

Internal Note - Confidential

CONFIDENTIAL
MIRI-BINTULU PROJECT

Enclosed you will find copies of a correspondence between the Study and the Chairman of the Steering Committee. The guidelines contained in this correspondence can hereafter be the basis for the special planning in each department of the Study.

C. J. MATHIESEN

CJM/VS
19.11.1973.

1/S. Committee

19th October, 1973.

CONFIDENTIAL

To The Chairman of the Steering Committee
of The Miri-Bintulu Regional Planning Study.

Encik Bujang Mohd. Nor,
State Financial Secretary,
State Offices,
Kuching.

Dear

Planning and Programming Development
in the Priority Area

At the Steering Committee meeting in Kuching on 4th October the Consultants were directed to confer with the Chairman of SLDB (Encik Wan Habib) concerning apparent divergencies of opinion on certain development aspects. This letter is to inform you that two meetings have been held since the 4th October and although a common approach on some aspects of development has been established there are still divergencies of opinion on several other important points.

Perhaps the problems this raises will be resolved in time. Nevertheless, although we believe that our approach is the right one relative to our Terms of Reference we are now uncertain whether government would wish us to continue our planning along the lines presented in our working papers and at the Steering Committee meetings. We would like to receive a directive from Government but we are undecided on how best to ask for this; we would be grateful for your advice.

To assist you in this we have compiled some notes in which we attempt to clarify the position and suggest a possible solution. The notes are in draft form and have not in anyway been distributed because we await your comments.

During the recent meetings with Encik Wan Habib he asked for copies of the Land Capability and Crop Potential maps produced by us. Provided Government approves we have no objection to supplying the maps, but in this event it must be realised that two sets of plans, probably significantly different ones, for development and utilization of the Priority Area South could materialise; one drawn up by SLDB and another by us. Our plan will probably appear later than that of SLDB because not only have we to consider much wider implications than SLDB but also our final report is not due for submission until early 1974. By that time SLDB hopes to have started implementation.

Enclosed with this letter are copies of the two maps requested and the draft notes.

Yours sincerely,

Original signed by

C. J. MATHIESEN
Project Manager

C O N F I D E N T I A L

Draft Notes

for Enoik Bujang Mohd. Nor

The divergent views of the consultants on the one hand and members of SLDB on the other concerning certain development aspects arise mainly from differing concepts of the extent to which SLDB should be involved in implementation of the overall development plans. The SLDB view-point is that their role is heavily committed to financial considerations and a set target of acreages to be planted. The Chairman and his staff strongly emphasise the commercial character of their organisation which for success relies on the establishment of an estate-type agriculture with a management system designed to ensure a disciplined labour force under close supervision and a minimum dissipation of its efforts to other objectives. SLDB would develop large contiguous blocks of State Land principally to one crop, either oil palm or rubber, using paid labour living in relatively small, equal sized villages. Transference of this land to the labourers/settlers would take place only after full repayment of all costs have been made. SLDB expects this would happen sometime around 20 years after initial development.

The Consultants, while appreciating the restrictive effect of the financial aspect, consider the role at present undertaken by SLDB to be too narrow in the context of overall development which is largely aimed at achieving the political objective of relieving social problems in other parts of Sarawak. During the next decade and possibly even longer we see SLDB as the most important of several organisations responsible for implementing the development plans. What SLDB does will influence immensely, and perhaps irrevocably, the pattern of development in both the short term and the long term. Therefore, we assign SLDB a very important, wide role. This includes association with, but not responsibility for the initiation of towns as well as the development of State Land and participation in the improvement of Native Customary and Titled Land. Although

we realise the importance of economic viability of this development we contend that of equal importance is the well-being and aspirations of the people for whom the development is undertaken. We advocate certain development approaches which have a high social benefit even though they might result in a lower economic rate of growth than would be achieved by development in some other less socially orientated method.

In connection with the creation of towns, for example, we point out that the SLDB labour/settlers will, for many years, form the majority of the population in the development areas and if one or two main towns are to be created quickly (which we believe is necessary for a successful rural development) then there must be a greater concentration of these labourers/settlers into selected town sites than is presently envisaged by SLDB. Undoubtedly this would lead to an increase in the management problems for SLDB and would reduce their control over labour. It would also increase their development and running costs because of the need to transport the labourers/settlers to and from their work. But the concentration of people would ensure a quicker development of a town sufficiently large to warrant the establishment of services applicable to a sub-regional service centre. In addition the costs of creating these services together with the increased SLDB transport costs would in total be less than if the same order of services was to be created in an urbanisation system consisting only of small villages as could occur if no deliberate concentration of people is undertaken.

Concerning the development of State Land, everybody agrees that there is need to establish modern agriculture on estate type holdings as well as on individual farm holdings. The distribution of land between these two systems, we consider, is a matter that should be regularly reviewed and should be changed according to results and experiences obtained in the course of time. In fact it is essential, we believe, that the method of developing land should ensure flexibility right from the beginning.

Thus we suggest that the opening-up and planting of State Land is undertaken by SLDB under estate type management but the cropping, over the whole area, should be of a reasonably diversified pattern such that later part, or all of the developed land (depending on political requirements and social desires), could be handed over to selected smallholder farmers. These farmers, it is suggested, should come mainly from the ranks of SLDB labourers/settlers after they have proved themselves good potential farmers and have had some training and experience in handling the major crops.

We favour a diversified cropping pattern because this would lead to an optimal use of the land, and at the same time it would provide added economic security by spreading the risks between more than one major crop. This aspect becomes particularly important when transference of management of land from SLDB to the settlers takes place.

The pace of transference of land from estate management to independent farmers should, in our opinion, be subject to changes determined by continual observation of the progress and success made by the various types of agricultural organisation. These successes or failures will depend on the achievement of training and disciplining of the labourers/settlers through SLDB and the Agricultural Development Unit (ADU) to work efficiently on estates or smallholdings, and on the relative attractiveness of the various systems in the minds of the participants. The Sociologists of our team have strongly emphasised that to most local people the expectation of getting land would be a major motive for joining a development scheme. SLDB envisages that their labourers/settlers eventually, i.e. when all debts have been repaid, would take over the estate as a group participation or cooperative property. Apparently the labourers/settlers would not be owners or usufructary users of a specific plot of land. They would get a fractional share of the whole estate and a document stating this. The importance

of this document as an economic asset is not known, but clearly it is not likely to give the possessors the same feeling as having direct right to cultivate and live on identified areas of land. The questions then posed are:-

- (a) - will it be possible, under estate conditions, to attract sufficient labourers/settlers to manage the areas which technically and economically could be developed as estates.
- (b) - would the number attracted be sufficient to ease the pressure on land in other parts of Sarawak and to create enough jobs for the growing population. (The SLDB development on State Land is seen as the major, but not the only form of settlement. Block alienations and private estates could accommodate a relatively small number of migrants)
- (c) - will the labour/settlers so created be generally more efficient than independent farmers supported by ADU.

These questions cannot be answered for certain at present and even in the future the answers could change as development proceeds and the environment alters. Therefore, in our opinion, it is vital to ensure, right from the start, that it is possible to change from the estate-type management to smallholder management. This flexibility would be seriously reduced with a mono-cultural cropping pattern.

Given below is a summary of the Consultants' understanding of the results of the meetings with SLDB.

- (a) SLDB would be willing to develop all State Land and would assist (if its capacity permits) the Agricultural Development Unit to develop nearby Native Customary and Titled Land.

