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# MIRI-BINTULU REGIONAL PLANNING STUDY

FOR

THE GOVERNMENT OF MALAYSIA

AND

THE STATE OF SARAWAK

## PROGRESS REPORT

No. 4

DECEMBER 1972

MIRI-BINTULU REGIONAL PLANNING STUDY  
 FOR THE  
 GOVERNMENT OF MALAYSIA & THE STATE OF SARAWAK  
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## INTRODUCTION

This report covers the period from the 1st October to the 7th December, 1972; a necessary extension of one week over the usual two monthly report period in order to allow the inclusion of comments on the Task Force meetings held at the end of November and beginning of December on Forestry and on Beef Production.

Outstanding events in the report period have been:-

- the submission of the Zonation Plan on the 15th October;
- a Steering Committee meeting on the 17th October followed on the 24th October by a discussion of the Zonation Plan Report and its recommendations;
- a briefing on the 18th October of the State Action Committee which was under the Chairmanship of the Chief Minister. The progress and the thinking of the Study Team was described by the Consultants;
- a meeting with EPU officials in Kuala Lumpur on the 21st October at which the Team's thinking, especially concerning development strategies, was discussed.

Considerable basic data from the Department of Statistics has been received during the period and this is now being processed. Several members of the Team have spent much of their time preparing working papers, among which are, "The Characteristics of the Study Area" and "Development Strategies", as part of the preparation of the Perspective Plan Report.

## PROJECT MANAGEMENT

### 1. Staffing - additional to Report No. 3.

	<u>Position and Name</u>	<u>Chargeable dates</u>
7.	R. A. J. Harrison, Fisheries Specialist	16.10.72 - 12.11.72
16.	R. Stowell, Hydrologist	to 9.11.72
19.	T. V. Andersen, Agricultural Extension/Credit	15.11.72 -
21.	V. C. Robertson, Managing Director HTS	22.11.72 and
		24.11.72 - 2.12.72
21.	R. J. Spooner, Director and Area Manager HTS	27-28.10.72
C.2	J. V. Harbord, Agricultural Planner	to 20.10.72
	Mr. Dennis Chua, Highway Engineer was attached to the Study on 4.11.72.	
	Mr. Arthur Goh, Assistant Town Planner was attached to the Study on 14.11.72.	

### 2. Administration and Finance

- a) Supplies and services - satisfactory
- b) The fifth and sixth Statements of Account were submitted on the due dates.

### 3. Schedule of Work

The programme of work for the next reporting period is as set out in the progress chart at cover.

### 4. Survey Maps and Reports

The negatives of the 1:50,000 scale maps have been reduced to 1:100,000 scale for the area recommended in the Zonation Plan for the commencement of soil surveys. As soon as the actual extent of the soil survey areas is determined the reduced maps will be cut and reassembled to form a new series of base maps. Work is in hand on preparing the topographic base map for the soil survey sample area at Sungai Karabungan.

The following addendum to Progress Report No. 3 Appendix I. Soil Conservation. Memorandum Based on Findings and Recommendations of Mr. H. W. Hudson, Special Consultant should be noted. On page 15, paragraph 3, lines 5 and 6, should read:-

"channel terraces on the gently sloping bottom slopes up to say 8 degrees," not 18 degrees.

The following information is for your information only. It is not intended to be used as a basis for any action. It is the property of the Government of India and should not be disseminated without the permission of the Government of India.

Trials discontinued on 20/10-70

### Soil Loss

35° A1	$15 \text{ kg} / 10 \text{ m}^2 = 15 \text{ tons} / \text{ha} = 6.07 \text{ tons} / \text{acre}$
A2	$5 \text{ kg} / 10 \text{ m}^2 = 5 \text{ " / " } = 2.02 \text{ " / "}$
26° B1	$23 \text{ kg} / 10 \text{ m}^2 = 23 \text{ " / " } = 9.31 \text{ " / "}$
B2	$73 \text{ kg} / 10 \text{ m}^2 = 73 \text{ " / " } = 29.15 \text{ " / "}$
21° C1	$4 \text{ kg} / 10 \text{ m}^2 = 4 \text{ " / " } = 1.62 \text{ " / "}$
C2	$5 \text{ kg} / 10 \text{ m}^2 = 5 \text{ " / " } = 2.02 \text{ " / "}$
33° D1	$4.5 \text{ kg} / 10 \text{ m}^2 = 4.5 \text{ " / " } = 1.82 \text{ " / "}$
31° D2	$107 \text{ kg} / 10 \text{ m}^2 = 107 \text{ " / " } = 43.32 \text{ " / "}$

