\circ} 35'\text{N}$  and from  $113^{\circ}\text{E}$  to  $114^{\circ} 35'\text{E}$  (Fig. 1).

### Topography

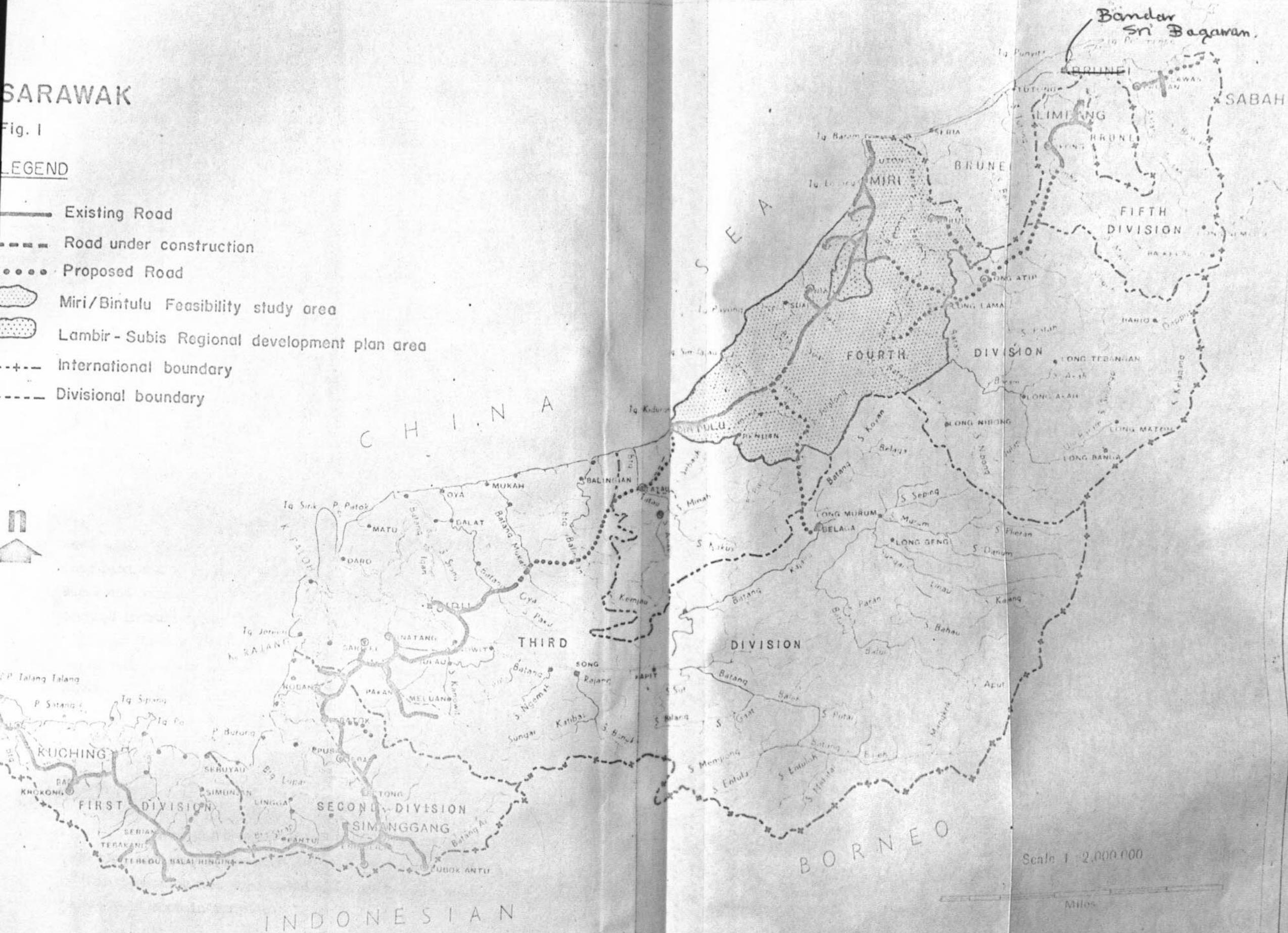
15. The topography of the study area may be described according to a number of distinct features (Fig. 2). Firstly,

# SARAWAK

Fig. 1

## LEGEND

-  Existing Road
-  Road under construction
-  Proposed Road
-  Miri/Bintulu Feasibility study area
-  Lambir - Subis Regional development plan area
-  International boundary
-  Divisional boundary



Scale 1 : 2,000,000

Miles

associated with the larger rivers including the Baran, Bakong, Tinjar, Suci and Kemana and the coastal region between the Nyalau and Sibuti rivers are extensive areas of peat swamps and flat alluvial country. Secondly, there are the extensive lowland areas of undulating or dissected terrain of the Triassic, principally argillaceous sediments, which form the major potential for agricultural development. Finally, towards the east and south, are extensive highland areas up to 2,000 feet above sea level, but including 4,000 feet peaks. The trend of the relief is, in general, north east/south-west reflecting the regional strike.

### Geology

16. The rocks in the proposed Miri-Bintulu Feasibility Study Area are made up of thick sequences of sediments deposited in the main geosynclinal and Neogene Basin environments. Post orogenic Quaternary deposits are confined mainly along the coast and as belts of alluvium along the Upper Niah and Subis Rivers.

17. Tertiary sediments deposited in the geosynclinal environment consist of a few isolated outcrops of limestone around Long Lama and Batu Niah and thick monotonous successions of argillaceous and arenaceous strata with minor outcrops of calcareous rocks. Igneous intrusion is absent. The argillaceous strata are made up predominantly of shale interbedded with subordinate sandstone and occasional lenses of limestone and lignitic coal beds. Bedded sandstone, shale, and sandy shale are widespread in the Bintulu-Sinilajau area, interbedded with coal seams around Bintulu. The calcareous rocks consist of calcareous shale and marl, and the thick beds of limestone are confined to a small area north east of Batu Niah.

18. Neogene Basin Formations are made up of thick massive sandstone and grey shale with occasional seams of lignite. Rocks of this formation are topographically feature-forming with prominent scarps and mountain ranges.

19. Quaternary deposits form a continuous belt averaging about 6 miles in width along the coast from Kuala Nyalau to Sibuti. They are made up of terraced alluvium, gravels and recent alluvium. Terraced deposits consist mainly of white sand and quartz pebble gravel. Recent riverine, fluvial and estuarine

Fig. 2  
Topography



-  Below 100'
-  100' - 500'
-  Above 500'
-  Swamp Land

MIRI-BINTULU FEASIBILITY STUDY  
FOURTH DIVISION

Scale 1:500,000 or 7.89 miles to an inch



Statute miles

alluvium are made up of sandy clay, and clay with lenses of gravel. Large areas are covered by peat swamps especially in the Kemana and Baran Valleys.

### Mineral Resources

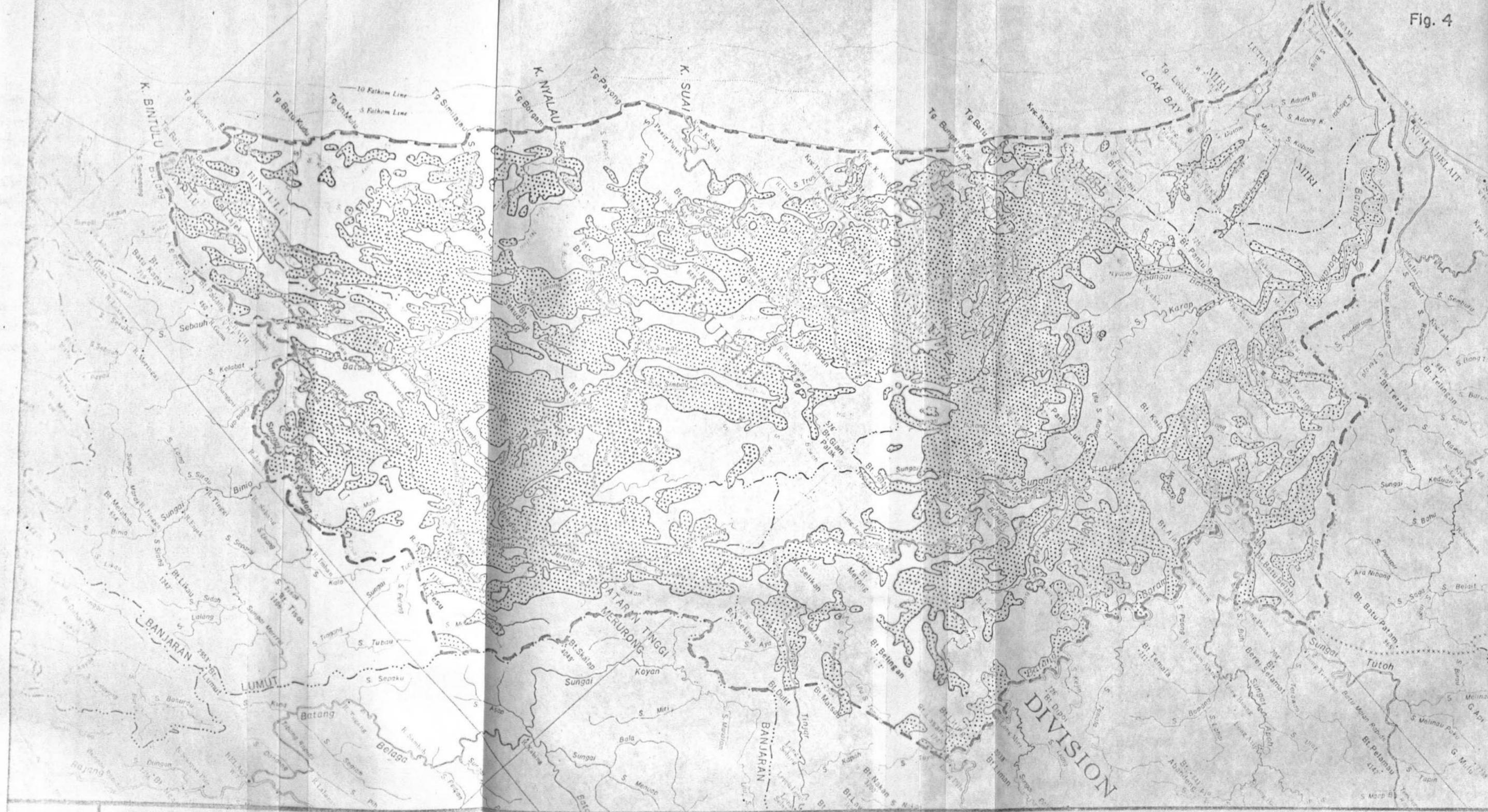
20. Glass sand deposits which occur near Bintulu are presently being exported on an experimental basis. Abundant reserves of road metal (limestone) are available at Bukit Subis, and large deposits of limestone suitable for cement manufacturing occur in the Batu Gading area. Coal seams in the Bintulu area have been found to be thin and discontinuous, and prospects for mining the coal are poor. Minor occurrences of antimony and arsenic have also been recorded in a few localities.

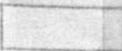
### Soils

21. The soils of nearly 80% (2,800,000 acres) of the study area were surveyed at reconnaissance level between 1960-1965 with the aim of building up a basic knowledge of the soil and agricultural potentials of Sarawak. (Fig. 4) The areas which still remains unsurveyed consist mainly of steep hill country forming the watershed of the four large rivers: the Kemana, Suai, Niah and Tinjar.

22. The soils of the large peat swamps cover about 30% of the study area (1,050,000 acres), with peat depth exceeding 6 feet. These soils are unsuitable for most crops and have little agricultural value at present. The remainder of the lowland, about 16. % of the area ( 550,000 acres), consists mainly of gley soils in interior valleys and swamps, recent soils from riverine alluvium and small scattered areas of podsoils occurring on terraces. The Gley soils are suitable for padi and other off-season crops, and areas where these soils occur in fairly large extent have already been included in schemes (Drainage and Irrigation, Assistance to Padi Planters). The recent soils derived from riverine alluvium vary greatly depending on the nature of the source materials, but they appear to have little chemical or physical limitations for most crops. Both the gley soils and the recent alluvial soils are liable to flooding in many places especially during the landas season. Podsoils are unsuitable for most crops because of their very low inherent fertility.