- (b) In principle SLDB accepts proper land use with its implication of a diversified cropping pattern but in practice, because of management problems, would establish only one crop on land intended, at present, to remain under their control after development.
- (c) SLDB would be willing to develop previously designated parts of the State Land to a diversified cropping pattern for later handing over to individual farmers, provided that;
- (i) the ADU took responsibility for guidance and assistance to those farmers;
 - (ii) the funds used by the SLDB for the development of these areas would be credited to SLDB;
- (d) SLDB opposes the concept of the independent farmers being selected from within their labour/settler force on the grounds that this would cause a continual fluctuation in that force. The view of the Consultants', derived from the findings of their Sociologists, is that a constant change in the SLDB labour force will take place in any case. We believe that the firm establishment of a channel through SLDB as the major way to the status of independent farmer would be an encouragement for local people to join the SLDB labour force; thus our concept would assist SLDB rather than hinder it. The Sociologists emphasise the necessity of training the local participatns in modern agriculture as well as establishing an individual relationship to the developed land as a pre-condition for a positive co-operation by the local people in the modernisation of the society. It appears that this desire of the local people to work their own land is so important that to satisfy it should be undertaken even if, for some time,

it results in a lower economic rate of growth than would be achieved by development under a predominantly estate-type system.

Additionally we think that the households of the independent farmers could be an important labour source for nearby SLDB estates. The households could have a surplus of labour consisting of grown up children and other dependants who might join their families once they became established. Some of these people would be more likely to migrate if they can join kinsfolk and relatives and at the same time obtain paid work.

A possible solution to these differing approaches to the role of SLDB could be the establishment of a Sarawak Land Development Authority (SLDA) under the Ministry of Agriculture. The Authority could undertake the sector-wise planning and programming of agricultural development thus coordinating the activities of both SLDB and ADU.

The end of the Consultants' contract period is approaching and in order to complete our report on time it is necessary for us to finalise the approach to development. In view of the flexibility that can be included in our approach and the fundamental social considerations it contains we suggest that, unless we hear to the contrary from the Government, we continue our planning along lines incorporating the following principles:-

- (a) That a Sarawak Land Development Authority (SLDA) is established for the overall planning of agricultural development including the coordination of SLDB and ADU activities. Although this appears a new concept it is really a slight modification of the ideas presented in Working Paper 49 "Organisational Machinery for Planning and Implementing Rural Development". In that paper SLDB was seen as the authority handling both estate-type and small-holder development on State Land as well as improvement in Native Customary and Titled Land.

- (b) That SLDB undertakes the development of the majority of the State Land according to approved development plans. Initially this will be under estate-type management but with the intention that part of the developed area will be transferred to independent farmer management and part will remain under SLDB's management as public estate. See "Memorandum on Agricultural Development Organisation" produced for the Steering Committee Meeting on 15th August 1973.
- (c) That land will be developed to a reasonably diversified cropping pattern determined by considerations of proper land use as well as economic, marketing and management factors.
- (d) That the diversified cropping pattern will apply to land planned at present to remain under estate-type management as well as that land selected for transfer to independent farmers.
- (e) That on the portion of land presently planned to remain under SLDB estate-type control the eventual types of management aimed at will, in addition to the change to small holders, include;
- (a) that the land remains as a public estate
 - (b) that management is organised as group participation schemes, or
 - (c) as cooperatives.
- (f) That on sites selected for the creation of sub-regional service centres there will be a concentration of SLDB labour/settlers into communities larger than those presently planned by SLDB.
- (g) That the selection of independent farmers will be, to a large extent, from within the SLDB labour/settler force.

M. Breyen

S. Jorgensen

Date: 27-9-1973

MEMO
ON
URBANISATION OF RURAL AREAS

1. INTRODUCTION

The purpose of this paper is to present and discuss different ways in which areas selected for agricultural development could be 'urbanised'. 'Urbanisation' is not only the introduction of physical elements such as public and private service facilities, but also includes non-physical elements such as the way of organising the daily routine of each person and household, the introduction of a cash economy, a different attitude towards change and innovation and the increasing importance and acceptance of education. The physical and non-physical elements of urbanisation are important factors associated with restructuring the Society to the benefit of the poor.

In this paper importance has been given to the physical part of urbanisation of rural areas, i.e. the different ways in which public and private services could be offered to people employed in agriculture and forestry. This is done through the presentation and discussion of different settlement models for the population working in agriculture. These models attempt to show the relationships between different ways of organising agriculture, possible cropping patterns and the network of settlements and service centres.

The models presented should be regarded as realistic possibilities for implementation because they are based on actual information about acreages of land suitable for agriculture, viable cropping patterns based on actual land capability, feasible road networks and proposed locations of processing facilities. Moreover, the road network, the phasing of development and the settlement models are co-ordinated with the development in forestry.

W. L. Lohm
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Although each of the models could be a realistic situation, they should still be regarded as MODELS with the function of illustrating the connections between different ways of organising agriculture and settlements. The description of the models include only what could be named 'mechanical' inputs, such as the size of the areas for various purposes, the number and types of public and private services allocated to each centre, and locations of processing facilities. The actual growth of a service centre, however, is 'organic', which means that the centre over time will be influenced by unforeseen factors. These could include the interaction with other centres and political adjustments of the aims of development. Hence, the TENTATIVELY suggested settlement pattern should be regarded as an 'open system', which in the course of time could and would be adjusted. Although there will be flexibility in the settlement system, there are certain decisions that have to be taken to initiate the implementation process. These decisions about cropping patterns, the ratio between the area developed for estates and for independent farmers, and the resulting settlements could have an impact reaching far into the future.

The settlement models refer to the priority development area between the S. Niah and S. Suai (referred to as Priority Area South). The ideas expressed in the models have been applied to the whole Study Area to show the impact of the models on the regional settlement pattern.

2. AGRICULTURAL DEVELOPMENT AND SETTLEMENTS

The future settlement pattern between Miri and Bintulu must be designed primarily to support and serve the development in agriculture and forestry. Hence, the size location and capability of the agricultural land together with a stated aim to urbanise the rural areas will have a decisive influence on the settlement pattern,

There is a connection between the pattern of agricultural development and the type of settlements; preferably independent farmers should live close to their farm land, thus they need to be in small centres spread throughout the area. Their farm holdings could be built up on a modular system, see Working Paper 50, where each holding consists of 3 to 4 modules of different crops distributed in the vicinity of the village.

Required Information for the Regional Planning Work

1. The agreement by the Steering Committee Meeting to Model III in the Memo on Urbanisation of the Rural Areas implies that the final regional planning work can start. This work includes among others
- estimates of population growth and employment structure;
 - the location and growth of settlements (existing and new);
 - the supply and costs of services in each settlement;
 - the alignment and phasing of the road network.

The phasing of development should be indicated for each year from 1975 (1974) to 1980 and for 1990-95.

scale industries for different size of small settlements.

2. In order to complete this work in due time the following inputs should be discussed and finalised in the near future:

- Standard, size and unit costs of different types of housing
Agriculture - delineation of the Study Area into agricultural (on four standards). RI

Development Units (like the Priority Area South).

MC/RI/ILAY/SJ;

- phasing of agricultural development by Development Units and within the Priority Area.

MC/RI/ILAY/MB/SJ;

- estimates of the size of each Development Unit - gross acres of State Land and NCL suitable for agriculture. ILAY

- estimates of a reduction factor for smaller patches of unsuitable land within the gross acreage, settlements and roads. ILAY/RI/MB/SJ

- estimates of the total number of agricultural field workers, employment in the transport and processing of agricultural produce and management within each Development Unit. RI/SJ

- need and rough locations of processing facilities for agriculture. MC/RI/MB/SJ.

The location of each crop would be dictated, to a large extent, by the land capability. Examples of possible holdings are given below.

Crop	Acreages in each holding		
	Example 1	Example 2	Example 3
Oil Palm	10	5	
Rubber		8	4
Cocoa	4		8
Rice	1	1	1
Homestead plot	1	1	1
Total	16	15	14

Figure 1 shows a possible future layout of a village and its surrounding farm land in part of the Priority Area. On the Figure is also shown the area of Native Customary Land which would be in fact, developed by the local people.