## SECTION A: NATURAL RESOURCE STUDIES

### 1. Soils

#### Study of Soil Erosion

Resulting from discussions with Mr. N. W. Hudson, Special Consultant on Soil Conservation, who visited the Study Area during the later part of September, a number of erosion trials have been undertaken. These are as follows:-

- i) At Bukit Peninjau, Sarawak Oilpalm Berhad.
  - a) on a 35 degrees slope in oilpalm less than one year old; A1
  - b) on a 26 degrees slope in oilpalm less than one year old; A2
  - c) on a 21 degrees slope in oilpalm less than one year old. B1, B2
- ii) At the junction of the Miri-Bintulu and Batu Niah Roads.
  - a) on a 31 degrees slope in recently planted pepper. - C1, C2

At each site there are two replications, so a total of eight plots have been constructed. The object is to assess the erosion hazard on steep slopes in an effort to determine more accurately the upper limit suitable for agriculture under local conditions.

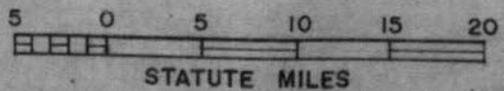
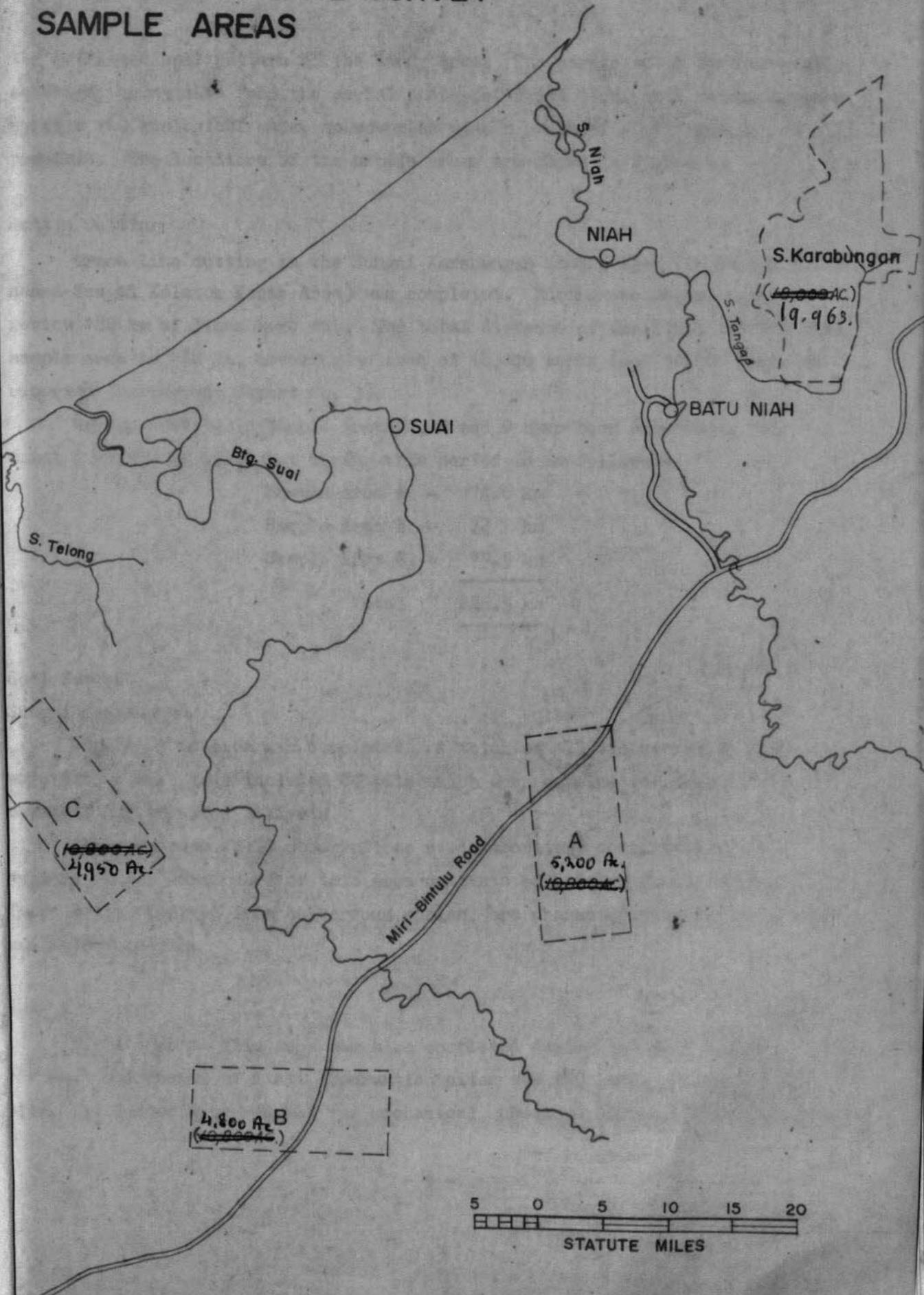
Four soil samples, for erodibility tests, were collected during the period under review and sent to the Department of Agricultural Engineering of the Asian Institute of Technology, Bangkok for testing. The samples were taken from the following soil families:-