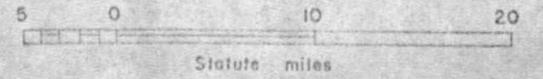
-  Lands considered unsuitable for cultivation on account of topography and soils
-  Lands that topography and soils indicate potential areas for agriculture

(Preliminary Reconnaissance Level)



**MIRI-BINTULU FEASIBILITY STUDY**  
**FOURTH DIVISION**

Scale 1:500,000 or 7.89 miles to an inch



23. The soils of the low hills and steep lands cover about 54% (1,900,000 acres) of the study area, and they were classified mainly in the Red-Yellow Podsollic Group. Of this, an estimated 32% (610,000 acres) occurs on gently rolling to moderately steep low hills with elevation generally less than 200 feet. The soils are shallow to deep, yellowish-brown sandy loam to clay derived from sedimentary parent materials of sandstones and shales and are considered suitable for a wide range of crops. Since the areas where these soils occur constitute nearly half of the study area, including the Lambir-Subis Development Block, it is evident that they would form the backbone of agricultural expansion. However, more detailed soil investigations will be needed to delineate areas within these soils in order to assist in planning for future development.

24. Soils of the steep lands cover nearly 23% of the study area (800,000 acres). These soils are shallow or skeletal, developed mainly from sedimentary rocks of sandstone, shales and limestones. They occur on slopes commonly exceeding 30° of hills with elevation ranging from 200 feet. Although there may be small areas of these soils which can be used for agriculture, the bulk of the area has only marginal suitability or is completely unsuitable for any form of agriculture; hence these soils are unlikely to contribute significantly to the agricultural potential of the study area.

#### Vegetation

25. The vegetation of the region is broadleaved tropical rain forest characterised by dense tree covering and by a great variety of species; these forests belong to various forest types such as the Peat Swamp Forests near the coast, the Lowland Heath Forest and the Mixed Dipterocarp Forests.

26. The Mixed Dipterocarp Forest occupies the largest area and has the richest vegetation type comprising a multitude of species and, as the name implies, this forest is dominated by the one family Dipterocarpaceae, represented chiefly by the genera Shorea, Dipterocarpus and Dryobalanops. The Mixed Dipterocarp Forest sometimes gives way to the Lowland Heath Forests (known as Kerangas in Sarawak) on poor acid soil. The vegetation comprises relatively few species of trees, normally much smaller in stature

than those found in the Mixed Dipterocarp Forest. Towards the coast occur the peat swamp forests where Gonystylus (Ramin) and Copifera (Sepetir) and the swamp species of Shorea (Meranti) are important commercial trees. Other species are being exported to Hong Kong or Taiwan as Mixed Light Hardwood.

### Forestry

27. million Forest Reserves and Protected Forests cover about one and a quarter/acres (Fig. 5) while other stateland forests cover about another million acres. About 602,000 acres of the latter have been given out for exploitation under licence since 1965, of which about 400,000 acres have already been logged, with the remainder expected to be logged by 1975. Of the forest reserves, Niah Forest Reserve with an area of 47,000 acres is at present being exploited on a ten-year licence.

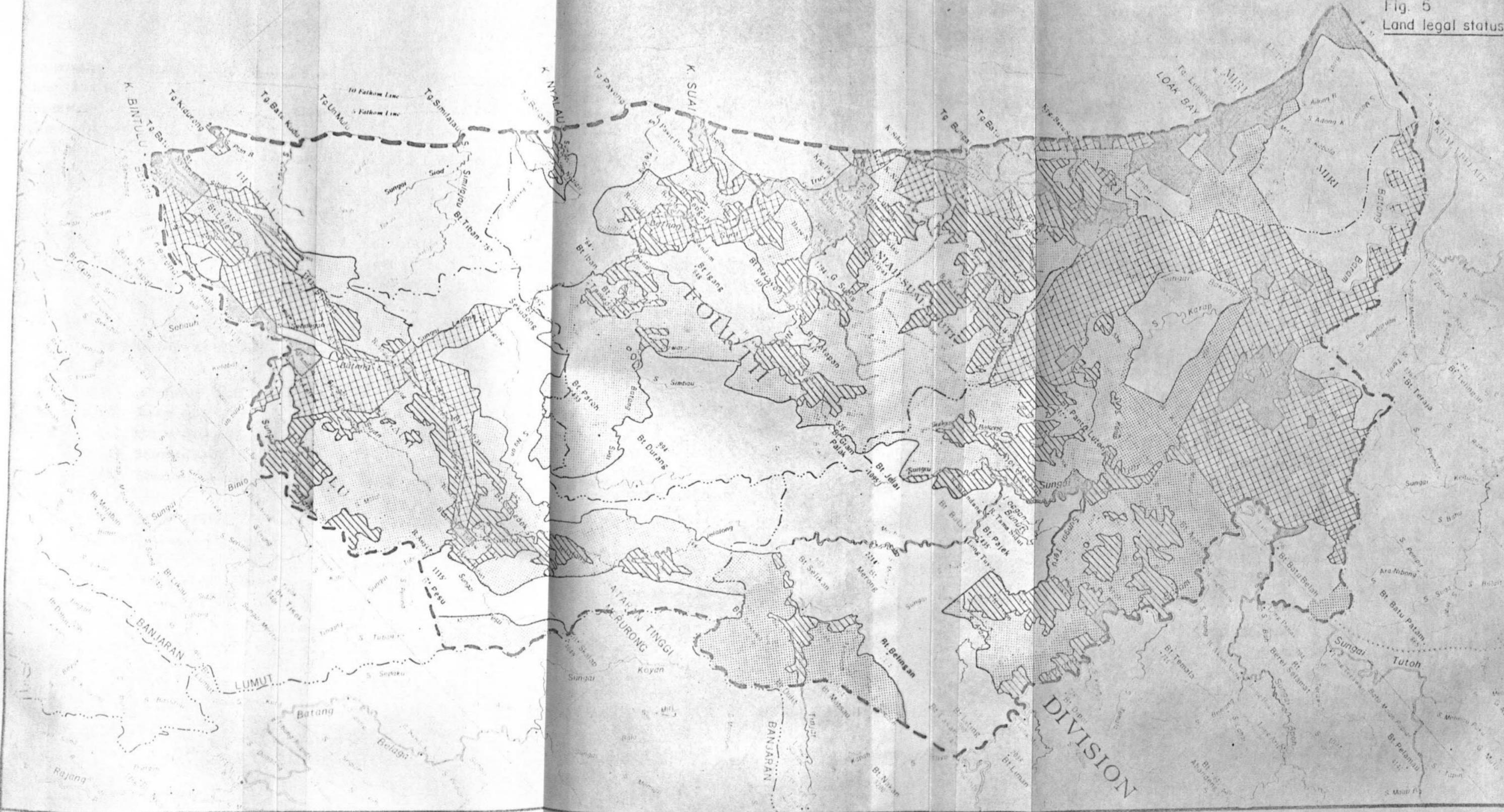
28. Part of the remaining forest reserves or protected forests have been inventorised by the Forest Department for management purposes, while the remaining part is currently being inventorised under the UNDP/FAO Forest Industries Development Project. This project, which is part of a pan-Malaysian project for forest industries development, is due to be completed in August 1973, but for the Miri-Bintulu area a report incorporating both the FAO and Forest Department inventory results, as well as proposals for the management and exploitation of forests within the region and for the establishment of timber industries together with needed infrastructures, is expected to be completed by the end of 1971. This report will be made available to the Consultants, to be modified if necessary for incorporation into the plans for development of the overall resources of the region.

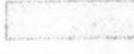
29. The forests are also regarded as being of significance to the cultural and aesthetic development of Sarawak. In addition, to the existing Niah National Park with its limestone cave complex, and archaeological sites at Gunung Subis, a number of parks are in various stages of constitution.

### Land Use

30. Approximately 35% of the study area is under cultivation, including shifting cultivation (Fig. 3). Hill padi is

Fig. 5  
Land legal status

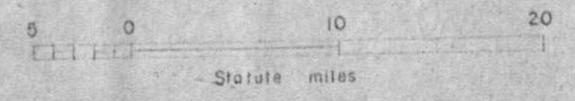


-  Mixed Zone Land (Consists of alienated Land, Customary) (Rights and unencumbered State Land)
-  Native Area Land (Consists of alienated Land, Customary) (Rights and unencumbered State Land)
-  Land over which Native Customary Rights may have been established.
-  State Land with no indication of Established Claims.
-  Forest Reserves.



MIRI-BINTULU FEASIBILITY STUDY  
FOURTH DIVISION

Scale 1 : 500,000 or 7.89 miles to an Inch



the principal crop, mostly from the areas of shifting cultivation where it is grown by the Ibans and other indigenous peoples in the interior valleys and plains. There is also some permanent cultivation, mostly rubber, near Batu Niah, Bekenu, Bintulu, Niah and Sebauh. The remainder of the study area is under forest, both hill and swamp forest.

31. The Lambir-Subis Development Block is included in the northern part of the study area, where large scale cultivation of oil palm has recently commenced under the auspices of the Commonwealth Development Corporation and the Sarawak Development Finance Corporation.

#### Land Tenure

32. Land in Sarawak is divided into five legal categories (Fig. 5). They are:-

- (a) Mixed Zone Land;
- (b) Native Area Land;
- (c) Native Customary Land;
- (d) Reserved Land; and
- (e) Interior Area Land.

33. The Land and Survey Department can supply the consultants with up-to-date information regarding the occurrence of the various categories in the Development Region and with information regarding the legal rights pertaining to each category. As explained elsewhere, most of the land is unencumbered State Land or Forest Reserve land immediately available for development. It is possible that some detailed surveying of existing rights will be necessary in some areas.

#### Population

34. In 1968 the estimated population of the study area was about 87,548 people, and the overall density was 16 people per square mile. Miri, a relatively important town, is located in the north of the area, Bintulu is the only significant urban centre in the south, although there are a number of small bazaars in the north of the study area, particularly near the coast and along the lower reaches of the larger rivers, where the existing population is largely concentrated.

Miri-Lutong - Kuala Baram Area

35. Miri, at the northern limit of the proposed development region, is a town of some significance. As capital of the Fourth Division and of Miri District, it is the location of a number of Government offices. It is a commercial center with some industry, among which shipyards for the maintenance and construction of small coastal and river craft are important. (Barges up to 700 tons are being built). Miri has hotels with modern conveniences, an attractive residential area and a well equipped club.

36. North of Miri, at the mouth of the Baram river, is Kuala Baram, a river port of some importance.

37. Between Miri and Kuala Baram is Lutong, the center of Shell operations in Sarawak. A refinery with an annual throughput of 3 mln. tons receives crude by pipeline from Brunei. Another 3 mln. tons of crude are re-exported directly. Loading takes place off-shore at a distance of about 3 miles from the coast. Production of crude from the original Miri field has always been small, but Lutong has recently become the center of operations for a major off-shore drilling programme in Sarawak waters. Shell personnel are housed partly in a company residential area between Lutong and Miri and increasingly in Miri town.

38. Miri is supplied with natural gas for power generation, industrial and domestic use.

39. Miri has twice daily F 27 aircservices (or more), connecting with Kuching, Sibul, Bintulu, Brunei and Kota Kinabalu and is the point of departure of some rural air services to the interior of the Fourth Division. Miri is connected to Brunei by a second class road. Two major rivers are crossed by ferry. A new all weather road is under construction between Miri and Bintulu, passing through the proposed development area. Some rural roads into the inhabited parts of the area have been constructed already, mainly in the <sup>north-</sup>eastern part of the area.

Bintulu

40. Bintulu is the capital of Bintulu district, and a number of small Government offices are located here. It is also a

minor commercial center, and has a population of about 3,000. Bintulu has electricity, piped water and a small hospital. Daily F 27 services connect Bintulu with Kuching, Sibul, Miri, Brunei and Kota Kinabalu. A small river port is serviced by small coastal vessels and is the point of departure for river craft plying the Kemana river. Export of logs, loaded off-shore, is increasing.