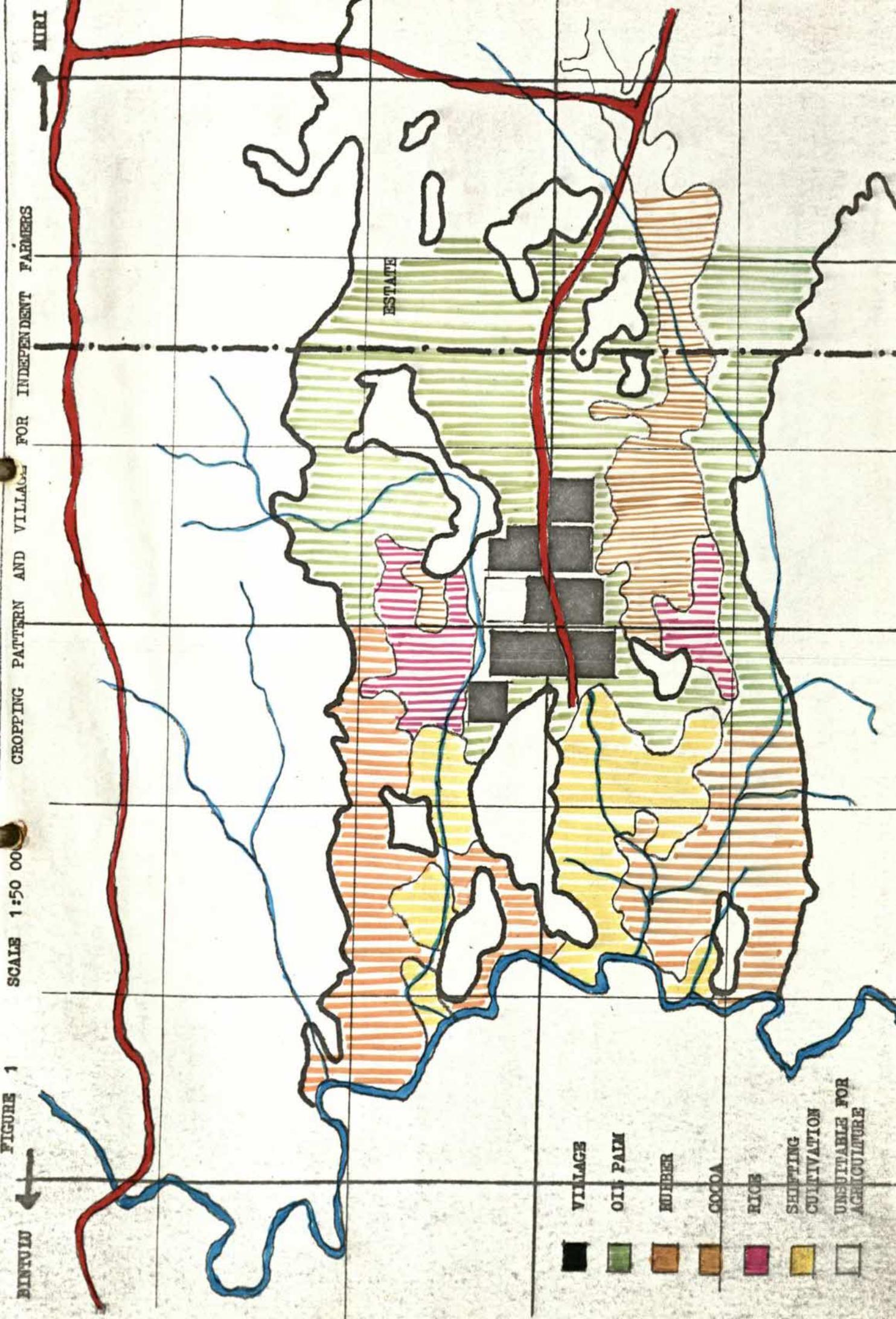
The extent of the agricultural land attached to one village would be based on a maximum walking distance of $1\frac{1}{2}$ -2 miles (2-3 Kilometers) from the village to any plot. Thus it would be limited to a cultivated area of about 5 000-6 000 acres and the village would consist of roughly 1 500-2 000 people.

In the case of estate-type agriculture it is possible to concentrate the settlers into larger urban centres which would provide fairly high standards of service facilities and which could act as a service centre for the population in surrounding villages. These concepts are described in Working Paper No. 48 and the Memo on Service Centre Location along the Miri-Bintulu Road. The estate-type settlements would be based on organised transport carrying the settlers to and from their working places. Ideally the estate type settlements should have populations ranging between 5 and 10 000 people which corresponds to a cultivated area of roughly 10 to 20 000 acres. However, the settlements could also be of the same order as for the villages of independent farmers. This alternative would give a pattern similar to the present SLDB settlements in the Lambir-Subis Development Area. However, such a pattern is not recommended for the permanent estates in future development areas.

FIGURE 1

SCALE 1:50 000

CROPPING PATTERN AND VILLAGE FOR INDEPENDENT FARMERS



- VILLAGE
- OIL PALM
- RUBBER
- COCOA
- RICE
- SHIFTING CULTIVATION
- UNSUITABLE FOR AGRICULTURE

Figure 2 shows an example of a possible cropping and settlement layout for estate-type development in the Priority Area South.

It is envisaged that the future agriculture in the Study Area will consist of independently managed farm as well as estates. Furthermore, the majority of the new development could initially take place under estate-type management, and that the change from this to independently managed farms would be a gradual process, largely depending on the established success of such a change. However, it is believed for several reasons that there is a need to retain some areas permanently under estate management.

The areas selected for permanent estate management would have a more uniform cropping layout and larger settlements than those areas meant for a later transition to independent farmers. Consequently, initially there would be two types of estate development; a permanent estate giving short and long term jobs to people who would like to work in agriculture, but not as an independent farmer, or who cannot be more gainfully employed in other parts of the economy; and a temporary estate which at a later stage would be gradually transferred to independent farmers.

This combination of permanent estates with larger urban centres, and the independent farmer areas with smaller villages offers the opportunity of obtaining a differentiated settlement pattern with a hierarchy of service centres which will contribute to the urbanisation of the rural areas. However, if agricultural development is to be used to create this settlement pattern, the geographical location of the permanent estates and the areas for independent farmers will be of great importance.

3. EMPLOYMENT CREATION

The Priority Area South contains about 48 500 gross acres of land assessed as suitable for agriculture. About 4 000 acres of this land is Native Customary Land (mostly shifting agriculture). Thus the total area available for immediate development is about 44 500 acres. An estimated 10 percent of this will be used for settlements and roads, leaving about 40 000 net acres for actual agriculture.

The planning keys arrived at in Working Paper 33: "Population and Labour 'Key Figures'" indicated that there would be about two working people and an average of 5.6 people per agricultural household. Moreover, as indicated earlier, the module system would allocate about 15 acres to each independent farmer or 7.5 acre per worker. This ratio has also been assumed for the workers in estate-type agriculture. These parameters applied to the above acreages would give about 5 300 people employed in agriculture, corresponding to a total population of roughly 14 800.

In addition there would be people employed with the transport of the agricultural produce, the processing of it and in the management of the estates and the Agricultural Development Units (ADU). The number of occupied in this group is estimated at 350, which according to the Planning Keys in Working Paper 33 corresponds to nearly 1 000 people.

In the FAO report: "Investment Opportunities for Wood-Based Industries in the Dipterocarp Forest of the Bintulu Area of Sarawak" it is proposed to locate one of the three immediate Timber Complexes on the northern side of the Suai river. This is within the priority development area. The direct employment connected to this complex would after 5 years of operation be about 400 people of which 200, or a total population of 620, could live in the main centre of the Priority Area South. Hence, within the Priority Area South there would be a total employment in agriculture and forestry of 5 850 corresponding to a population of 16 500.

The direct employment within agriculture and forestry will generate employment in public and private services and in small scale industries. Some of these spin-off effects will become established in the Priority Area South, some will be generated in the regional centres of Miri and Bintulu. The size of the generated employment within the Priority Area South will depend on the number and size of the larger service centres created, because some services and industries will be attracted only to centres with a population above certain thresholds.