- Bekenu family : two profiles
- Merit family : one profile.
- Nyalau family : one profile

#### Soil Survey of Sample Areas

In order to ensure correlation and standardisation of the soil survey methods of members of the Consultant Team and staff of the Soil Survey Division, Department of Agriculture, four soil survey sample areas were selected for study by the joint teams. Work is being done at a semi-detailed to detailed level. Carrying out this work together will also give the Soil Survey staff of the Study Team an opportunity to familiarise themselves with

# LOCATION OF SOIL SURVEY SAMPLE AREAS



the soils and soil pattern of the Study Area. The sample areas were carefully selected, using data from the aerial photo-interpretation, soil reconnaissance surveys and geological maps, to cover as wide a range of conditions as possible. The locations of the sample areas are shown in Figure 1.

#### Rentis Cutting

Trace line cutting in the Sungai Karabungan Sample Area (in Report No. 3 named Sungai Kelatok Kanan Area) was completed. During the period under review 182 km of lines were cut. The total distance of the lines cut for this sample area is 222 km, covering an area of 18,040 acres (not 16,000 acres as reported in Progress Report No. 3).

Rentis cutting in Sample Areas A, B and C have been completed. The total distance of lines cut during this period is as follows:-

Sample Area A	-	74.6 km
Sample Area B	-	72 km
Sample Area C	-	<u>79.9 km</u>
Total		<u>226.5 km</u>

#### Soil Survey

##### Sungai Karabungan

Work in this area was completed. A total of 1,354 observation sites were described. This included 24 pits which were sampled for mechanical, chemical and physical analysis.

Although some field observations need laboratory confirmation, it appears that a large part of this area consists of Kabuloh Family soils. These soils, derived from calcareous shales, are characteristically heavy and variable in depth.

##### Area A

Field work in this area was also completed during the period under review. The number of field observation sites was 280 bores and 12 profile pits, the latter were sampled for mechanical, chemical and physical analysis.

## 2. Agriculture and Livestock

The Senior Agriculturist has attended the two meetings with the Steering Committee, the briefing of the State Action Committee and the two Task Force meetings. Preparing for, travelling to and attending these meetings has occupied considerable time but it has been possible to combine the trips to Kuching with visits to specific organisations, institutions and farming areas in search of information and ideas relevant to the development of agriculture in the Study Area.

Two visits were made to Semongok Agricultural Research Station where discussions were held with the agronomists responsible for pepper, cocoa, rice, field crops, pasture and spices. The Semongok Agricultural Training Centre was visited to study the use of polythene bags for the collection of latex in smallholder rubber gardens. Other visits were made to Tarat Agricultural Station and Stapok Peat Research Station looking at field plots of spices, pasture, pepper and essential oil crops. A discussion was held with the Director of Agriculture concerning types of holdings in settlement schemes. A mill manufacturing animal feeds was visited and a discussion held with the manager on the possibility of using more locally produced ingredients in the preparation of the feed mixes. A day was spent in the densely farmed area, south-east of Kuching, where several mixed farming smallholdings were inspected.