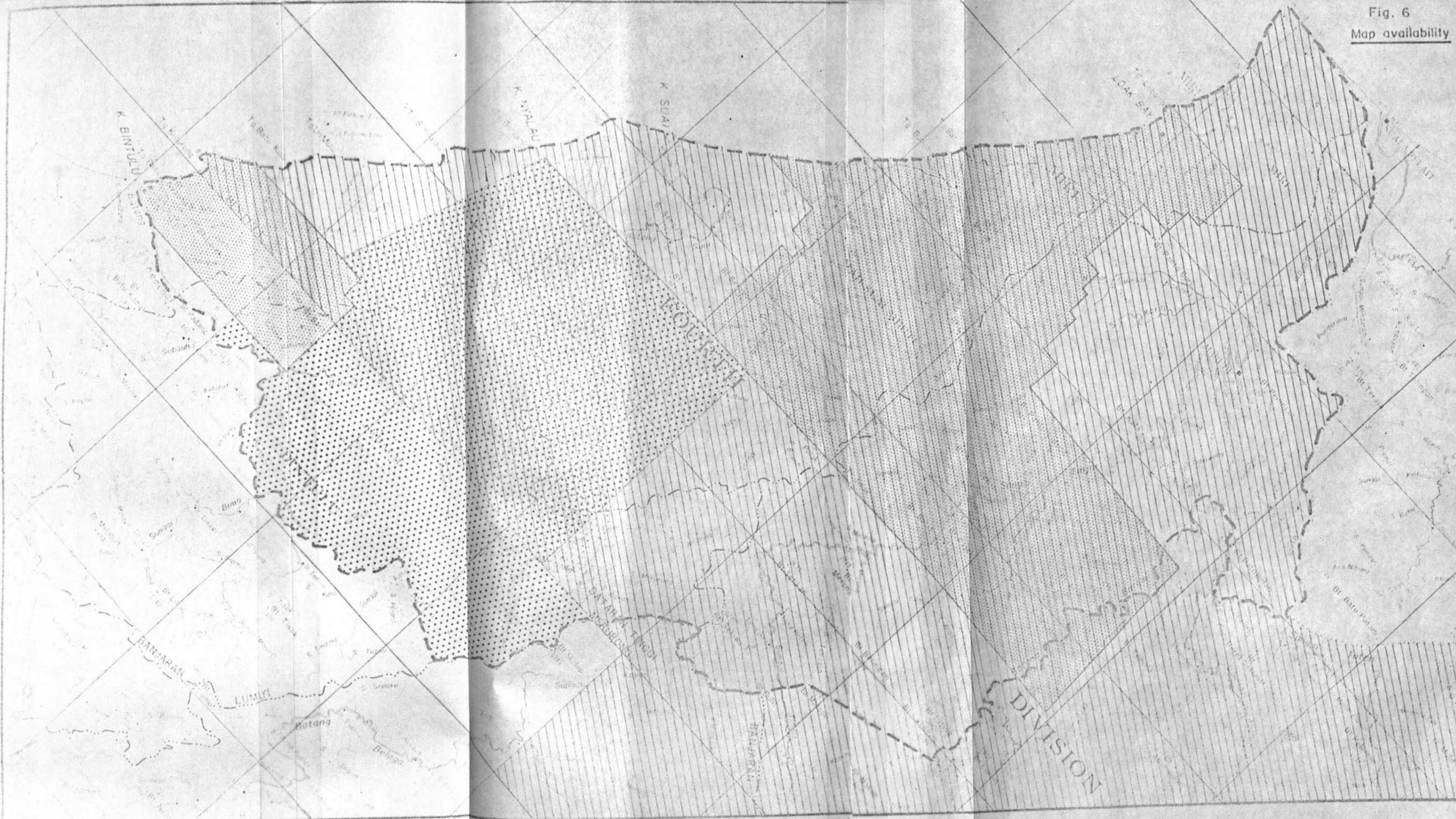
### Mapping

41. The whole area north of the  $3^{\circ} 15'$  latitude line, approximately 85% of the region, is covered by 1:50,000 topographical sheets (Series T735) which were produced between 1963 and 1968 by the Directorate of Overseas Survey on behalf of the Directorate of National Mapping, Malaysia (Fig. 6). These sheets are fully coloured and contoured at 50-foot or 100-foot intervals. Below the  $3^{\circ} 15'$  latitude line, 1:50,000 preliminary sheets are available but these are uncoloured and in only two colours. Final contoured sheets are not expected for this remaining area for some considerable time. For this reason the Land and Survey Department, Sarawak, is undertaking the mapping of the area at 1:25,000 with 25-foot contours (50-foot in steeper country) and it is hoped that this should be completed between June and December 1971. Certain portions of the region are covered by 1:10,000 mapping with 25-foot contours. These are mostly in the form of machine plots but in some areas they are scribed and conform to sheet lines.

### Aerial Photography Cover

42. 1:25,000 scale air photography of approximately 70% of the region was obtained during 1970. The remaining 30% is covered by 1:25,000 scale photography taken between 1967 and 1969. Prints of this photography will be available from the Land and Survey Department, Sarawak, upon request.

23rd August, 1971.



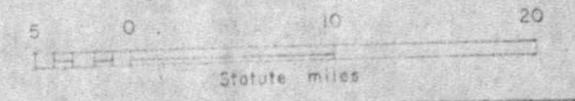
-  1:10,000 mapping (25' contour intervals.)
-  1:50,000 contoured sheets available
-  1:25,000 mapping projected
-  1:50,000 uncontroled sheets

Note: One square represents one 1:50,000 sheet



MIRI-BINTULU FEASIBILITY STUDY  
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Scale 1:500,000 or 7.89 miles to an Inch



Modification to the Miri-Bintulu Terms of  
Reference, Scope of Work and General Background  
Information

=====

- Page 1 Para. 3: Line 5 after region insert:  
its present development patterns and its  
surrounding areas.
- Pages 1 and 2 -  
Para. 4: Line 5 after term, insert:  
consistent with the furthering of  
Federal and State objectives.
- Page 2 Para. 5: Add at end:  
The plans will detail the most appropriate  
organisation of the agricultural activities  
and settlement patterns that will allow  
flexibility in employments and enhance the  
possibilities for total regional development.
- Page 2 Para. 7: Line 3 after whole, insert:  
including regional trade patterns and labor  
markets and the role of the existing urban  
centres throughout the area.
- Sub-paragraph (1) line 2 after plan, insert:  
that takes account of the necessary links  
between agricultural and non-agricultural  
development.
- Page 3: No variation.
- Page 4 Para. 8: Sub-paragraph 4 add at end:  
taking full account of the total transporta-  
tion needs of the whole State.

Sub-paragraph 5 add at beginning:

Determine the most advantageous settlement pattern and, taking into account the existing urban centres.

Page 4:

Add a sub-paragraph (7)

- (7) detail the impacts of the proposed developments on State finances, on the demands for State services, and on the range of State operations and objectives.

Page 5 Para. 11:

Line 1 after central insert: initial

Line 2 after program, insert:

But non-agricultural opportunities are to be encouraged and employment flexibility will be maintained through settlement patterns and arrangements with settlers and contract laborers.

Para. 12:

Line 8 - Delete the word "Miri" and insert the words "in the area".

Para. 13:

Line 4 after planning, insert:

will assure consistency with transportation needs and development throughout the state and

Page 6 Para. 15:

At end add:

these delineations will be consistent with and will enhance the comprehensive long term development of the region. Also, size of individual holdings will need to change over time and this together with means for accommodating a flexible work force in the project area will be taken into account.

- Para. 16: Delete the first sentence and insert "Basic information with respect to forestry for part of the area is already being collected by a UNDP/FAO team and restricted plans for forest industry development will be prepared independently by this same team and covering the limited area.
- Page 7 Para. 18: Line 2 after maximized change to read:  
..... maximized and based on examination of present trade patterns, labor<sup>u</sup> availabilities and manufacturing potentials, possibilities for introducing manufacturing, services and other economic activities must be fully explored.
- Para. 19: Delete the commencing words of the first sentence "Semi-detailed and detailed soil surveying" and insert "Soil surveying at various levels".
- Para. 19: Line 3 - Delete the word "detailed".
- Para. 20: Delete the first sentence and insert:  
"Transport planning will be required on all aspects of air, land and water communications for agricultural, forestry and industrial projects".
- Page 8 Para. 26: Line 3 after resource, insert:  
and economic  
  
Line 5 after present, insert:  
physical, economic and social

Delete the third sentence (line 9) and insert:  
This is because reconnaissance soil survey data will be available for the whole area and a forest inventory for part of the area has been completed which if supplemented will provide sufficient information for general planning purposes, while geological indication suggest that there are minimal mining potential.

Page 9 Para. 27: Line 3 after activities, insert:  
but including other economic activities as well,

Para. 28: Sub-paragraph (1) add at end:  
The consultants will detail the labor requirements in different activities at different periods of the development plan and will provide for the necessary movement of labor resources among locations and activities so as to reduce possibilities of serious unemployment/or underemployment/in the project area.

Page 10: Sub-para (5) Transport  
In the first sentence second line add the words - "air, land and water" Before transport requirements"  
In the last sentence of sub-para 5, delete the word "desirable" and insert the word "necessary".  
The sentence will read - "If necessary, model studies ....."

~~Sub-paragraph (6) ...~~  
~~... of the project.~~  
~~Secretary.~~

Page 11 Para. 30:

Delete the first and second sentences and insert:

"Out of the quarter million acres, the consultants will select areas to provide agricultural development of a net area of about 50,000 acres located as far as possible on unencumbered State land, and which will be developed over the first five or six years of the master plan period. Within the 50,000 acres of land allocated to agricultural development, in one or more blocks, which must be of economic size, the consultants will prepare a detailed project plan covering all sectors, activities and institutional aspects".

Pages 12 and 13 -  
Para. 32:

Sub-para (1) to be deleted and replaced by -

"(1) Soils and Topography

The object of these studies is to determine the pattern of soils and terrain characteristics within the semi-detailed master plan and agricultural project plan areas in sufficient detail to justify the phase II plans. The level of work required differs in the two areas:-

(a) Semi-detailed Master Plan area

It is anticipated that most of the area will have complete reconnaissance-level soil survey coverage prior to the start of the project. Topographic maps

2,50,000 acres?  
or 275,000

and aerial photograph coverage will also be available. A Terrain Classification should be prepared, based on these sources and further ground investigation. This classification should be devised following discussions with the Soil Survey Division, Department of Agriculture and should employ gradient limits common to the Soil Suitability Classification (see below).

Special attention should be given to the problem of distinguishing areas under forest cover which have low amplitude of relief but are deeply gullied. Due to the canopy such areas are difficult to recognise by conventional aerial photograph interpretation techniques and must be investigated by ground traverses. Subject to the availability of alternative suitable land, such areas should be excluded from the master plan area. Soil survey within the master plan area should be confined to (i) broad transects and sample area studies with a view to familiarising the soils specialists with the characteristics of the area and (ii) limited formal reconnaissance-level survey to supplement the available data with a view to the preparation of the semi-detailed masterplan, and the location of the detailed projects plan area.

(b) Detailed projects plan area

The consultants will prepare a semi-detailed soil map from which a soil suitability

50,000 awh.

map will be derived. The semi-detailed soil survey will cover the entire 50,000 acres and will be conducted on a grid-sampling programme. The minimum soil sampling density will be 600 x 75 metres in upland areas where topographic maps will assist in interpolation of soil boundaries and 400 x 75 metres in floodplain areas where boundaries must be interpolated largely on the basis of the sampling data. The soil classification used shall be that developed by the Soil Survey Division, Department of Agriculture, and the soils should be mapped at the level of families or series, compound mappings units being avoided wherever possible. Phase distinctions of agricultural significance should be mapped where the scale allows. Close liaison will be maintained with the senior staff of the Soil Survey Division during the course of these studies. The Department of Agriculture will provide correlation services and will make available all relevant records, reports and maps prepared previously for this region and surrounding areas. The Soil Suitability Map, which will be a re-interpretation from the basic soil and terrain classification data, will be guided as far as practicable by the classification recently standardised for Malaysia, details of which will also be provided by the Soil Survey Division.