In Working Paper 33 the agricultural 'employment multiplier' is estimated to be around 1.7, which implies that the creation of one job within modern agriculture would lead to 0.7 jobs in services or other industries. Of the total generated employment in the Study Area a maximum of 50 percent of it is estimated to fall within the Priority Area South and the rest in Miri and Bintulu, thus leaving a 'local employment multiplier' of 1.35. By applying this to the 5 850 persons directly employed in the Priority Area South a total maximum employment of 7 800 would be obtained. This correspond to a population of 22 500.

Table 1 summarizes the different types of new employments and the corresponding population in Priority Area South when it is fully developed.

TABLE 1. NEW EMPLOYMENTS, POPULATION AND HOUSEHOLDS IN A FULLY DEVELOPED PRIORITY AREA SOUTH

Employment Categories	No.of Employed	Total Population	No.of Households
Field Workers	5 300	14 800	2 650
Management, Processing and Transport	350	1 000	200
Timber Processing	200	700	120
Generated Employment (Maximum)	1 950	6 000	1 150
Total	7 800	22 500	4 120

4. SETTLEMENT MODELS

A grid with $1\frac{1}{4}$ miles (2 kilometers) between the lines has been used as a tool in settlement planning. The grid pattern identifies certain nodal or central points, which could be the future locations of settlements. The maximum distance from any nodal point to any plot within the developed area would be $1\frac{1}{2}$ -2 miles (2-3 kilometers), which corresponds to about 30 minutes of walking. The connections between the centres would be the main road system in the area. In total 8 such nodal points have been identified, each with a surrounding cultivated area of about 5 000 acres, and three different settlement models have been considered. These are discussed below.

Model I : The development of all eight nodal points into seven villages (Figure 3) of 2 100 people each and one town of about 5-6 000 people. The agricultural organisation could either be estates or independent farms.

Model II : The development of only three towns in the area, one of about (Figure 4) 12 000 people and two of about 5 000 each. These towns are based on estate-type development with the possibility of a limited number of independent farmers cultivating about 5 000 acres close to each town. Organised transport for the workers/settlers to and from work in the furthest plots would be required.

Model III : The development of five villages, each 2 100 people and one (Figure 5) town of 12 000. The villages could either accommodate estate workers or independent farmers. The area around the town (15 000 acres) would be kept permanently as a plantation with organised transport of the workers/settlers to and from work. As in Model II 5 000 acres around the town could be cultivated by independent farmers.

The estimated distribution of services in the three settlement models are based on the standards that most of the higher order public services require a total population of 20-30 000 people in their catchment area, and that the minimum population threshold for basic education and health services would be 1 500-2 000 people. Consequently the new population associated with the development of agriculture and forestry (20-22 500) together with the existing population in the Priority Area South (2 000) could in total create one Service District. In this District there could be a differentiated network of higher and lower order public and private services.

A village of about 2 000 people would qualify for the following services: one Primary School Stream, one Community Health Centre, one Post Office Class C Phase I, one Police Post, one Community Hall, possibly one minimum unit of religious building for each religious group in the village and about 5-10 shops. If each agricultural household were to be given a homestead plot of one acre in the village there would be no need, from a public sanitation point of view, to have septic tanks. Pit hole latrines would suffice. However, to supply electricity and treated water to each house would be fairly expensive.

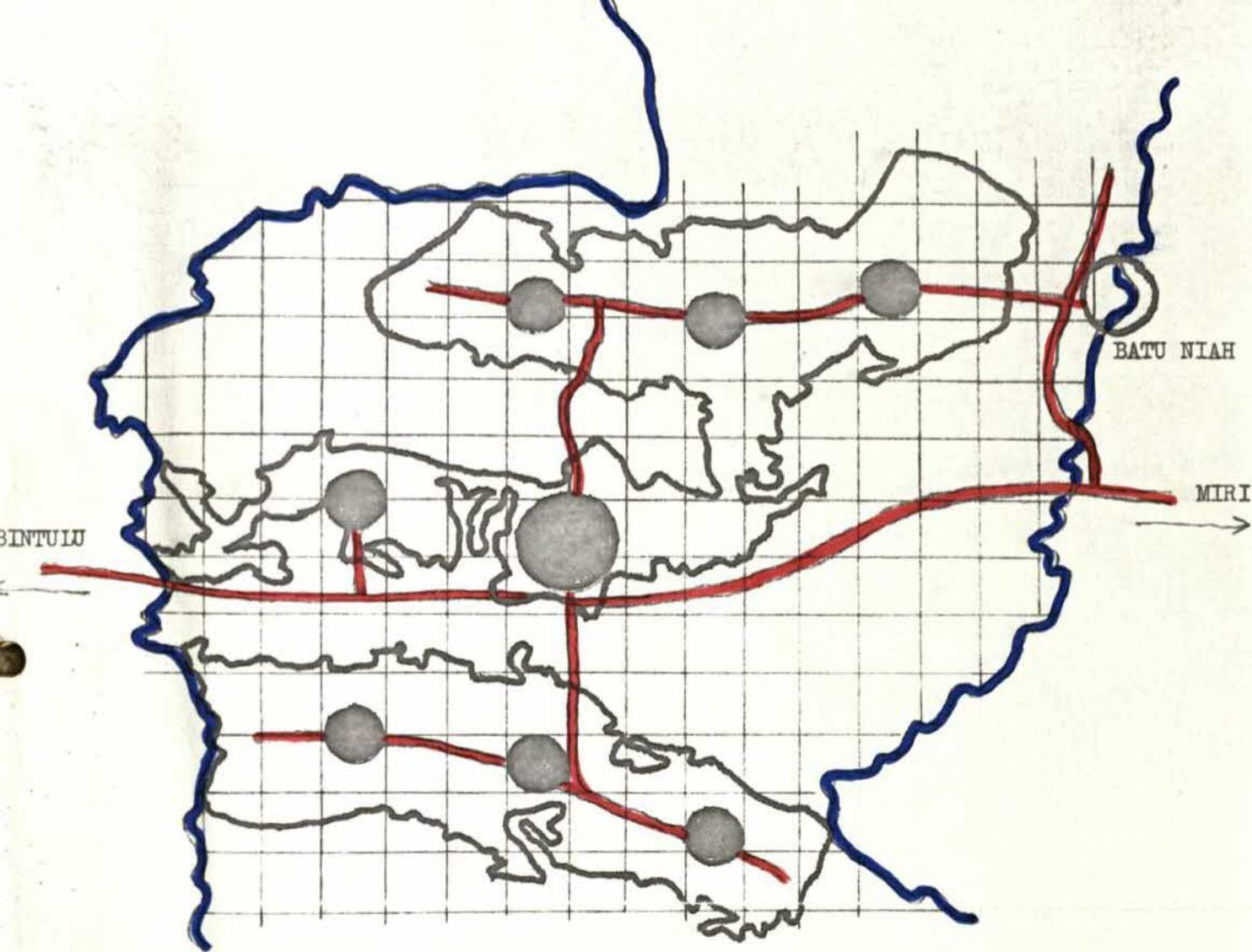


FIGURE 3

MODEL I: The settlement pattern is based on a planning grid of $1\frac{1}{2}$ miles (2 kilometers). The nodal points in the grid identify the locations of eight settlements, each with an adjoining cultivated area of 5 000 acres. The maximum walking distance from any centre to any plot is $1\frac{1}{2}$ -2 miles (2-3 kilometers). The settlement model is suitable for estates, for independent farmers and for any combination of the two. The cropping pattern would be cut up, as shown in Figure 1. The main town would have 5-6 000 people and each of the villages about 2 000 people.

The level of services established in the main towns in the Development Unit would vary with the size of the particular town. The main town in Model III would have about 12 000 people and be the service centre for a population of about 25 000. This town could have roughly the following services: seven to eight Primary School Streams, three Lower Secondary School Streams, one Upper Secondary School Stream, one Health Centre, one Post Office Class A, one District Police Station, one Fire Station, one District Office, one Town Council Office, one multipurpose Community Hall, Religious Buildings, Library, two to three Cinemas, one or two Banks, about fifty Shops and some restaurants. The density of housing in the town would be such that individual septic tanks would be required but to supply treated water and electricity to each house would be reasonably cheap.