Three days were spent in Kuala Lumpur attending the International Oil Palm Conference. While in West Malaysia the opportunity was taken to study at first hand the marketing, to large estate factories, of oil palm fresh fruit bunches produced by smallholders. Also studied was the organisation of the collection and processing, by the Malaysian Rubber Development Corporation, of latex and rubber sheets produced from smallholdings. It would appear that the collection systems and processing methods used by this Corporation together with the polythene bag latex collection method could be used in the Study Area to increase the tapping of numerous and often widely scattered existing rubber gardens.

Development possibilities for plantation forests were discussed with the UNDP/FAO Forestry Team and with the Silviculturist at the Forest Research

Institute, Kepong.

On the return journey from Kuala Lumpur a day's stop was made in Singapore in order to have discussions with the executive staff of a factory where solvent extraction of the active agent in spices and vegetable colouring is carried out and prepared for market in the form of oleoresins. The demand for this form of condiment and colouring material has been rising in recent years and there appears to be no easing of the demand. Sarawak is in an ideal position for supplying the market being created by this factory in Singapore.

In the Study Area field trips were made into the Native Customary Land and Titled Land areas near Bekenu and Beluru with the object of assessing their suitability for the organised growing of oil palm on smallholdings. Such plantings would be as extensions to the CDC and SLDB oil palm plantations. The land appears highly suitable and well worth further investigations. With this in mind enlarged copies of recent aerial photographs and contour maps have been obtained, from the Land and Survey Department, Kuching, of two areas between the CDC Estate and Bekenu. The object is to plan these areas in detail, not only as an exercise to develop planning methods which can be applied later to other areas but also because it is thought that such expansion of oil palm planting into these areas is a practical proposition and could be undertaken in the near future.

### 3. Agricultural Economics

The Consultant Agricultural Economist continued the studies of the market prospects and production economics of the possible crops and enterprises being considered for the Study Area.

Market and demand studies were completed for: animal feeds, feed constituents, poultry, eggs, pigs and bananas. Production economics were finished for oil palm.

A study has been started, with the cooperation of the Miri office of the Land and Survey Department, into the size and ownership pattern of titled agricultural holdings in the Study Area.

The Counterpart Agricultural Economist, besides assisting the Consultant, has been studying the marketing chain of pepper in the Fourth Division in order to obtain information upon which future development and marketing can be planned. He also continued the preparations for conducting a survey of sample farms in the Study Area. The original survey questionnaire has been revised and shortened. Test interviews with some padi and rubber farmers were carried out using the new form.

#### 4. Agricultural Extension and Credit

The work on Extension and Credit which includes related subjects like research, education, training, marketing and such organisations as co-operatives and Farmers Organisations was commenced in mid-October 1972. Mr. Andersen's initial term on the Study Term is for two months; in this time it is the intention to establish a present benchmark of development of the above institutions and to indicate possible future development policies from the point of view of future rural organisation. This work has been started at an early stage to allow for a period to examine alternatives and to form opinions. Mr. Andersen's next term is expected to fall late in 1973.

He has held meetings with the relevant authorities in Sarawak such as the Department of Agriculture, the Cooperative Development Department, the Sarawak Economic Development Corporation, the Sarawak Land Development Board, the Pepper Marketing Board in Kuching and with the branches of the respective authorities in Miri.

A working paper concerning methods of settlement has been written. Two types of settlement have been considered; the traditional method used in Malaysia, and an internationally popular method with integrated rural institutions. Other papers have been written giving the background for this work and cover the activities of the cooperative movement with emphasis on activities in Fourth Division as well as the activities under the existing subsidy schemes. Papers are now being written on the subjects of research, agricultural credit and some preliminary considerations on organisation of marketing. Mr. Andersen has participated in the preparation of a Working

paper on "Agricultural Development Strategies", which is still incomplete but will be presented to the Steering Committee at a later date.