It is expected that sufficient soils and other pertinent information will be available before the commencement of the study for the

consultants to identify the detailed projects plan area (or areas) in the early stages of the Phase studies, thus permitting the commencement of semi-detailed soil survey within this area before the start of Phase II.

Implementation of development plans within the detailed projects plan area is phased to follow immediately on from the Phase II study. In locating the 50,000 acres, the consultants should avoid the inclusion of large tracts of floodplain land if the development of such land can only take place following lengthy drainage investigations subsequent to Phase II. If such land is included in the detailed projects plan area then appropriate drainage studies and recommendations must be included in the Phase II investigations.

The detailed projects plan is based on the immediate development of 50,000 acres. Terrain and soils in much of the study area are known to be varied. The consultants must anticipate that semi-detailed soil survey in excess of 50,000 acres will be necessary to achieve this amount of developable land".

Page 14 Para.32:

Sub-para (2) Delete the first three lines of the page and insert -

"Consideration should be given to the possible introduction of drainage and irrigation facilities within the semi-detailed master plan area. In particular the possibility of"

Page 14 Para. 32:

Sub-para (3) Delete the first eight lines and insert -

"An inventory survey of the potential forest resources in 2 units covering an area of 604,900 acres is being completed by the UNDP/FAO team and the Forest Department, as well as pre-investment studies for the establishment of timber industries and necessary infrastructures for the evacuation of timber products internally and externally. Accordingly plans will have been formulated for forest management and the development of timber industries in the region. This survey does not however include the adjacent areas within the feasibility study area. It is therefore essential to examine the forest outside the scope of the FAO inventory from the point of view of conservation and exploitation. Most of the forest in this zone is licensed out for exploitation".

Delete lines 9, 10 and 11 beginning "Since these plans ....." and insert -

"It will be necessary that UNDP/FAO proposals are studies and modified".

Page 15 Para. 32:

Sub-para (5) - Amend typing error on line 5 "furing" should read "during". Line 8 after rivers insert: and their consequences. After the words "in general" on line 9 add "including resulting ecological and environmental changes".

- Page 16 Para. 32: Sub-para (8) line 2 - After the words "port facilities" insert the word "waterways".
- Sub-para (11) line 5 - Delete the word "may" and insert the word "will".
- Pages 17 and 18: No variation.
- Pages 19 to 28: No variation.
- Page 29: Add new para 43 as follows -
- "43. Hydrological Year Books published by the Drainage & Irrigation Department from 1962 to 1970 are available for reference. The attached maps show the locations where such rainfall record, water level and river discharge stations from which data may be obtained.
- Earlier records of rainfall could also be found in Miri, Lutong, Bintulu, Marudi and Long Akah from the year 1896 onwards".

AGREEMENT

between

THE GOVERNMENT OF MALAYSIA

and

THE ASSOCIATION OF  
HUNTING TECHNICAL SERVICES LIMITED (LONDON)

and

HOFF & OVERGAARD (COPENHAGEN)

for

THE PROPOSED DEVELOPMENT OF THE  
MIRI-BINTULU REGION  
OF THE  
FOURTH DIVISION, SARAWAK

KUALA LUMPUR

1972

AGREEMENT  
between  
THE GOVERNMENT OF MALAYSIA  
and  
THE ASSOCIATION OF  
HUNTING TECHNICAL SERVICES LIMITED (LONDON)  
and  
HOFF-OVERGAARD (COPENHAGEN)  
FOR THE PROPOSED DEVELOPMENT OF THE  
MIRI-BINTULU REGION OF THE  
FOURTH DIVISION, SARAWAK

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THIS AGREEMENT entered into the \_\_\_\_\_ day of \_\_\_\_\_ between the Government of Malaysia (hereinafter referred to as "the GOVERNMENT") and the Association of Hunting Technical Services Limited of London and Hoff & Overgaard of Copenhagen (hereinafter referred to as "the Consultants").

WHEREAS the GOVERNMENT requires a ~~feasibility~~ study of the Miri-Bintulu Region to be carried out leading to the preparation of a perspective plan for the guidance of the future development of the Region over the longer term, and in addition, the drawing up of more detailed plans for specific areas and sectoral activities to be undertaken during the later part of the Second Malaysia Plan and during the Third Malaysia Plan (1967-80) within the context of the 20 year perspective Master Plan; and

WHEREAS the CONSULTANTS have submitted a proposal dated October 1971 and are willing to undertake this task;

NOW, THEREFORE, THE GOVERNMENT and the CONSULTANTS agree as follows:-

ARTICLE I

APPOINTMENT OF CONSULTANT

The GOVERNMENT hereby appoints the CONSULTANTS and the CONSULTANTS accept the appointment on the terms and conditions hereinafter set forth, it being agreed and accepted that the CONSULTANTS shall be solely responsible for carrying out the assignment and the analysis and interpretation of all data, and for the findings, conclusions and recommendations contained in their Reports.

ARTICLE II  
DOCUMENTS FORMING PART OF THE AGREEMENT

The following documents shall form part of the Agreement:-

- Schedule A: Scope of Work
- Schedule B: Consultants' Organisation/Work Programme.
- Schedule C: Estimates of Costs: C1 - Consultants' Staff  
Costs and Fees.  
C2 - Direct Reimbursable  
Costs.
- Schedule D: Services, Equipment and Personnel to be  
provided by the GOVERNMENT.
- Schedule E: Financial Procedures.

ARTICLE III  
OBLIGATIONS OF THE CONSULTANTS

1. The CONSULTANTS shall prepare a perspective plan to guide the future development of the region over the longer term, and in addition, to draw up more detailed plans for specific areas and sectoral activities to be undertaken during the later part of the Second Malaysia Plan and during the Third Malaysia Plan (1967-80) within the context of the 20 year perspective Master Plan.
2. The CONSULTANTS shall carry out the services with due diligence and efficiency, utilise acceptable methods of technical, economic, financial and management analyses, in a practical manner so as to promote the purposes of the study.
3. For the preparation of the Plans described in Schedule A the CONSULTANTS shall undertake a feasibility study in two phases, which shall be carried out as follows:-

(a) Phase I

The analysis of relevant socio-economic data, and particularly those data concerned with human resources within the State of Sarawak as a whole, and with natural resources within the region, and where necessary the survey and collection of additional data sufficient to:-

- (a) put forward broad land use proposals in the form of a zonation plan, sufficient to guide development over the long term;
- (b) identify the socio-economic needs of the people within and outside the region who are likely to provide the bulk of the future population for the region, in so far as this is possible over a 20 year perspective plan period;
- (c) assess the probable scale of development needs within the region, by sectors, necessary to meet the employment targets arising from (b);
- (d) locate an area, or areas, within which such development needs are assessed in (c) might be best sited;
- (e) make proposals for undertaking specific sectoral studies and preparing project plans, encompassed within the 20 year perspective plan, in the area(s) identified under (d) above, in the form of separate investible packages, to cover priority developments which will take place during the later years of the Second Malaysia Plan and in the Third Malaysia Plan.

(b) Phase II

Within the context of the broad perspective plan prepared during Phase I, prepare a semi-detailed Master Plan, sufficient to meet projected settlement requirements for 20 years (currently estimated at about a quarter of a million acres of permanent crop land), and supplemented by detailed project plans for short-term sectoral activities, in the form of investible packages, to cover immediate development requirements during the later part of the Second Malaysia Plan and the Third Malaysia Plan (currently estimated at about 50,000 acres of permanent crop land). These plans will require the survey or collection of additional data to supplement existing information sufficient to:-

- (a) determine the optimum cropping pattern and the agricultural sector programme required to achieve this;

- (b) advise on changes necessary in current forest exploitation programmes sufficient to ensure that land acquisition needs for agriculture are not prejudiced by forest clearance delays;
- (c) utilise and conserve the inland water resources in an optimum manner to meet potable and industrial, including crop processing and irrigation, requirements;
- (d) locate public communication and transportation facilities, including port requirements for the export of produce from the Region and the Fourth Division;
- (e) locate sites for major centres of population and industrial facilities for processing the agricultural, forest and other products;  
and
- (f) determine the institutional, including marketing and management needs required by the individual programmes as outlined above.

4. The CONSULTANTS shall provide suitably qualified and experienced personnel acceptable to the GOVERNMENT to carry out the assignment as specified in Schedule A. Schedule B shall specify the personnel to be provided by the CONSULTANTS and the periods of their assignment to the project as agreed with the GOVERNMENT. Substitution for such personnel shall not be made without the prior approval of the GOVERNMENT. A project manager shall be appointed who will be responsible for the co-ordination of all the activities of the CONSULTANTS and who will liaise with the GOVERNMENT.

5. The CONSULTANTS shall furnish to the GOVERNMENT such information related to the services including any sub-contracts as the GOVERNMENT may from time to time request.

6. The CONSULTANTS shall commence work upon receipt of the Notice to Proceed from the GOVERNMENT and, except as the parties shall otherwise agree, shall complete the work within 24 months. Any extension of the time limit beyond this period on account of additional work required by the GOVERNMENT which will affect the overall estimated expenditure shall be made by mutual agreement

between the CONSULTANTS and the GOVERNMENT.

7. The CONSULTANTS shall submit the following reports and plans in English within the time periods indicated below:-

- (a) Progress Reports - at two months intervals giving details of work performed, areas currently under study and progress in respect of each area, and the CONSULTANTS' staff position during the period of the preceding month, and the Schedule of Work for the next reporting period.
- (b) Zonation Plan - within 6 months of the date of Notice to Proceed.
- (c) Perspective Plan - within 3 months of acceptance of the Zonation Plan.
- (d) Draft Master Plan - within 12 months of acceptance of the Perspective Plan.
- (e) Final Master Plan Report Draft - not later than 24 months from the date of Notice to Proceed.
- (f) The Final Report(s) - in printed form.

The number of copies of these various reports to be determined by the GOVERNMENT.

ARTICLE IV  
OBLIGATIONS OF THE GOVERNMENT

1. The GOVERNMENT shall pay the CONSULTANTS in respect of staff costs and fees for the services rendered under this Agreement an amount not exceeding £220,700 in Sterling currency and to pay the equivalent of an amount not exceeding <sup>1,363,249</sup>DKR 3,325,700 in Malaysian currency.\* The method of charging shall be as set out below:-

- (a) Staff costs shall be paid at the applicable rates set forth in Schedule C-1 calculated on the basis of the periods of time actually spent by the personnel of the CONSULTANTS, ~~their associates, specialist consulting firms~~

\* Conversion Rate M\$ 7.4 = £1  
M\$ 0.41 = DKR 1

~~and special individual consultants~~ in performing the services, including necessary travel time and, in respect of personnel serving in Malaysia for eight (8) months or longer, leave at the rate of one day per month of service and sick leave, if needed, at the same rate. In all cases where it shall be necessary to compute rates for work of less than one month (except for special individual consultants where daily rates are given in Schedule C-1) such computation shall be made on the basis of 1/30 of the applicable monthly rate for each day of service in Malaysia or travel time, and on the basis of 1/21 of the applicable monthly rate for each day of work at the CONSULTANTS' home office.

- (b) A professional fee at fixed amounts of £39,000 in Sterling currency and M\$121,360 in Malaysian currency shall be paid in eight instalments as further specified in the Schedule of Payments attached to Schedule E.
- (c) In the event of Special Studies set out in Schedule C-1 being undertaken by the CONSULTANTS in whole or in part with the agreement of GOVERNMENT, an additional professional fee shall be paid pro rata to the foreign cost element of the work undertaken and completed, provided that the total fee so payable shall not exceed £3,255 and M\$ 15,949.

2. The GOVERNMENT shall in addition meet on a reimbursable basis such other expenditures as are necessary and justifiable for the execution of the project including such expenditure as may be borne by the State Government of Sarawak.