In Model III one of the Lower Secondary School Streams could be located in a village which in terms of its service facility, would then range above the other villages. Such a village could in addition be allocated a Health Sub Centre, a Post Office Class C and a Minor Police Station.

In Model I the level and variety of services supplied to the main town would initially be of a lower standard than in Model III. In Model II the main town would have to share its Lower Secondary School Streams with the other two centres, both of which would provide a fairly high standard of services to their resident population.

5. EVALUATION OF THE MODELS

Model I has considerable built-in flexibility in terms of the way in which agriculture could be organised. The settlement pattern is suitable for estate-type development based on the principle of the present SLDB management units of about 5 000 acres of crop land and settlements of roughly 300 families. This pattern is also suitable for eventual emergence of independent farmers. However, in order to enable transference of the land to independent farmer management at a later stage, the cropping pattern should from the beginning be of a patchwork type and diversified, not uniformly planted to one crop, oil palm for instance as in the Lambir-Subis Development Area.

The aim of creating viable service centres between Miri and Bintulu would not be fully met by this Model. The main service centre in the area would be unlikely to grow to more than 5-6 000 people by 1985-90, which would imply that some of the spin off effects envisaged in Section 3 would not occur at all or would occur somewhere else. The service level in this centre would not be as high as in the main centre of Model II and III.

Model II would meet the requirements of supplying the population directly with a wide range of public and private services. The settlements are based on the workers or settlers associated with estate-type development in a similar manner as recommended in the Pahang Tenggara Study. The cropping pattern could be more uniform than in Model I, as the majority of the workers/settlers in any case would have to be transported to and from their working places. But the settlement and cropping patterns would not be suitable for complete transference to independent farmer management at a later stage because the distance from the settlements to the farthest plots would be too great for walking. Unless villages are built in the future only about 5 000 acres around each centre could be handed over to independent farmers. Most of the field workers for the rest of the area would always be dependent on some form of organised transport and fixed working hours, giving them at best a shareholder status on a plantation. They could never become true independent farmers. Given this uniform cropping pattern, which is similar to that presently planned for the southern part of the Lambir-Subis Development Area, then the large town settlement model seems to be the most suitable one.

Model III tries to combine the advantages of the two first Models and, at this stage of the planning process, is the Model favoured by the Consultants for the Priority Area South. In this Model a differentiated settlement pattern is created with one major town and possibly one major village supplying higher order services to the population in the smaller villages. The initial size of the town ensures that a high standard and variety of services and other activities would be established.

This Model allows for about 30 000 acres to be handed over to independent farmers compared to 40 000 acres in Model I and 15 000 acres in Model II. It is considered desirable, as mentioned in Section 2, that some areas should be kept as permanent estates because this type of employment would be needed also in future.

6. PHASING OF DEVELOPMENT

In the following text and figures Model III has been used to show a possible phasing of the development and how the transference of land to independent farmers could be organised. All land would be developed by SLDB regardless of whether the future management would be under estates or under independent farmers (see Memorandum on Agricultural Development Organisations). Processing and marketing facilities would also be established by SLDB. The Divisional Development Officer, in close co-operation with the Agricultural Development Officer, would ensure the timely participation of various Government Departments and Organisations in providing all other elements of development such as public roads, schools, health clinics, water and electricity supply.

The phasing is envisaged in two main stages: Stage I covers the time until all land has been developed while Stage II is the period from then until all the areas intended for independent farmers are finally handed over. Stage I is illustrated by Figures 6 to 10 and Stage II by Figures 11 to 13. Figure 14 illustrates a possible future situation after Stage II, i.e. past the planning period considered in the present Study.

The phasing is based on the clearing and planting of 44 000 gross acres of land from 1974 to 1980 (Stage I), and a period of handing over about 25 000 acres to independent farmers, say from 1982 to 1986. The extent of the last stage would depend on the success in creating efficient independent farmers. The illustrations and the timing of Stage II consequently assume that the handing over of land to independent farmers has proved successful. The illustrations indicate that the land would be transferred to independent farmers in blocks of 5 000 acres, i.e. the land within easy waling distance of one village.

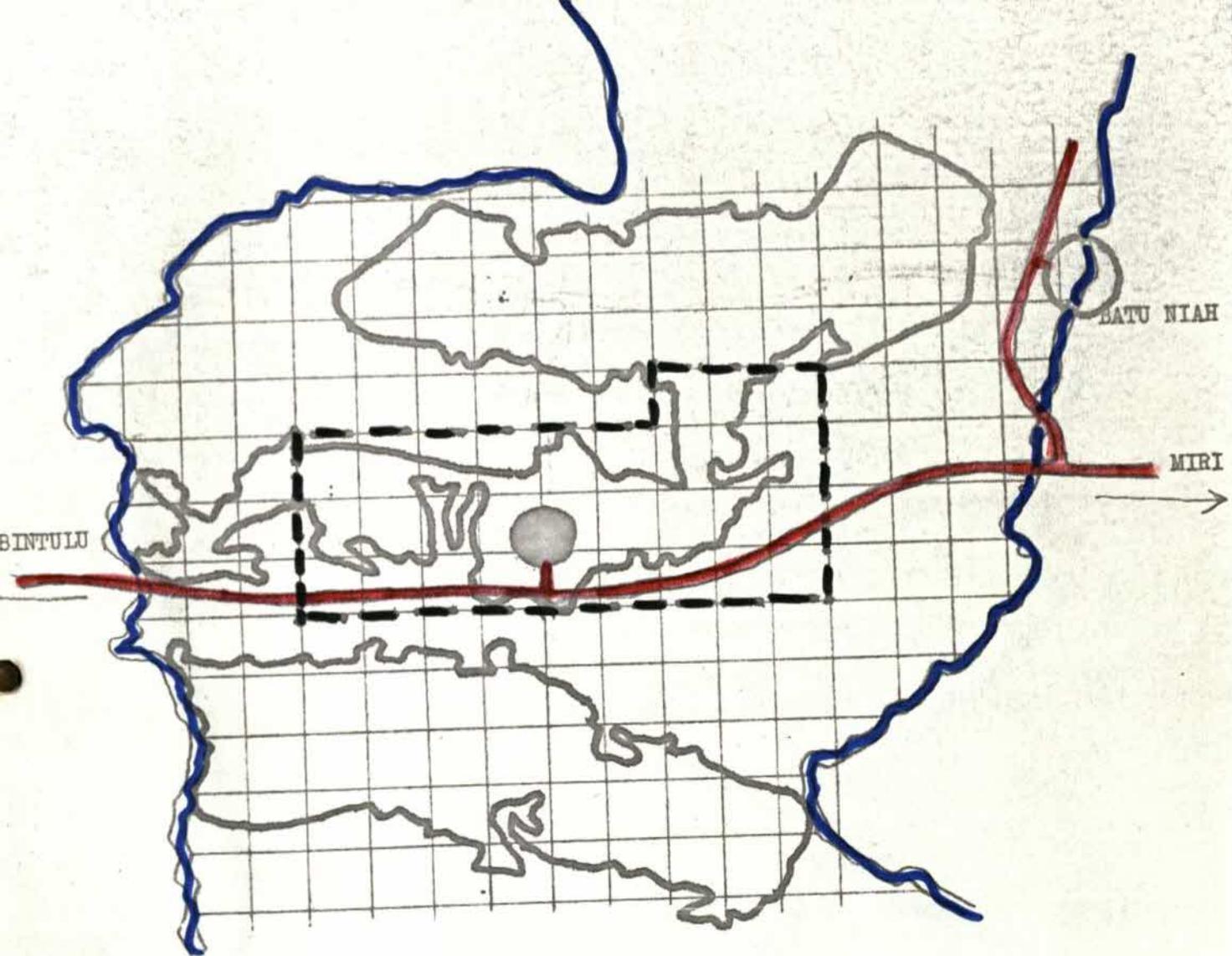


FIGURE 6: Model III/Stage I/1976

12 000 'gross acres' of land have been developed, and the main settlement in the Priority Area South has been started with a population of about 4 000 people.