## 5. Fisheries

The Consultant Fishery Specialist visited Sarawak for only a relatively short period but due to considerable cooperation from the officers of the Fishery Department and by numerous visits to their various stations and institutions in Sarawak, he was able to obtain a good appreciation of the potential for fresh water and brackish water fisheries in the Study Area. Off-shore fishing potential is not possible to gauge because comprehensive resource inventory is not available and the current fishery statistics for fish and crustacean landed appear highly inaccurate and do not indicate the size of the possible resources. Especially so since both the fish and crustacean populations are migratory.

The exposed nature of the coastline of the Study Area limits the extent of the brackish water to the relatively small estuaries of the rivers which are specially vulnerable to pollution and consequent destruction. The large rivers and ox-bow lakes are potentially rich sources of valuable local and introduced fresh water fish species. However, because of the high silt load carried by the rivers due to erosion following logging and poor agricultural methods together with the destructive poisoning of the water with tuber root extract and modern insecticides, these potentialities cannot be realised at the present stage of development in Sarawak.

Fresh water fish culture which requires little capital expenditure is a good proposition for immediate expansion; advisory officers are available, training facilities exist and there are good markets for several species of fish, turtles and fresh water prawns. Within the Study Area the abundance of suitable sites gives fresh water fish culture a high development potential.

The Consultant Fishery Specialist will rejoin the Study Team after the development areas have been identified. He will then be able to plan in detail proposals for integrating fresh water fish culture into the overall development scheme.

## 6. Forestry

At the Steering Committee meeting in which the Zonation Plan Report was discussed, a Task Force was set up to study the implications of certain forestry development proposals outlined in the Report. The Task Force met on the 1st December in Kuching. Two papers had been produced by the Consultants specifically for this meeting. One paper described, in greater detail than the Zonation Plan Report, alternative ways that various categories of forest land could be utilised. In particular it pointed out the great potential of possible forest development outside the existing Forest Reserves and Protected Forests. Also emphasised was the need for studies and possibly research into particular aspects of these possibilities. The other paper compared the economics of the alternative uses, agriculture or permanent natural forest, of a hypothetical area equally suitable for either use.

A full record of the meeting will be submitted to the Steering Committee by the Chairman of the Task Force so it need not be reported on at length here. However, of great importance to the Consultants was the clear agreement of the meeting that studies should be carried out to ascertain suitable ways of developing the huge areas of logged dipterocarp forest and Native Customary Land classified as unsuitable for agriculture in the Zonation Plan report.

## . Mining

The non-oil mining possibilities have been studied sufficiently for the present requirements, only the oil and gas industry is still not satisfactorily clarified. The lack of precise details on the present state and the future development activities of the Sarawak Shell Berhad is still of concern to the Consultants.

## . Water Resources

The Consultant Hydrologist has completed his analysis of the presently

available hydrological data.

The standard and automatic rain gauges ordered from West Malaysia have still not arrived but it has been possible to establish a meteorological station at the Kabuloh Agricultural Research Station where data recording has started. The hydrological field equipment obtained from the Drainage and Irrigation Department has enabled the construction of hydrological stations on the Liku, Sibuti and Niah rivers to be completed. Weekly collection of water level recording charts from these stations is now undertaken by the Counterpart Hydrologist who is in regular communication with the Consultant in England.

## SECTION B: POPULATION AND PRODUCTION

### 1. Population and Labour

During the report period the Department of Statistics, Kuala Lumpur, provided the Consultants with valuable data from the 1970 Census on the occupational structure of the labour force in the Study Area. These data have been processed and analysed in two different working papers: "Occupation Structure in the Study Area" and "Employment Multipliers".

1970 Census data was also supplied on the distribution of population by sex, age and community groups in the Study Area. These figures have been presented in a revised working paper: "Fourth Division - A Study of Population" extracts from which are included in a paper on the "Characteristics of the Study Area".

The two sets of data have been further analysed together in the working paper: "Planning Units - Key Population and Labour Figures".

### 2. Production and Trade

The numerical information for establishing an acceptable estimate of the Regional Product has been collected and the work on the regional accounts for the Study Area is complete. Information received from the Department of Statistics on production has been most valuable and largely used for this work. Where basic statistical data were non-existent provisory sample surveys carried out by the Consultants supplied the estimation basis.