- (a) Cost of economy-class transportation of the personnel of the CONSULTANTS by the most direct route to and from the CONSULTANTS' home office or other normal duty station of such personnel;

- (b) Cost of economy class transportation by the most direct route for one round trip of the wives and children under the age of 18 of members of the CONSULTANTS' staff engaged on the project provided that their services in Malaysia require them to be away from their home office or other normal duty station for more than five months and that the wives' stay in Malaysia shall have been for not less than 60 consecutive days.
- (c) Cost of accommodation for all the CONSULTANTS' staff and families, and of hotel accommodation on arrival in Malaysia and for staff in transit on business, subject to the provision of Schedule C-2.
- (d) Other direct costs, including personnel preparatory costs (at specified rates) and the following:-
  - (i) The costs for the purchase and rental of equipment and supplies;
  - (ii) The costs for the shipment of personnel effects (at specified rates);
  - (iii) The costs of local transportation;
  - (iv) The costs of office supplies, postage and other like expenses; and
  - (v) The costs of Laboratory and Computer services.

3. The GOVERNMENT shall undertake:

- (a) to facilitate clearance through customs of and to exempt from the payment of customs duty and equipment, material and supplies required for the services and of any bona fide personal effects of the CONSULTANTS' personnel either accompanying or shipped within the first 4 months of arrival of such personnel but no exemption from customs duty will be permitted in respect of purchases made in Singapore and Penang;

- (b) to make arrangements for the CONSULTANTS' personnel and their families promptly to be provided with any necessary entry and exit visas; residence permits, exchange permits and travel documents required for their stay in Malaysia;
- (c) to facilitate the issue of all necessary permits and authorizations for the carrying out of the services;
- (d) to provide the CONSULTANTS free of charge with such data, local services, equipment and facilities as are necessary or useful for the conduct of the services. Schedule D sets out the local services equipment and facilities to be provided by the GOVERNMENT.
- (e) to arrange for the CONSULTANTS and their personnel recruited outside Malaysia to be exempt from Malaysian income tax and other taxes in respect of earnings and emoluments accruing from work done under this AGREEMENT. In case no arrangement is made for such exemption, any income tax levied on the said earnings and emoluments shall be reimbursed by the GOVERNMENT.

#### ARTICLE V

##### OWNERSHIP OF REPORT AND EQUIPMENT

1. Final version of reports submitted to the GOVERNMENT, and all relevant data such as maps, diagrams, plans, statistics and supporting materials compiled in performing the services, shall be the property of the GOVERNMENT. Such material shall be sorted and indexed by the CONSULTANTS prior to transmittal to the GOVERNMENT, and the CONSULTANTS shall be permitted to retain copies thereof; provided, however, that such material shall not be used by the CONSULTANTS for purposes unrelated to this AGREEMENT without the prior written approval of the GOVERNMENT.
2. (a) Equipment purchased for the study under this AGREEMENT and paid for in whole or in part with funds allocated by the GOVERNMENT shall be deemed to be the property of the GOVERNMENT.

(b) Upon completion of the services in Malaysia, such equipment shall be returned to the GOVERNMENT.

3. Except as the GOVERNMENT shall otherwise agree, all information which comes into the hands of the CONSULTANTS by reason of their work in connection with the performance of the duties in ARTICLE III shall be communicated only to the GOVERNMENT. Any confidential information relating to the operation of a company which comes to the knowledge of the CONSULTANTS shall only be made available to the GOVERNMENT in such a way that the particular company cannot be identified via such information, except in so far as the company concerned shall otherwise agree.

ARTICLE VI  
SUSPENSION: TERMINATION AND  
SETTLEMENT OF DISPUTES

1. In the event that performance of this AGREEMENT shall become impracticable as a result of force majeure or a major outbreak of violence, the CONSULTANTS shall immediately notify the GOVERNMENT of the fact whereupon the GOVERNMENT may terminate the AGREEMENT in the manner provided in paragraph 2 but shall pay such charges as are still outstanding at the time of the event.

2. (a) The GOVERNMENT may terminate the CONSULTANTS' services at any time by giving ninety days' notice.

(b) In the event of the GOVERNMENT terminating the services of the CONSULTANTS at any time the CONSULTANTS shall, on receipt of such notice of termination discontinue all work and shall discontinue making commitments for reimbursable items insofar as is practicable, and shall proceed to cancel all existing orders and terminate work under sub-contracts as promptly as is practicable. Upon termination, the CONSULTANTS shall accept the following undertakings by the GOVERNMENT as full and complete settlement of all their claims for payments under or arising out of this AGREEMENT:

(i) The GOVERNMENT shall assume and become liable for all reasonable obligations, commitments and liabilities that the CONSULTANTS in good faith, and in conformity with this AGREEMENT, may have undertaken or incurred for the performance of their services;

- (ii) The GOVERNMENT shall pay the CONSULTANTS all costs incurred in accordance with this AGREEMENT which have not previously been reimbursed;
- (iii) The GOVERNMENT shall reimburse the CONSULTANTS for all costs incurred after such termination as are required for the orderly cessation of work and for repatriation of the employees of the CONSULTANTS, their dependents and Special Consultants and for all other expenses reasonably incurred after their termination of this AGREEMENT;
- (iv) The GOVERNMENT shall pay the CONSULTANTS the total earned fee based upon the percentage of the work then completed, as agreed between the CONSULTANTS and the GOVERNMENT.

3. In the event that any employee of the CONSULTANTS is required by the GOVERNMENT to stay on after the completion of the ~~Feasibility~~ Study, the GOVERNMENT shall continue to pay the remuneration of such employee for the period of his extended stay in the country.

- 4.
- (a) If any dispute arising out of this AGREEMENT or in connection therewith which cannot be amicably settled, shall at the request of either party, be referred to an Arbitral Tribunal constituted in accordance with sub-paragraph (b).
  - (b) Each of the Parties to the dispute shall appoint a member of the Tribunal within a period of two (2) months from the date of receipt of request from the other party. The members so appointed shall agree on the choice of a Chairman for the Tribunal which shall sit in Kuala Lumpur.
  - (c) The decision of the Tribunal shall be by a majority vote, and shall be binding on the parties to the dispute. In all other respects the Tribunal shall determine its own rule of procedure.

ARTICLE VII

AUTHORISED REPRESENTATIVES: NOTICE AND REQUEST

1. Any action required or permitted to be taken, and any documents required or permitted to be executed under this AGREEMENT shall be taken or executed by the Project Manager or his designated representative on behalf of the CONSULTANTS.

2. Any notice or request required or permitted to be given or made in this AGREEMENT shall be in writing in the English language. Such notice or request shall be deemed to be duly given or made when it shall have been delivered by hand, mail or cable to the party to which it is required to be given or made at such party's address specified below, or at such other address as the party shall have specified in writing to the party giving such notice, or making such request.

For the GOVERNMENT:

Chief Secretary to the Government,  
Prime Minister's Department,  
(Economics),  
Kuala Lumpur.

Cable: ECONOMICS KUALALUMPUR

For the CONSULTANTS:

Hunting Technical Services Ltd.,  
Elstree Way,  
Boreham Wood,  
Hertfordshire,  
England.

Cable: HUNTECO BOREHAMWOOD

ARTICLE VIII

DATE OF COMMENCEMENT

1. This AGREEMENT shall be deemed to come into effect from the ..... and any payments which have been made by the GOVERNMENT to the CONSULTANTS on or after that date should be treated as having been made towards the costs and fees herein before mentioned.

2. IN WITNESS WHEREOF, the parties hereto, acting through their representatives thereunto duly authorized, have caused this AGREEMENT to be signed as of the day and year first above written.

Chief Secretary to the Government, Malaysia.

By .....

In the Presence of .....

Hunting Technical Services, Ltd.,

Hoff & overgaard

By .....

By .....

In the Presence of .....

In the Presence of .....

SCHEDULE 'A'

SCOPE OF WORK

Part I: Introduction

(a) General Strategy

1. It is the intention of the Governments to develop the region on similar lines to the Johor and Pahang Tenggara Regions of West Malaysia, modified as necessary to suit the socio-economic conditions of Sarawak and the physical conditions of the region itself.
2. Assuming that the necessary studies commence early in 1972 and are completed in 1974, major development could start in 1975, the last year of the Second Malaysia Plan, and continue throughout the Third Malaysia Plan.
3. Agricultural development will be the central initial theme of the development programme, but non-agricultural opportunities are to be encouraged and employment flexibility will be maintained through settlement patterns and arrangements with settlers and contract labourers. Once areas suitable for permanent agriculture have been selected, land will be developed to accommodate settlers, the majority of whom are expected to come from the First, Second and Third Divisions, at the same time safeguarding the legitimate interests of present farm communities in the region. Whereas rubber and oil palm will probably be the main crops in the areas to be developed, possibilities for crop diversification must be explored, and exploited fully.
4. Forest exploitation will be the second major activity, based on permanent forest reserves and timber cleared from land scheduled for future agricultural development. Processing of timber and agricultural products should be done within the region as much as possible, to form the basis of a future manufacturing industry. The establishment of other industries must follow whenever opportunities appear attractive. The availability of gas in the area could be an important factor in this respect. A planned development of a modern service sector must complement the basic development programme in the primary sector in order to establish viable communities.

5. Proper planning must assure that new townships and villages are attractive places to live in, and are supplied with modern amenities including clean water and electricity and adequate health and educational services. Transport planning will assure consistency with transportation needs and development throughout the state and will cover the systematic development of feeder roads and the construction of adequate port facilities. In regard to the latter, it will be necessary to improve lighterage facilities and to explore possible locations of one or more adequate coastal ports which can accommodate vessels and barges up to possibly 1,000 DWT. The possibility of developing a port of higher standards sometime in the future should also be explored carefully.
6. New settlers in the area will come from various racial communities and from different geographical areas. Settlement patterns will have to be flexible to accommodate the different groups of settlers and to assure that each group of settlers and each individual will make a positive contribution to a balanced and integrated development of the new areas.
  - (b) Areas of Emphasis
7. In line with the major emphasis on agriculture and forestry, at least initially, a first requirement is to develop a broad land use classification of the whole area: demarkating areas to be reserved for modern agriculture, traditional agriculture, permanent forest exploitation, conservation, mining and urban settlement. These delineations will be consistent with and will enhance the comprehensive long term development of the region. Also, size of individual holdings will need to change over time and this together with means for accommodating a flexible work force in the project area will be taken into account.
8. Basic information with respect to forestry for part of the area is already being collected by a UNDP/FAO team and restricted plans for forest industry development will be prepared independently by this same team and covering the limited area. Most of the region is covered already by a reconnaissance soil survey, and the un-surveyed areas will be similarly covered by the Department of Agriculture before the regional study commences.
9. Once broad zonation and perspective plans have been prepared, a semi-detailed master plan sufficient for 20 years requirements must be prepared for the settlement of about a quarter of a

million acres, to be supplemented by detailed project plans for shorter term sectoral activities in the form of investible packages for about 50,000 acres to be developed mainly during the Third Malaysia Plan. Much attention will have to be given to the selection of suitable crops aiming at a maximum diversification within the limits imposed by soils, climate and future markets.

10. Local processing of agricultural and forest products must be maximised and based on examination of present trade patterns, labour availabilities and manufacturing potentials, possibilities for introducing manufacturing, services and other economic activities must be fully explored, and some attention must be given to the possibility of introducing other industries not directly related to agriculture and forestry.

11. Soil surveying at various levels will be necessary within the master plan and agricultural project plan areas, and the soil mapping programme must be supplemented by terrain analysis, particularly for those areas where the amplitude of relief is low and the ground slope relatively high, giving rise to complex patterns of micro-relief which are very difficult, if not impossible, to distinguish from published maps or aerial photographs.

12. Transport planning will be required on all aspects of air, land and water communications for agricultural, forestry and industrial products. Townships and villages must be provided with an adequate supply of water and electricity and health and education facilities.

13. Settlers will come mainly from the First, Second and Third Divisions and belong to different racial communities with contrasting social and cultural backgrounds, occupational patterns and ways of life. Sociological studies related to problems of settlement have already been undertaken. The Government, through its counterpart staff, will provide data for the relevant population groups indicating age distribution by ethnic groups and geographical location. From the information provided by the counterpart staff of the Government and the above studies the consultants should ascertain which groups and individuals are likely candidates for settlement, how migration can be made attractive to various groups and individuals and under which conditions they should be settled. Settlement patterns may have to be quite flexible, encompassing settlements with emphasis on individuals through various

forms of cooperative settlements, community settlements and possibly public or private estates employing wage labourers.