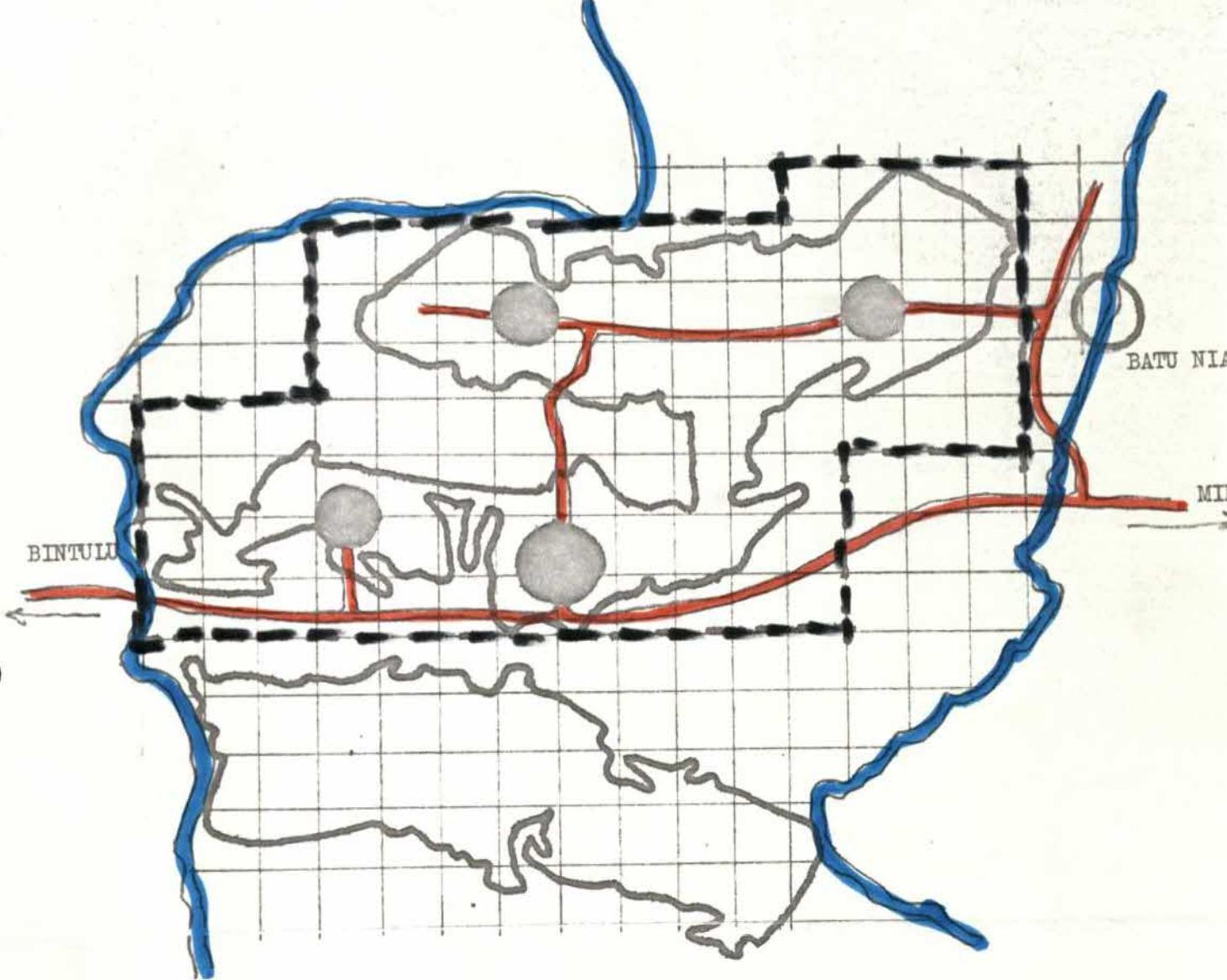


FIGURE 8: Model III/Stage I/1978

28 000 'gross acres' of land have been developed. Two more villages of 2 000 people each have been started, and the main town has grown to 6 000 people. The timber complex is in operation.

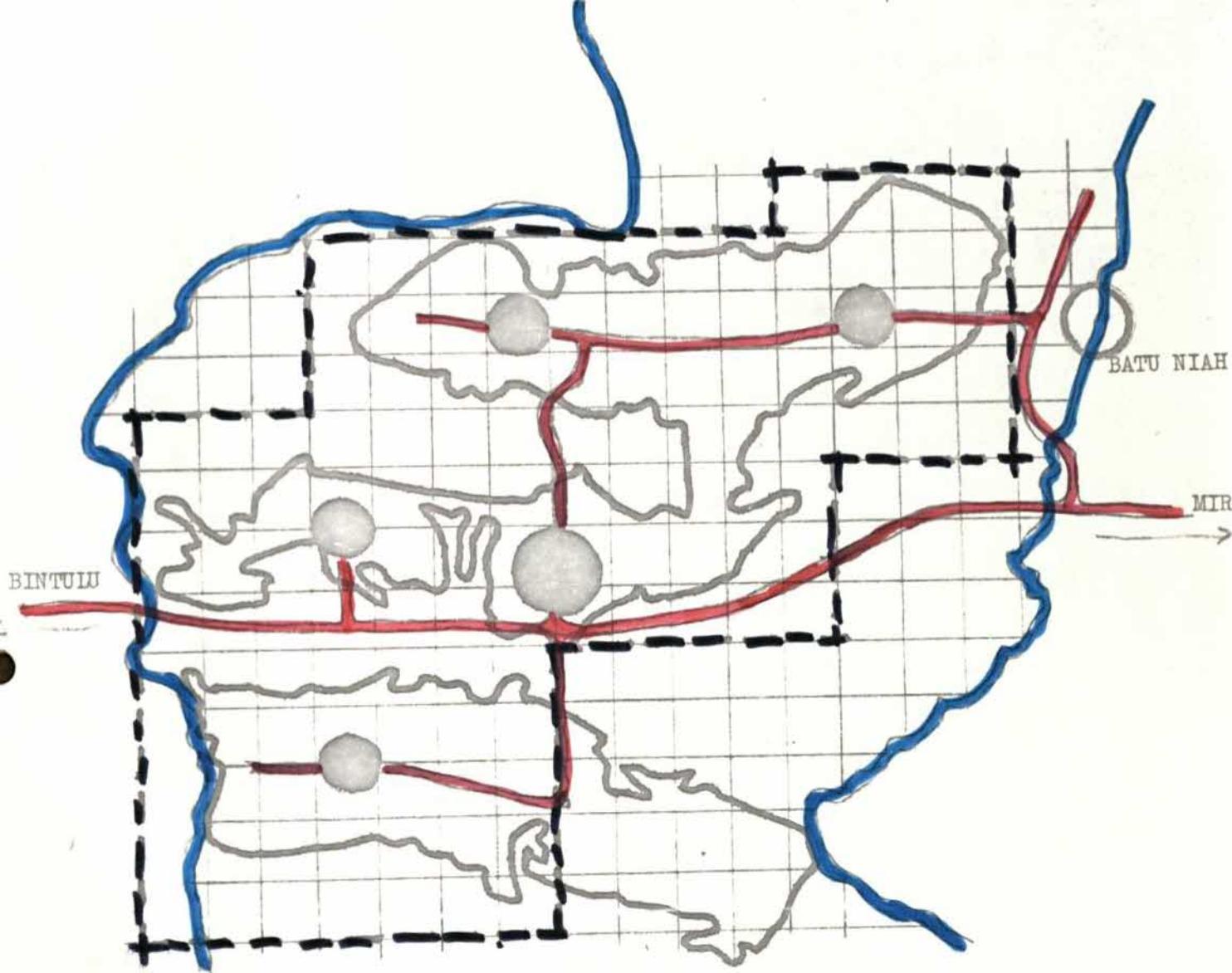


FIGURE 9: Model III/Stage I/1979

36 000 'gross acres' of land have been developed. One more village has been started and the town has grown to 7 000 people. The oil palm factory is in operation, and the 'fresh fruit bunches' from the oil palms are harvested.