### 3. Income and Consumption

The calculated sector income figures have shown the fundamental pattern of the economy in the Study Area. However, it is still not yet clear how the Gross Product is distributed between consumption and investment purposes.

To supply the necessary fundamentals for estimating the income/expenditure pattern a number of basic investigations have been carried out

and the following internal working papers have been written: "Opportunity Cost of Capital" covering investigations into capital costs; "Price Development 1967-1971" in which an effort has been made to establish a price index for the Study Area; "The Cost of Labour" which is an analysis of wage structure in the Study Area.

## SECTION C: TRANSPORT AND COMMUNICATIONS

### Transport Supply and Demand

The Transport Planner has been occupied during the report period mainly with data collection for an inventory of the present and future transport system in the Fourth Division. Two visits were made to Kuching where discussions were held with the Public Works Department, the Central Transport Authority, Kuching Port Authority, the Marine Department and the Department of Civil Aviation. Also a number of private shipping firms and road transport companies were visited. A trip was made to Marudi and discussions were held with the District Officer, the Resident Engineer of the Mechanical Road Construction Unit No. 12 and the local shipping companies. The collection of information is continuing.

The Counterpart Highway Engineer, Mr. Dennis Chua joined the Study Team in Miri on the 6th November. He has since then been mainly occupied with detailed processing of the data collected during the Origin-Destination Survey carried out during July. This detailed processing and checking of the data have required considerable more time than was at first estimated and the results will not be ready for presentation until the end of December at the earliest.

In answer to a questionnaire sent to the Sarawak Land Development Board (SLDB) enquiring about location problems connected with the milling and evacuation of palm oil from the Lambir-Subis Scheme, we have received a consultant's report on the truck transport costs for assumed alternative mill locations and evacuation routes. Truck transport, however, constitutes only a part of the overall problem and before any rational decision can be taken the alternative costs of the mill; the effluent treatment, bulking installations, water and power supply and other necessary installations and services have to be considered. Contact with the SLDB is being maintained for possible discussion on these aspects.

## SECTION D: SETTLEMENTS AND INSTITUTIONS

### 1. Public Finance and Administration

Work to determine the influence of the public sector on the regional economy has continued and the assessments of the primary data should be concluded in the first week of December. When the Government departmental revenue and expenditure figures have been processed, they are expected to give precise information on the public sector's economic influence. Most of the organisations approached have been most helpful in compiling and supplying relevant data and this cooperation has been greatly appreciated.

Two papers on the institutional organisation of the public sector have been completed and submitted to the client for approval and/or amendment. The papers: "Decision Making, Implementation and Financing of Development Proposals" and "General Administrative Organisation" will, after verification, form the basis for a critical analysis of the organisational structure.

### 2. Settlements and Infrastructure

The comprehensive working programme outlined by the Physical Planner is being followed up by Mr. Arthur Goh, who joined the Team as a Town Planning Assistant in the middle of November. Work on housing and the supply of private and public services in the Study Area is now in progress.

### 3. Sociological Aspects

The Sociologists have completed the survey of the Lambir Land Development Scheme settler population and have summarised their findings and analyses in a draft report from which they are now preparing a final working paper. Studies are underway on a Kedayan community, on a Chinese smallholder area and on a medium-sized bazaar. A working paper, "The Human Factor in Development" is nearly completed and will be submitted soon to the Steering Committee for discussion.

#### 4. Regional Structure

A draft working paper on "Development Possibilities of the Study Area" has been discussed and is being revised. The outcome will be a working paper on "Development Strategies", which will have the following main headings:-

Summary and Recommendations;

Perspective Planning;

Development Strategies;

The Study Area and its Delineation into Planning Units;

Development Potentials of the Planning Units.

Within the Regional Planning Section, work has also been done on the land use and land tenure situation in the Study Area. Part of this work will be included in the "Characteristics of the Study Area" working paper.