14. Finally, the study will have to cover such aspects as overall phasing, financing, organisation and management, and training of specialists required in the area during the development period.

15. As previously indicated, the study will take about two years, sub-divided into two distinct phases of about one year each.

## Part II: Detailed Guidelines

### (a) Phase I

16. This phase of the study has several interrelated objectives. The consultants will prepare in the first phase a zonation plan, containing broad land use zoning proposals. The consultants will further prepare a long term perspective plan, containing in broad outline socio-economic development proposals for the region as a whole, over a 20 year period.

17. The consultants will locate about a quarter of a million acres most suitable for the development of settled agriculture and select about 50,000 acres in one or a few blocks for immediate development. These areas will be the subject of more detailed planning during Phase II of the study. Finally, the consultants will during Phase I collect information and study particular problems of development as a preparation for more detailed planning in Phase II. A particular problem of development to be studied in detail during Phase I is the social problem related to settlement and migration.

### Zonation Plan

18. This plan, which will include proposals for broad zonation of the region in future land use terms, will be based mainly on an analysis of all the available relevant physical and economic resource data, and will require a familiarisation by the Consultants staff with the present physical, economic and social conditions in the region, possible future land use needs and basic land resource capabilities. No substantial programmes of field survey should be necessary during this phase, except in so far as these might assist the completion of Phase II. This is because reconnaissance soil survey data will be available for the whole area and a forest inventory for part of the area has been completed which if supplemented will provide sufficient information for general planning

purposes, while geological indication suggests that there are minimal mining potentials. A recently completed 1:50,000 topographic map cover and a total aerial photographic cover provide a wealth of detail which will afford an excellent opportunity for desk study sufficient to meet the needs of the zonation plan.

#### Perspective Plan

19. Based on 20 year projected development of the main sectoral activities, primarily agriculture and forestry, and processing industries directly related to these activities, but including other economic activities as well, the consultants will, in broad outline, project the structure of a balanced economy and society, including in general, commerce and other tertiary activities and services. The projections, will, in order of magnitude, indicate the contribution to national income by sector and include estimates of the population in the area, by occupation and level of skill, as is consistent with the broad economic projections.

20. The consultants will discuss policies required to support a development as projected over a 20 year period with particular attention to:-

(1) Manpower: The consultants will compare the requirements for particular skills in broad groups and levels, indicated by the projected occupational structure with the characteristics of the likely settler population. The consultants will estimate, in the light of this comparison, requirements for general and specialised education and training within the Development Region and in Sarawak as a whole, and the possible need to supplement temporarily skills not sufficiently available in Sarawak by imported skills. The consultants will detail the labour requirements in different activities at different periods of the development plan and will provide for the necessary movement of labour resources among locations and activities so as to reduce possibilities of serious unemployment or underemployment in the project area.

(2) Financing: The consultants will, in order of magnitude, estimate the overall financing requirements over the 20 year period, the generation of funds to be supplied from outside the area by official and private sources and relate these requirements to global macro-economic projections of the supply of funds in Sarawak and Malaysia over the same period.

(3) Exports and Imports: The Consultants will estimate, in orders of magnitude, export proceeds, import requirements and

import savings consistent with the overall structure of the economy as projected.

(4) Settlement pattern and infrastructural requirements: The consultants will, in broad outline, suggest a settlement pattern, covering urban, semi-urban and rural settlements, as is consistent with the overall structure of the economy. The consultants will discuss the demand for and possible sources of supply of power, water and sewage systems and the need for educational, health and other public facilities and will prepare a phased investment plan for these facilities.

(5) Transport: The consultants will project future air, land and water transport requirements, internal and external, consistent with overall development. The consultants will prepare a schedule of phased additions and improvements to the existing facilities based on present and expected costs of investment and operation. The consultants will particularly investigate the possibilities with respect to port construction in or near the Region and recommend a phased programme of construction of port facilities designed to meet the demand for transport at reasonable cost.

The consultants will review all information regarding possible port construction available from official and private agencies (Sarawak Shell Berhad) and, where necessary, guide and assist in further survey work. If necessary, model studies should be undertaken on a modest scale in order to facilitate the formulation of concrete projects in the second phase of the study.

(6) Administration and Organisation: The Government will provide the consultants with all relevant information on the existing framework of public administration, responsibilities, functions and interrelationships of public, semi-public and other institutions.

The consultants will also be provided with a framework of future public administration considered suitable by government for implementing the master plan to be prepared in Phase II. The consultants will advise on such modifications of details of this framework as are considered desirable in the light of local conditions.

(7) Social aspects related to settlement: Existing survey information from the first, second and third divisions

and additional information provided by the government (cfr. para 13) will be used to determine how many people of various background and categories will or can be attracted to settle in the new area as farmers or in other occupations. The studies should assist in designing realistic policies with respect to recruitment and transfer of settlers, possible training programmes, and type of settlement and communities to be planned in the new area in order to achieve an orderly establishment of a harmonious, integrated society in the new area. The surveys will pay some attention to possible repercussions, or desirable adjustments to emigrant areas.

Sociological studies (and surveys) of a somewhat different nature are required in the development area in order to design policies which will guarantee satisfactory integration of the existing population in the area and the neighbouring Ulu Baram in the new society to be developed, recognising the legitimate interests of the existing population.

(b) Phase II

21. Based on the results of Phase I of the study, an area or areas suitable for settled agriculture as required over the 20 year perspective plan period (provisionally estimated at about a quarter of a million acres), will be selected for which the consultants will prepare a semi-detailed master plan. This semi-detailed plan will cover such aspects as schedule of development, possible crops, exploitation systems, settlement pattern including related infra-structural and service facilities needs and the transport network, all related to the overall development of the region, as envisaged in the perspective plan. Maps illustrating this semi-detailed plan will generally be on a scale of 1:50,000. || 9  
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22. Out of the quarter million acres, the consultants will select areas to provide agricultural development of a net area of about 50,000 acres located as far as possible on unencumbered State land, and which will be developed over the first five or six years of the master plan period. Within the 50,000 acres of land allocated to agricultural development, in one or more blocks, which must be of economic size, the consultants will prepare a detailed project plan covering all sectors, activities and institutional aspects.

23. The details of the project plan must be sufficient to provide concrete guidance for immediate implementation and to facilitate orderly development under the existing planning and

budget procedures of the Federal and State Governments. Suitable projects or project packages must be prepared up to internationally accepted standards so as to permit an evaluation of their economic justification. The plan must include specific recommendations regarding institutional arrangements necessary to guarantee that the private sector will play the role which has been allocated to it.

If industrial projects outside the agro-industry are identified the consultants will discuss with the government the desirability of additional feasibility studies being carried out and the necessary staff requirements provided from contingency services in connection therewith.

24. The following subjects will be studied during this phase of the study with varying degree of detail as determined by the different nature of the two plans:-

(1) Soils and Topography: The object of these studies is to determine the pattern of soils and terrain characteristics within the semi-detailed master plan and agricultural project plan areas in sufficient detail to justify the Phase II plans. The level of work required differs in the two areas:-

(a) Semi-detailed Master Plan area

It is anticipated that most of the area will have complete reconnaissance-level soil survey coverage prior to the start of the project. Topographic maps and aerial photograph coverage will also be available. A Terrain Classification should be prepared, based on these sources and further ground investigation. This classification should be devised following discussions with the Soil Survey Division, Department of Agriculture and should employ gradient limits common to the Soil Suitability Classification (see below).

Special attention should be given to the problem of distinguishing areas under cover which have low amplitude of relief but are deeply gullied. Due to the canopy such areas are difficult to recognise by conventional aerial photograph interpretation techniques and must be investigated by ground traverses. Subject to the availability of alternative suitable land, such areas should be excluded from the master

plan. Soil survey within the master plan area should be confined to (i) broad transects and sample area studies with a view to familiarising the soils specialists with the characteristics of the area and (ii) limited formal reconnaissance-level survey to supplement the available data with a view to the preparation of the semi-detailed master plan, and the location of the detailed projects plan area.

(b) Detailed Projects Plan Area

The consultants will prepare a semi-detailed soil map from which a soil suitability map will be derived. The semi-detailed soil survey will cover the entire 50,000 acres and will be conducted on a grid-sampling programme. The minimum soil sampling density will be 600 x 75 metres in upland areas where topographic maps will assist in interpolation of soil boundaries and 400 x 75 metres in floodplain areas where boundaries must be interpolated largely on the basis of the sampling data. The soil classification used shall be that developed by the Soil Survey Division, Department of Agriculture, and the soils should be mapped at the level of families or series, compound mappings units being avoided wherever possible. Phase distinctions of agricultural significance should be mapped where the scale allows. Close liaison will be maintained with the senior staff of the Soil Survey Division during the course of these duties. The Department of Agriculture will provide correlation services and will make available all relevant records, reports and maps prepared previously for this region and surrounding areas. The Soil Suitability Map, which will be a re-interpretation from the basic soil and terrain classification data, will be guided as far as practicable by the classification recently standardised for Malaysia, details of which will also be provided by the Soil Survey Division.

It is expected that sufficient soil and other pertinent information will be available before the commencement of the study for the consultants to identify the detailed projects plan area (or areas) in the early stages of the Phase studies, thus permitting the commencement of semi-detailed soil survey within the area before the start of Phase II.

Implementation of development plans within the detailed projects plan area is phased to follow immediately on from the Phase II study. In locating the 50,000 acres, the consultants should avoid the inclusion of large tracts of floodplain land if the development of such land can only take place following lengthy drainage investigations subsequent to Phase II. If such land is included in the detailed projects plan area then appropriate drainage studies and recommendations must be included in the Phase II investigations.

The detailed projects plan is based on the immediate development of 50,000 acres. Terrain and soils in much of the study area are known to be varied. The consultants must anticipate that semi-detailed soil survey in excess of 50,000 acres will be necessary to achieve this amount of developable land.

(2) Agriculture (agronomic and agricultural economic): These studies will be designed to evaluate the crop or crops most suited, in both agronomic and economic terms, to particular areas within the master plan and project plan areas. They will include a consideration of the possibilities for new economic crops as well as expanding those crops such as rubber, oil palm, coconuts and pepper which are already established in the region. Animal husbandry, particularly the possibility of cattle rearing should be covered, as should freshwater fisheries on both a commercial and smallholders scale.

Consideration should be given to the possible introduction of drainage and irrigation facilities within the semi-detailed master plan area. In particular the possibility of developing alluvial soils along the rivers in conjunction with the neighbouring high land may require particular attention in this context.

Relevant aspects of marketing and production economics, jointly with more general economic aspects such as desirable income levels, must be combined with agronomic aspects in the evaluation and selection of crops, cropping patterns, farm size and farm organisation.

(3) Forestry:- An inventory survey of the potential forest resources in 2 units covering an area of 604,000 acres is being completed by the UNDP/FAO team and the Forest Department, as

well as pre-investment studies for the establishment of timber industries and necessary infrastructures for the evacuation of timber products internally and externally. Accordingly plans will have been formulated for forest management and the development of timber industries in the region. The UNDP/FAO team will provide plans for the exploitation and management of the forests outside their inventory areas, by adapting plans and programmes drawn up for those inventory areas, to the requirements of the inventory carried out by the consultants. Particular attention should be given to the zonation between forestry and other land use and to the phasing of forest exploitation with land development in the semi-detailed master plan.

In this connection it will be necessary for the consultants to liaise closely with the Forest Department and the UNDP/FAO Project personnel, the latter being available till August 1973, from whom data and plans relating to forestry development are to be obtained.

(4) Mining: Geological data for the region indicate that metalliferous mineral exploitation possibilities are very limited, and no additional geological surveys or mineral prospection exercises are warranted in view of the fact that conflicts in land use allocation likely to arise from this cause are minimal.

In recent years useful roadstone sources have been identified in close proximity to the new Miri-Bintulu highway, while hydrological conditions are not encouraging in terms of underground water supply prospects, so that no significant input of geological expertise is necessary to meet the objectives of the regional study. Technical advice on these matters can be provided by staff of the Geological Survey when required by the Consultants.