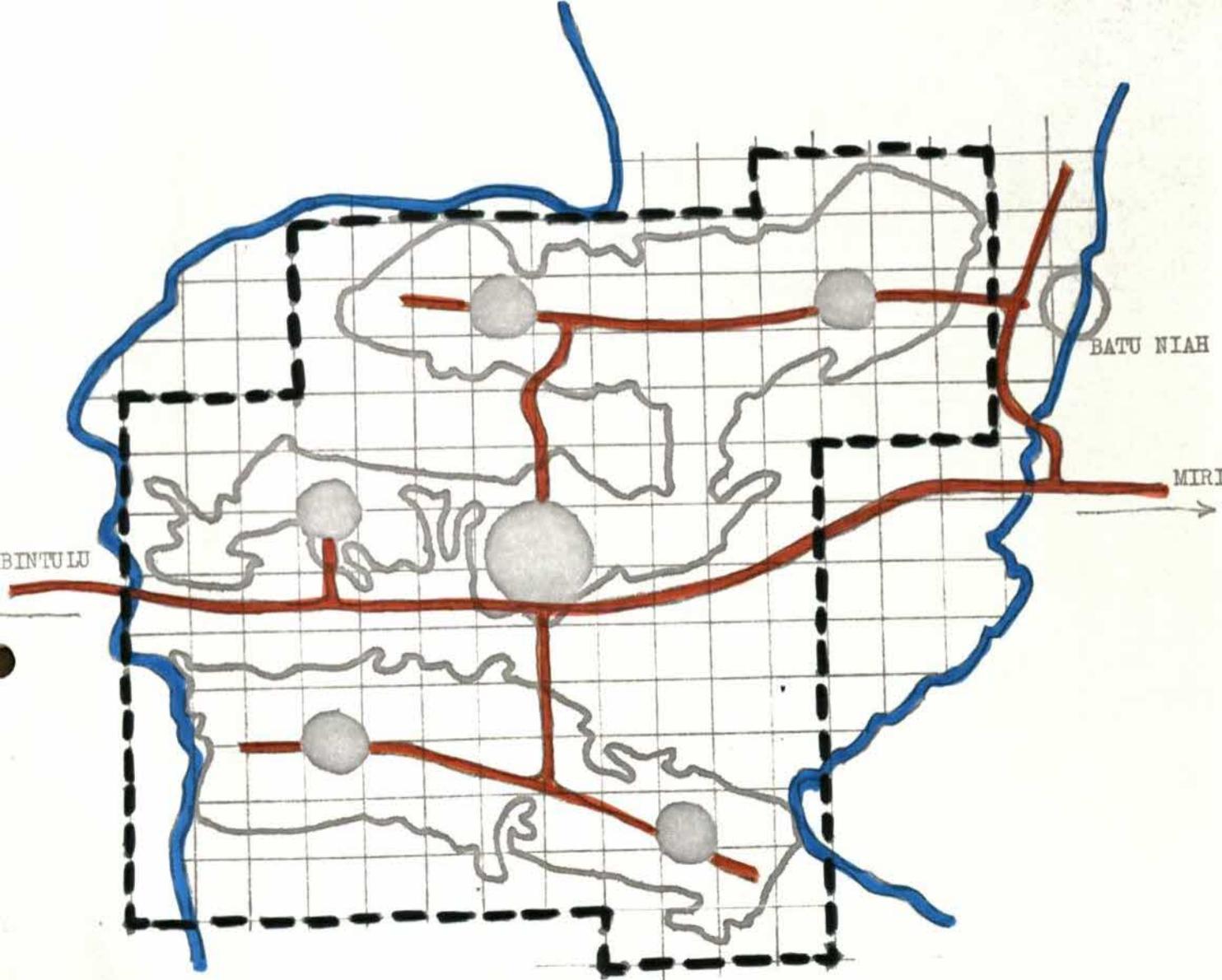


FIGURE 10: Model III/Stage I/1980

The Priority Area South is now fully developed, 15 000 'net acres' are planted with an "estate" cropping pattern and 25 000 'net acres' have a cropping pattern that also would suit independent farmers. There is one major service centre of 8 000 people and five villages of 2 000 people each. The main road network has been established.

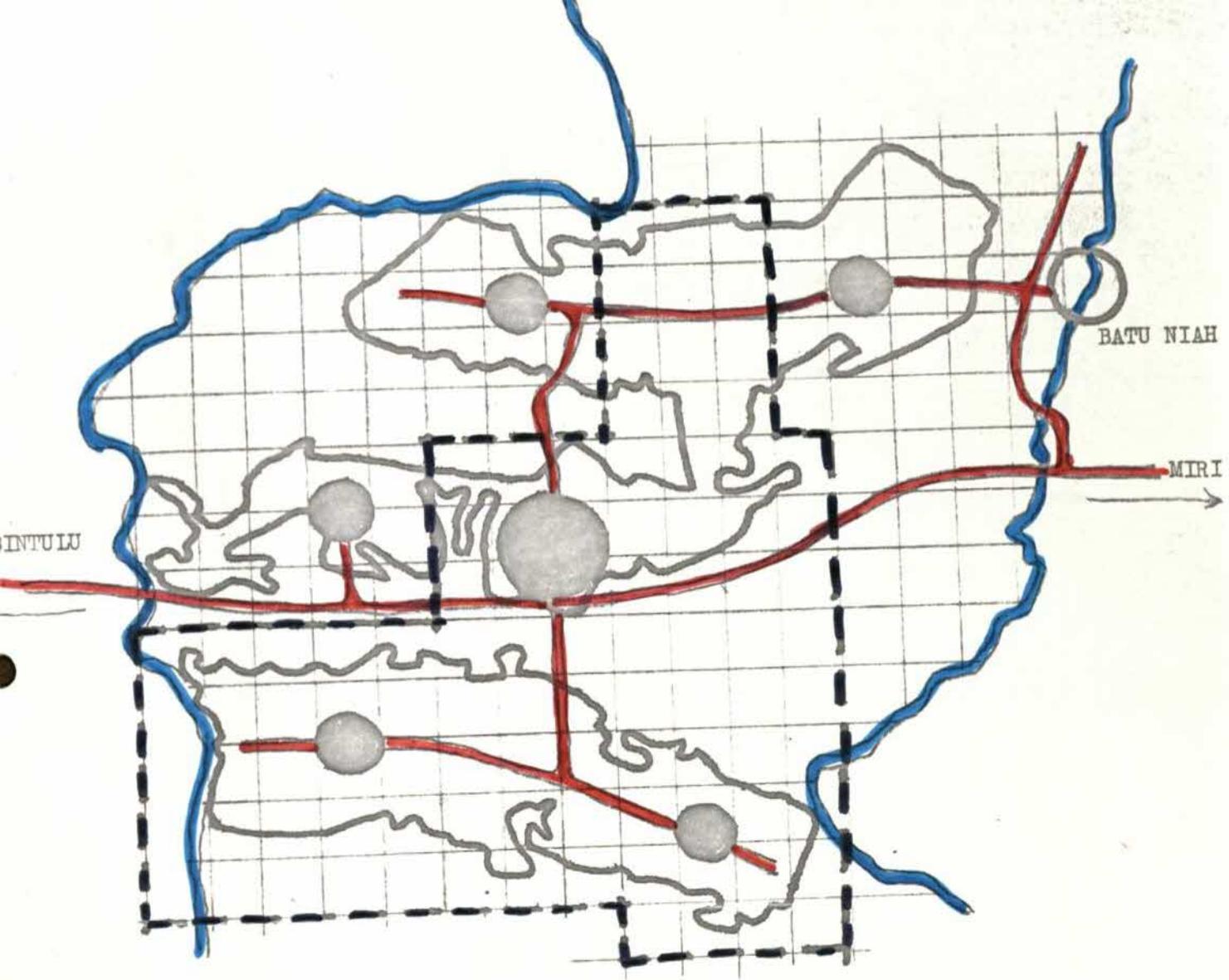


FIGURE 12: Model III/Stage II/1984

Another 10 000 'net acres' are handed over to independent farmers, who now live in three villages.