# PLAN OF OPERATIONS & MONTHLY PROGRESS CHART

## MIRI - BINTULU REGIONAL PLANNING STUDY

STUDY HEAD	1972												1973			
	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	
SOILS		APR. PRODUCE AREA ± 5.3 MILLION ACRES FIELD OBSERVATION			MAPPING	REPORT	RENTS REVENUE	CUTTING								
MINERALS				DATA COLLECTION			FORECASTS COSTS & REVENUE	REPORT								
AGRICULTURE	INVESTIGATE EXISTING	EVALUATE POSSIBLE	AGRICULTURE	GROUP	INVESTIGATION	PROJECTS				SELECT DEVELOPMENT PROGRAMS FOR DIFFERENT ENTERPRISES						
	COLLECT DEMAND	STUDIES	COSTS & PRICES	PROJECT	BUDGETS & FINANCE	PROPOSALS				PERIODIC PLAN PROPOSALS						
										STUDY OF INSTITUTIONAL POLICIES						
FISHERIES							INITIAL FISHERY INVENTORY									
FORESTS	LIASON API SELECTED	UNDP/FAO FORESTS	MAPPING	LIASON IBM	FOREST PROPOSALS					EVALUATION OF FORESTRY POTENTIAL IN UPRLAND NATIVE CUSTOMARY LAND UNSUITABLE FOR AGRICULTURE						
HYDROLOGY		COLLECT HYDROLOGICAL DATA	ANALYSIS	ESTABLISHMENT OF GAUGING STATION	HYDRO & WATER CATCHMENT AREAS					COLLECTION AND DATA REDUCTION	PROJECT HYDROLOGICAL STATIONS					
FINANCING														FINANCIAL ANALYSES		
REGIONAL ECONOMIC MODEL				MODEL CONSTRUCTION			OPTIMIZATION & MODEL WORK									
POPULATION & LABOUR		DATA COLLECTION & ANALYSES		FORECASTS REPORT			REPORT			MANPOWER	TRAINING	ANALYSES				
PRODUCTION & TRADE			DATA COLLECTION & ANALYSES			PRESENT STATUS	REPORT	FORECASTING					DETAILED STUDIES OF SELECTED INDUSTRIES			
INCOME & CONSUMPTION		DATA COLLECTION & ANALYSES		REPORT		RESOURCE DESCRIPTION	SC ALLOCATION	REPORT	FORECASTING							
TRANSPORT		DATA COLLECTION TRAFFIC SURVEY				TRAFFIC ANALYSIS	ANALYSIS	GENERAL REPORT		ANALYSIS OF FUTURE TRANSPORT DEMAND	TRANSPORT INFRASTRUCTURE DEVELOPMENT					
PUBLIC FINANCE & ADMINISTRATION		DATA COLLECTION & ANALYSES				FUTURE REVENUES & EXPENDITURES	ADMINISTRATIVE & TAX SYSTEM						INVESTIGATIONS ON ADMINISTRATIVE & FINANCIAL ORGANISATIONS OF MASTER PLAN AREA			
SETTLEMENTS & INFRASTRUCTURE		DATA COLLECTION SETTLEMENTS & PUBLIC SERVICE STANDARDS & HOUSING UNIT COSTS		REPORT		FUTURE SETTLEMENTS	SERVICE STANDARDS	HOUSING COSTS	REPORT				FUTURE SETTLEMENTS IN MASTER PLAN AREA PRIVATE & PUBLIC SERVICE COSTS			
SOCIOLOGY					DATA COLLECTION	ANALYSES	REPORT			DATA COLLECTION - COMMUNITY SURVEYS	ANALYSES	REPORT				
MAPS		PREPARE 1:250,000 BASE MAP		COMPLETION OF ZONATION PLAN DATA	FAIR DRAW & P	PRINT ADD COLOUR	PERSPECTIVE PLAN	REPORT DRAWINGS					FAIR DRAW RESOURCES MAPS			
REPORTS				FIRST DRAFTS ZONATION PLAN	FINAL DRAFTS	REPORT		FIRST DRAFTS PERSPECTIVE PLAN		REPRODUCTION						
PROGRESS REPORTS & CONSULTATIONS		SC1 K	PR1	PR2 SC2 M		PR3 SC3 K		PR4 SC4 K.L		PR5 SC5		PR6 SC6		PR7 SC7		

IN HAND    
  DELAYED    
 PR - PROGRESS REPORT    
 SC - STEERING COMMITTEE