(5) Water Resources and Hydrology: The consultants will assess the long term requirements of water for urban, industrial and agricultural use, locate the possible sources of water supply and propose a phased schedule of investments. Detailed projects will be prepared for facilities required during the first 6 years of development with due regard to costs and longer term developments.

The possible changes in the regime and discharges of rivers and their consequences as a result of use of water for various purposes, of discharge of waste water and of development activities in general including resulting ecological and environmental changes, will be studied. Necessary water management or conservancy measures

should be indicated, whenever flooding, silting and pollution in the lower reaches of the rivers are expected to increase beyond acceptable limits. Due weight must be given to the transport function of the rivers in this context.

(6) Industry, Commerce and Services: The consultants will make detailed projections of the developments in these sectors over the first six years as determined, directly or indirectly, by the developments in the primary sectors or as justified, possible and desirable as autonomous activities, provision for which should be covered as mentioned at the end of para 23.

The consultants will discuss the role of the private sector in these activities and suggest, with necessary details of organisation, manpower and financing, any supporting activities which may be desirable in the public sector. The consultants will moreover discuss additions to or changes in existing policies as may be desirable.

Direct public participation in these areas of activity must be developed in detail as projects.

(7) Settlement Pattern and Infrastructural Facilities: The consultants will recommend suitable settlement patterns for new townships and villages or expansions to existing towns and villages.

The consultants will determine the requirement of power, water and sewage, select the most economic methods of supply and prepare projects where necessary. The consultants will further determine the requirements of social services such as health and educational facilities for each township and village.

(8) Transport: The consultants will prepare transport projects, whether they are port facilities, waterways, main roads, rural roads or other facilities, as required over the first six years of development. The consultants will estimate the requirements for transport equipment and prepare suitable projects whenever public transport operations are recommended.

(9) Manpower: The consultants will prepare detailed manpower projections for the first six years for the public and private sector and compare these projections with characteristics of the settlers.

The consultants will recommend suitable short term programmes of training and recruitment as may be necessary to overcome temporary shortages of manpower of particular levels and skills.

(10) Financing: The consultants will prepare detailed funding requirements for the six year period, for the public and the private sector. The consultants will suggest a feasible financial programme to meet the funding requirements.

(11) Administration and Organisation: In the light of information provided by the government to the consultants the latter will recommend suitable institutional arrangements necessary to implement the first six years of the development programme within the context of the longer term Master Plan. Institutional arrangements will cover the whole field between farmers associations or co-operatives to the general framework within which the Governments must implement the programme and must guide the different groups and sectors in a joint effort of harmonious development.

The consultants will pay particular attention to the institutional arrangements regarding the transfer to and settlement on the area of people of different origin and background.

Part III: Administrative Aspects of the Study

(a) Submission of Proposals

25. The Terms of Reference and the Scope of Work included in this document will be the basis of a contractual agreement with the consultant firm(s) selected to execute the study. Proposals submitted by invited consultant firms should be consistent with these requirements, although the Governments will give careful consideration to adjustments or amendments proposed by consultants, provided such suggestions are explicit and properly substantiated.

26. Consultant firms submitting proposals are expected to provide a detailed schedule of work, phasing the component parts of the study to the production times of the interim and final reports, and are expected to submit a detailed list of qualified and experienced personnel to be assigned to the study. It is estimated that the study will require about 300 man months time of specialist personnel expended over a period of about two years, possibly distributed as follows:-

<u>Agriculture</u> , including soil science, agronomy, agricultural economics and forestry.	30%
<u>Physical infrastructure</u> , including town planning, transport, marine and water engineering.	30%
<u>Socio-economics</u> , including sociology, regional and transport economics.	30%
<u>Other disciplines</u> , including special consultants and principals.	10%

(b) Co-ordination and Logistics

27. The study will be sponsored jointly by the Federal Government of Malaysia and the State Government of Sarawak. The two Governments will set up a joint Steering Committee to which the Consultants will be responsible and which will facilitate co-ordination between the Consultants and all Government Agencies. The Office of the State Financial Secretary will act as Secretariat to the Steering Committee.

28. The Consultants will set up headquarters in Miri, the capital of the Fourth Division, where adequate facilities are available both for work and living. To facilitate field work in

the development area, the State Government will make simple facilities available in Bintulu or elsewhere as necessary. The State Government will also make some office space available in Kuching to accommodate consultants when visiting the State Capital. The State Government will further appoint a co-ordinator in Kuching to facilitate contacts with Federal and State agencies and a liaison officer in Miri, to facilitate day by day contacts with government agencies in the Fourth Division and to assist in general administrative matters.

(c) Reports

29. The results of Phase I of the study will be submitted to the Steering Committee in two substantive reports. One report will contain the Zonation Plan and can probably be submitted after about 6 months and the other report will contain the Perspective Plan, to be submitted at the end of Phase I. These reports will be reviewed and discussed within the Governments and between the Governments and the Consultants. The Government will then give the necessary approvals and directives as required for more detailed planning in Phase II such as, for example, regarding the selection of areas to be included in the Master Plan and the detailed Projects Plan.

30. The Master Plan report and the detailed Projects Plan report will be submitted at the end of Phase II in one or more documents as required. The Consultants are expected to schedule the work in a way which will permit the Government to review and discuss drafts of these reports in time for inclusion of pertinent observations and decisions in the official final reports.

SCHEDULE C-1

CONSULTANTS STAFF COSTS AND FEES

SUMMARY OF ESTIMATES

	H.T.S. £	H & O M\$	Total in M\$
Cost of Project Staff			
- List A	141,480	996,633	2,043,585
Cost of Project Supervision			
- List B	10,930	85,904	166,786
Cost of Special Individual Consultants - List C	10,850		80,300
	<u>163,260</u>	<u>1,082,537</u>	<u>2,290,671</u>
Professional Fee			
- Fixed amounts	39,000	121,360	409,960
Total	<u>202,260</u>	<u>1,203,897</u>	<u>2,700,631</u>
Cost of Special Studies: (a)			
Project Staff	15,185	143,503	255,872
Professional Fee	3,255	15,949	40,036
	<u>18,440</u>	<u>159,452</u>	<u>295,908</u>
Total Staff Costs and Fees	<u>£220,700</u>	M\$ <u>1,363,349</u>	<u>\$ 2,996,539</u>

(a) As required and directed to proceed by the Government.

£ Conversion rate \$7.4

Position and Names	Months of Service		Rate per Month		Total Cost
	Malaysia	Home Office	Malaysia	Home Office	
	£	M\$	£	M\$	

List A: Project Staff

1. Project Manager: C.J. Mathiesen	24		10,729		257,496
2. Senior Agriculturist and Deputy Project Manager: M.H. Cooper	24		1,260	30,240	
3. Survey and Report Co-ordinator: R. Tucker	25		680	17,000	
4. Senior Land Classifier: M.L.A. Ysselmuiden	19		1,185	22,515	
5. Land Classifier: R.D. Law	12		825	9,900	
6. Agricultural Economist: F.A. Sole	24		900	21,600	
7. Fisheries Specialist: R.A. Harrison	3		785	2,355	
8. Forest Inventory: F. Walker	6		1,390	8,340	
/Utilisation					
9. Regional Planner: S. Jorgensen	15		8,564	128,460	
10. General Economist I: M. Iuul	12		7,810	93,720	
11. General Economist II: U. Bundgaard - Jorgensen	12		7,810	93,720	
12. Transport Planner: T. Wetleland/J.B. Moller	12		9,154	109,848	
13. Physical Planner: L. Skule	6		9,548	57,288	
14. Financial Analyst:*	9		10,221	91,989	
15. Sociologist:*	10		10,213	102,130	
16. Hydrologist:*	5		670	3,350	
17. Drainage Engineer: S.K. Vipond	6		810	4,860	
18. Public Utility Engineer: R.H. Hewes	2		8,509	17,018	
19. Agric. Extension/Credit: T.V. Andersen	4		11,291	45,164	
20. Administrative Manager: H.A. Rancorn	26		820	21,320	
	256			141,480	996,633
				£	M\$

\* To be nominated and agreed.

Position and Names	Months of Service		Rate per Month		Total Cost	
	Home	Total	Malaysia	Home Office	£	M\$
	Malaysia	Office	£	M\$	£	M\$
21. Director and General Manager HTS: V.C. Robertson	1½	1½	1,390		2,085	
21. Director and Area Manager HTS: R.J. Spooner	3	4	1,390	1,200	5,370	
22. Scientific Advisor: T.N. Jewitt	1½	1½	1,390		2,085	
23. Senior Engineer: J. Holt	1	1	1,390		1,390	
24.						
25.						
26.						
27.						
28.						
	7	9			10,930	
		16				85,904
	3	3	1,130		3,390	
	4	4	1,170		4,680	
	2	2	1,390		2,780	
	9	9			10,850	

List B: Project Supervision

- 21. Director and General Manager HTS:  
V.C. Robertson
- 21. Director and Area Manager HTS:  
R.J. Spooner
- 22. Scientific Advisor: T.N. Jewitt
- 23. Senior Engineer: J. Holt

List C: Special Individual Consultants

- C.1 Sociologist: H.F. Morris
- C.2 Agricultural Planner: J.V. Harbord
- C.3 Livestock Specialist: W.E. Bowden

	In Malaysia Months	Rate per Month		Total Cost	
		£	M\$	£	M\$
D.1 Land Classifier I:	3	825		2,475	
D.2 " " II/Irrigation Agronomist	4	650		2,600	
D.3 Hydrologist	4	670		2,680	
D.4 Ecologist I	1	1,330		1,330	
D.5 " " II	1		8,007		8,007
D.6 Senior Port Engineer	2		11,291		22,582
D.7 Junior Port Engineer	1		6,642		6,642
D8-16 Specialist Reserve	17			6,100	106,272
	33			15,185	143,503

SCHEDULE C-2  
ESTIMATE OF DIRECTLY REIMBURSABLE COSTS  
SUMMARY

A. <u>Project Costs</u>	\$
1. International Travel Expenses	365,000
2. Accommodation Costs	239,000
3. Other Direct Charges	1,122,000
	<u>1,726,000</u>
Less: Residual Value of Transport and Equipment	159,000
Net Project Costs	<u>1,567,000</u>
B. <u>Special Studies</u>	
4. Land Classification Extension	24,000
5. Forest Inventory	232,000
6. Hydrological Network	81,000
7. Port Investigation	-
8. Laboratory Analysis	165,000
	<u>502,000</u>
Less: Residual Value of Transport and Equipment	44,000
Net Special Studies Costs	<u>\$ 458,000</u>
Total Directly Reimbursable Costs	
Residual Value of Transport and Equipment	2,228,000
	<u>203,000</u>
Total Net Reimbursable Costs	<u>\$2,025,000</u>

Direct costs expressed here in Malaysian Dollars are based on the current rate of exchange obtaining at the time of signing the Agreement. Should the exchange rate change subsequently, certain items may be subject to adjustment.

Virement of financial provision between and within main heads of expenditure is permissible.

ESTIMATE OF DIRECTLY REIMBURSABLE COSTS

\$

7. International Travel Expenses

Including cost of economy class air fares for Principals, Staff and dependents, and personal baggage expenses.

(a) Air Fares

Single air fares <u>London/Miri</u> <u>Copenhagen</u>	307,500
Estimated 167 trips at \$1841 London/Copenhagen liaison: 12 visits at \$620	<u>7,000</u> 314,500

(b) Baggage expenses

Married personnel with families - over 6 months - return allowance	\$2,500
Other personnel - over 6 months "	\$1,250
Other personnel - under 6 months "	\$ 750
Short term specialists and supervisory staff	<u>\$ 600</u>
<u>Total Allowances*</u>	<u>50,500</u>
<u>Total International Travel</u>	<u>\$365,000</u>

\*(a) Inclusive of contingency  
(b) " " "

\$ 40,000  
6,000

2. Accommodation Costs

Provision or rent of houses or apartments in Miri and Kuching based on the following inclusive cost per month for furnished accommodation including air conditioning, cooker, water heater and refrigerator:-

Married with children	\$625 p.m.
Married	\$500 p.m.
Single	\$400 p.m.

(a) Rented Accommodation

203 months at \$ 625 p.m.	126,875
66 " " \$ 500 p.m.	33,000
16 " " \$ 400 p.m.	6,400
Total Rented Accommodation	<u>166,275</u>

(b) Hotels and per diem allowances

Short-term supervision staff and specialists 1138 days at \$40 p.d. 45,520

Per diem allowances for staff on arrival and/or departure for 4 days in total

Married with children	\$ 50-60 p.d.
Married	\$ 45 p.d.
Single	\$ 40 p.d.

Allow	3,500
Visits: Kuching 350 days @ \$40 p.d.	14,000
Kuala Lumpur 50 days @ \$40 p.d.	2,000
Bintulu 200 days @ \$40 p.d.	8,000

Total Hotels and per diem allowances 73,000

Total Accommodation Costs \$ 239,000

3. Other Direct Charges

(a) Purchase or Rental of Equipment and Supplies

(i) Camp and Field Equipment	30,000
(ii) Office Furniture and Equipment	47,000
(iii) Construction of Base Camps	12,000
(iv) Consumable and Expendable Stores	5,000

Total Equipment and Supplies \$ 94,000

(b) Personnel Preparatory Costs

Inclusive Mobilisation charges for staff posted 6 months or more

15 x \$ 730 \$ 11,000

(c) Local Transportation

(i) Provision and Running Costs of Motor Transport and Boats	259,000
(ii) Hire of Aircraft	20,000
(iii) Local travel costs	42,000

\$321,000

(d) Office Supplies, Postage & other Local Expenses

(i) Running Costs of Offices and Services	321,000
(ii) Office Accommodation	52,000
(iii) Professional, Technical and Field Malaysian Staff	96,000
(iv) Field work expenses	170,000
(v) Report Production	12,000

Total Office Supplies and Local Expenses \$651,000

(e) Specialist Services

(i) Laboratory Services	20,000*
(ii) Computer Services	25,000

Total Specialist Services \$ 45,000

Total Other Direct Charges \$1,122,000

Total Reimbursable Expenses 1,726,000

Less Residual Value of Transport Equipment 159,000

Net Reimbursable Expenses \$1,567,000

\* Financial provision to be met by the State Government of Sarawak.

B. Special Studies - as may be required

	\$
4. <u>Land Classification Expenses</u>	
(a) Accommodation Costs	4,000
(b) Transport hire	6,000
(c) Field Work Expenses	14,000
	<u>\$24,000</u>
5. <u>Forest Inventory</u>	
(a) Consultants Staff Costs and Fees	52,000
(b) Transport and Equipment	41,000
(c) Operating Costs	139,000
	<u>\$ 232,000</u>
Residual Value of Transport and Equipment	18,000
Net Reimbursable Costs	<u>\$ 214,000</u>
6. <u>Hydrological Network</u>	
(a) Consultants Staff Costs	730
(b) Accommodation Costs	6,000
(c) Transport and Equipment	52,700
(d) Technical Staff Costs	17,500
(e) Field Work expenses	2,500
(f) Computer Services	1,500
	<u>81,000</u>
Residual Value of Transport and Equipment	26,000
Net Reimbursable Costs	<u>\$55,000</u>
7. <u>Port Investigation</u>	
No financial provision made at this stage.	
8. <u>Laboratory Analysis</u>	
	<u>\$165,000</u>

SCHEDULE 'D'

SERVICES, EQUIPMENT AND PERSONNEL TO BE PROVIDED BY  
GOVERNMENT, IN ADDITION TO THE SERVICES  
COVERED IN THE ESTIMATE OF COSTS

1. 3 sets of panchromatic aerial photographs covering the area depicted in the map attached at the contact scale of 1:25,000.
2. 4 sets of uncontrolled mosaics at 1:25,000 scale prepared from the above aerial photography and covering the same area; and a further 4 sets reduced to a scale of either 1:63,360 or 1:100,000 as available.
3. Copies as may be required, and available, of maps covering the project area.
4. Water quality and silt load tests of water samples as may be required.
5. (a) Printing of maps, report diagrams, photographs and drawings in black and white or in colour, as may be required for incorporation in the perspective plan, detailed specific plans and the final report. Printing in this context is deemed to include any necessary photographic reductions, colour print processing and proof preparation; and preparation of plates.  
  
(b) Printing of reports associated with perspective plan and the detailed specific plans in such form and quantity as agreed with Government.

Provision has been included in the Estimate of Costs for materials and services required in the preparation of maps and reports to the pre-printing stage.

6. Such counterpart staff equipment, supplies and services as may conveniently be provided by Government

(a) Administration:

Project Liaison Officer (in Miri)

(b) Natural Resources:

Soil Surveyor for <sup>up to 16</sup>  $\beta$  months

(c) Socio Economics and Infrastructure

1 Sociologist

1 Economist

1 Town Planner

2 Town Planner Assistants

1 Highway Engineer

1 Hydrologist

1 Hydrological Assistant

1 Regional Planner from July 1972

(d) Agriculture

1 Agriculturist

(e) Organisation and Finance

Project Liaison Officer (Kuching)

1 Organisation and Management Officer

SCHEDULE E

PROCEDURES FOR PAYMENT

In accordance with normal practice, the GOVERNMENT will make arrangements to pay the CONSULTANTS as follows:-

I. Consultants Staff Costs and Fees

(a) Upon signature of the Agreement the GOVERNMENT shall deposit into an account in the names and orders of the CONSULTANTS, the sums of £7,725 and ~~M~~39,319 being the amounts shown in the schedule of deposits attached to this Schedule.

(b) Not later than 15 days after the end of each subsequent calendar month, except the last, during the performances of the services, the GOVERNMENT shall pay the CONSULTANTS the amounts for such month specified in the schedule of deposits attached hereto.

(c) Not later than 20 days after the end of such month and each subsequent calendar month, the GOVERNMENTS shall submit to the GOVERNMENT for its approval, the statement of foreign currency costs authorised under Article IV.1 and actually incurred to the end of such month, itemised as to purposes, amounts and currencies expended, and supported where appropriate by receipted invoices.

(d) The difference between the amounts of the statement approved by the GOVERNMENT in respect of foreign-currency costs for any month and the amounts paid in respect thereof for the same month pursuant to this schedule shall be added to or subtracted from the next payments scheduled in Schedule EI.

(e) In the event of major delay in the work of the CONSULTANT hereunder, it shall notify the GOVERNMENT. Payments pursuant to paragraph (a) above may then be suspended, in which case the CONSULTANTS shall prepare a modified Schedule of Payments, which shall take effect after approval by the GOVERNMENT, and payments under this section were taken to be resumed in accordance therewith.

(f) Payments for the final month shall be made only after the final statement submitted by the CONSULTANTS as provided in paragraph (a) above and identified as such shall have been approved by the GOVERNMENT, and the amount of such payments shall be subject to the maximum as established in Article IV. Any amounts as paid by the GOVERNMENT in accordance with this Schedule in excess of the charge actually approved by the GOVERNMENT shall be

reimbursed by the CONSULTANTS to the GOVERNMENT within 30 days after receipt by the CONSULTANTS of notice thereof.

(g) Payments for the final month, and the final instalments of the professional fee, shall be made only after the final statement submitted by the CONSULTANTS shall have been approved by the GOVERNMENT and the amount of such payments shall be subject to the maxima established in Article IV. However such final payments shall be made within 3 months of submission of the Final Master Plan by the CONSULTANTS or within 1 month after completion of the service, whichever, is the later, unless the GOVERNMENT shall within that period have notified the CONSULTANTS in writing of their objections to the Final Master Plan. Any amounts paid by the GOVERNMENT in accordance with this Schedule in excess of charges actually approved by the GOVERNMENT shall be reimbursed by the CONSULTANTS to the GOVERNMENT within 30 days after receipt by the CONSULTANTS of notice thereof.

## II. Directly Reimbursable Costs

(a) Upon signature by the GOVERNMENT of the Agreement, the GOVERNMENT will deposit into the account in the name and order of the CONSULTANT the sum of \$400,000 Malaysian dollars representing the estimate of the first month's requirements as set forth in the Schedule of Deposits (E - 2) attached to this Schedule.

(b) On the 10th day of each calendar month subsequent to the date of effectiveness of this Agreement and for the next twenty-four months the GOVERNMENT will deposit into such account the amount next set forth in such Schedule of Deposits, adjusted in accordance with paragraph (c) below.

(c) The CONSULTANTS may make withdrawals from such account as necessary to cover the expenditure authorised under Article IV.

2. Not later than 20 days after the end of the calendar month in which the CONSULTANTS commence work in Malaysia and of each calendar month thereafter until the month of termination of the Services in Malaysia, the CONSULTANTS shall submit to the GOVERNMENT as itemized statement of the charges incurred in the previous calendar month and, upon approval by the GOVERNMENT of the statement, the difference between such statement and the amount deposited in such account in respect of the same month will be added to or deducted from the amount which will be deposited in the subsequent month in accordance with paragraph (b) above.

(d) Upon completion of the Services in Malaysia, the CONSULTANTS shall promptly render a final accounting to the GOVERNMENT and upon settlement shall return any balance in such account to the GOVERNMENT.

(e) If at any time the amount credited to such account is insufficient for the efficient carrying out of the services, the GOVERNMENT will promptly make such additional deposit and shall agree to any appropriate modification of the Schedule of Deposits resulting therefrom.

SCHEDULE OF DEPOSITS - CONSULTANTS STAFF COSTS AND FEES  
*In Maldivian dollars*

Month	In £ Sterling			Total £	Costs as per Schedule E-1 M\$	Professional Fee M\$	Total M\$
	Costs as per Schedule E-1 £	Professional Fee £	Costs as per Schedule E-1 M\$				
1	7,725		39,319	7,725	39,319		39,319
2	8,035		49,220	8,035	49,220		49,220
3	9,685		47,478	9,685	47,478		47,478
4	7,730	5,000	56,621	12,730	56,621	15,170	71,791
5	9,620		67,363	9,620	67,363		67,363
6	8,230		56,621	8,230	56,621		56,621
7	6,455	5,000	67,896	11,455	67,896	15,170	83,060
8	9,235		49,220	9,235	49,220		49,220
9	6,455		36,203	6,455	36,203		36,203
10	7,730	5,000	45,059	12,730	45,059	15,170	60,229
11	5,670		55,771	5,670	55,771		55,771
12	5,670		61,623	5,670	61,623		61,623
13	7,060		41,000	12,060	41,000		45,100
14	5,670	5,000	45,100	5,670	45,100		36,900
15	4,845		36,900	4,845	36,900		56,170
16	5,655	5,000	41,000	10,655	41,000	15,170	49,200
17	7,045		49,200	7,045	49,200		49,200
18	5,655		49,200	5,655	49,200		64,370
19	9,345	5,000	33,456	14,345	33,456	15,170	33,456
20	6,205		28,823	6,205	28,823		28,823
21	5,860	5,000	29,233	5,860	29,233	15,170	44,403
22	4,860		18,491	9,860	18,491		18,491
23	3,660	4,000	10,703	3,660	10,703	15,183	25,886
24	5,160			9,160			
	163,260	39,000	1,082,537	202,260	1,082,537	121,373	1,203,910
Special Studies (a)	15,185	3,255	143,503	18,440	143,503	15,949	159,452
	178,445	42,255	1,226,040	220,700	1,226,040	137,309	1,363,349
			£			M\$	M\$

(a) As required

SCHEDULE E-2

SCHEDULE OF DEPOSITS FOR DIRECTLY REIMBURSABLE COSTS

<u>Month</u>	<u>No</u>	<u>Amount \$</u>
1	1	400,000
1	2	120,000
2	3	60,000
3	4	60,000
4	5	60,000
5	6	60,000
6	7	60,000
7	8	70,000
8	9	50,000
9	10	50,000
10	11	50,000
11	12	50,000
12	13	50,000
13	14	50,000
14	15	50,000
15	16	50,000
16	17	50,000
17	18	50,000
18	19	50,000
19	20	50,000
20	21	50,000
21	22	50,000
22	23	50,000
23	24	66,000
24	25	20,000

\$ 726,000

Special Study Costs  
(as required and approved)

\$502,000