Another possible pattern of transferring land to independent farmers would be a gradual one where the land would be handed over as soon as the crops on it start coming into economic bearing. In this system which is not illustrated here the emergence of independent farmers would commence in 1977 on wet rice land developed in 1975. However if the present plantings in the Lambir Subis Development Area were to be considered for this treatment the first transferrance could take place in 1976. By then the first specially trained field staff for the Agricultural Development Unit could be available to assist and guide the new independent farmers.

The population figures in each settlement are roughly connected to the indicated years on Figures 6 to 13.

7. SETTLEMENT PATTERN FOR THE STUDY AREA

In order to give an indication of the appearance of the regional service centre networks that would emerge from three settlement Models by 1990-1995, the Models have been applied on the whole Study Area. This exercise must be regarded as a rough 'mechanical' process based on factors such as possible growth of existing service centres, acreages of land suitable for agriculture and the related population, the location of timber complexes and the growth of other trades and industries.

Model I, as shown in Figure 15, would give a widely dispersed settlement pattern with nearly 50 villages each of 2 000 people in the region. In this situation it is envisaged that only Long Lama, as the future centre for the Baram Area, would grow to above 10 000 people before 1990-95. The main service centres along the Miri-Bintulu Road would, be unlikely to grow to more than 5-8 000 people by 1995 because they would share the basic population with all the villages. Consequently, in the initial planning of the service centre network the growth of a few service centres to sub regional centres would not have been catered for nor would the eventual appearance of viable sub regional centres have been indicated. The level of public and private services directly accessible to the population would be lower than with development by the two other Models. If, however, the same standard of services should be provided in all three cases the costs in this model would be relatively high because there would be a repetition of the same type of services in each village. A dense network of public transport would be required.

Development under Model II, illustrated in Figure 16, gives a concentrated settlement pattern with only 14 villages and as much as 7 sub regional centres of 10-12 000 people. Four of these centres would be located along the Miri-Bintulu road at roughly 25 mile intervals. One major service centre would be located in each of the Baram and Kemena Planning Units. Seen from a service supply point of view this type of development would give a high standard over the whole region. The per capita cost of supply for these services would be at a reasonable level and the high concentration of the population would be well suited for a public transport system.

In Figure 17 the regional pattern developed under Model III is illustrated. It would give 6 sub regional service centres of 10-12 000 people, 7 smaller centres of 4-6 000 people and 26 villages of 2 000. In this situation the service centres in the Baram and Kemena Planning Units would be at the same level as for Model II, and only one town close to Bintulu on the Miri-Bintulu road would be smaller. The distance between the villages and the two classes of 'higher order' service centres would be 5 to 10 miles. This implies that the village population could utilize the service facilities in the service centres rather frequently. The combination of a series of well-equipped service centres with smaller villages attached to them could imply that the service level in the latter would be kept at a basic minimum. Although the village people would not enjoy a wide range of amenities at their doorstep, they would not be excluded from a frequent use of the facilities in the nearest town. The cost for supply of services would be intermediate between the costs under Models I and II.

Development under Model III, would result in a quite differentiated settlement pattern with a reasonable distribution of all categories of service centres within the region. Under Model I the pattern would lack the more important towns with 'sophisticated' amenities that could be enjoyed by a larger population than within the town itself. By following Model II a network of important sub regional centres would be distributed over the region. But the pattern would lack the smaller villages in which the rural population could live close to their work and at the same time enjoy the amenities of the urban centres.

2 REGIONAL CENTRES OF 40 000 AND 60 000 PEOPLE

1 SUB REGIONAL CENTRE OF 10-12 000 PEOPLE (LONG LAMA)

9 SERVICE CENTRES OF 5-8 000 PEOPLE

47 VILLAGES OF 2 000 PEOPLE

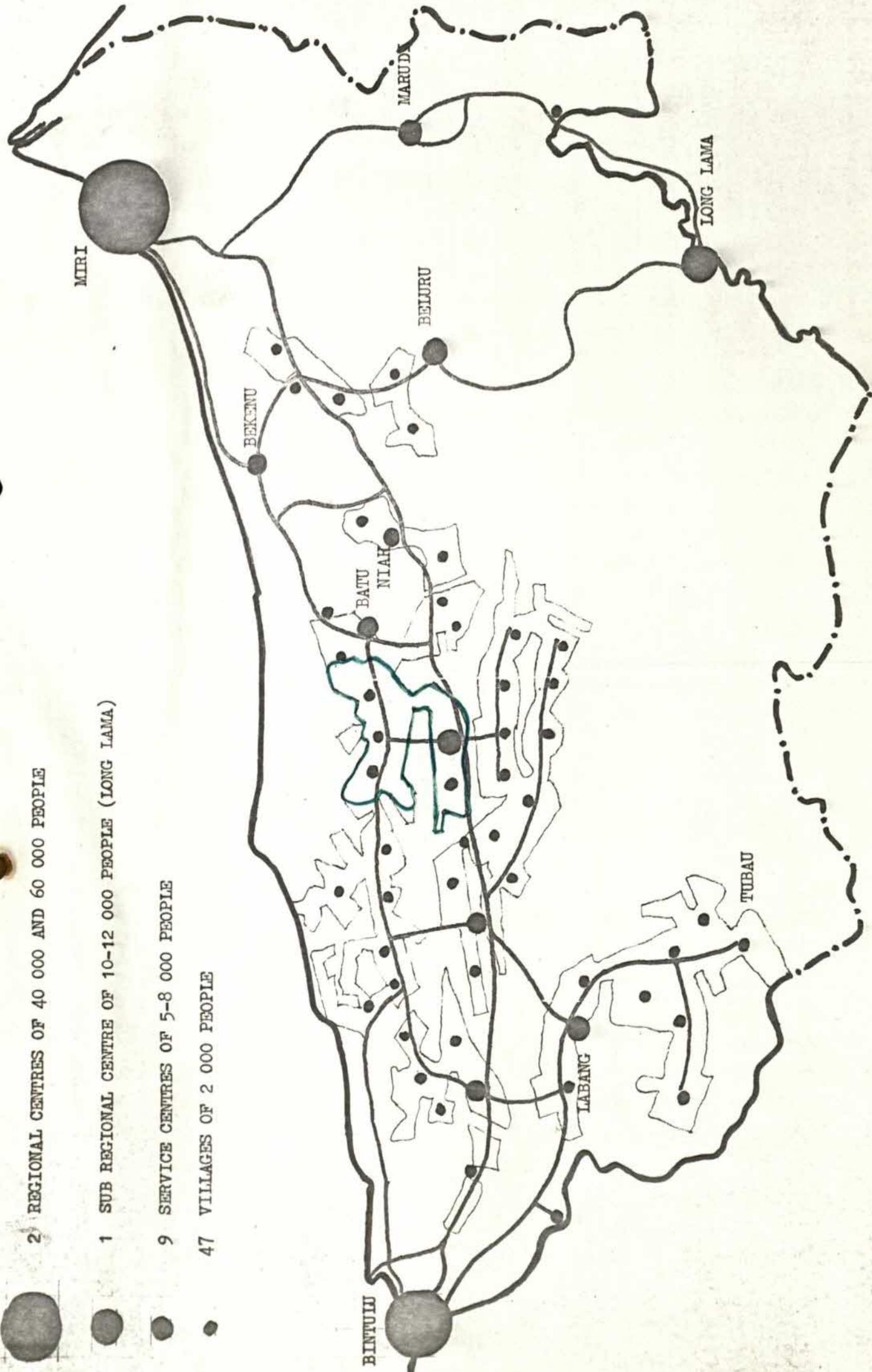
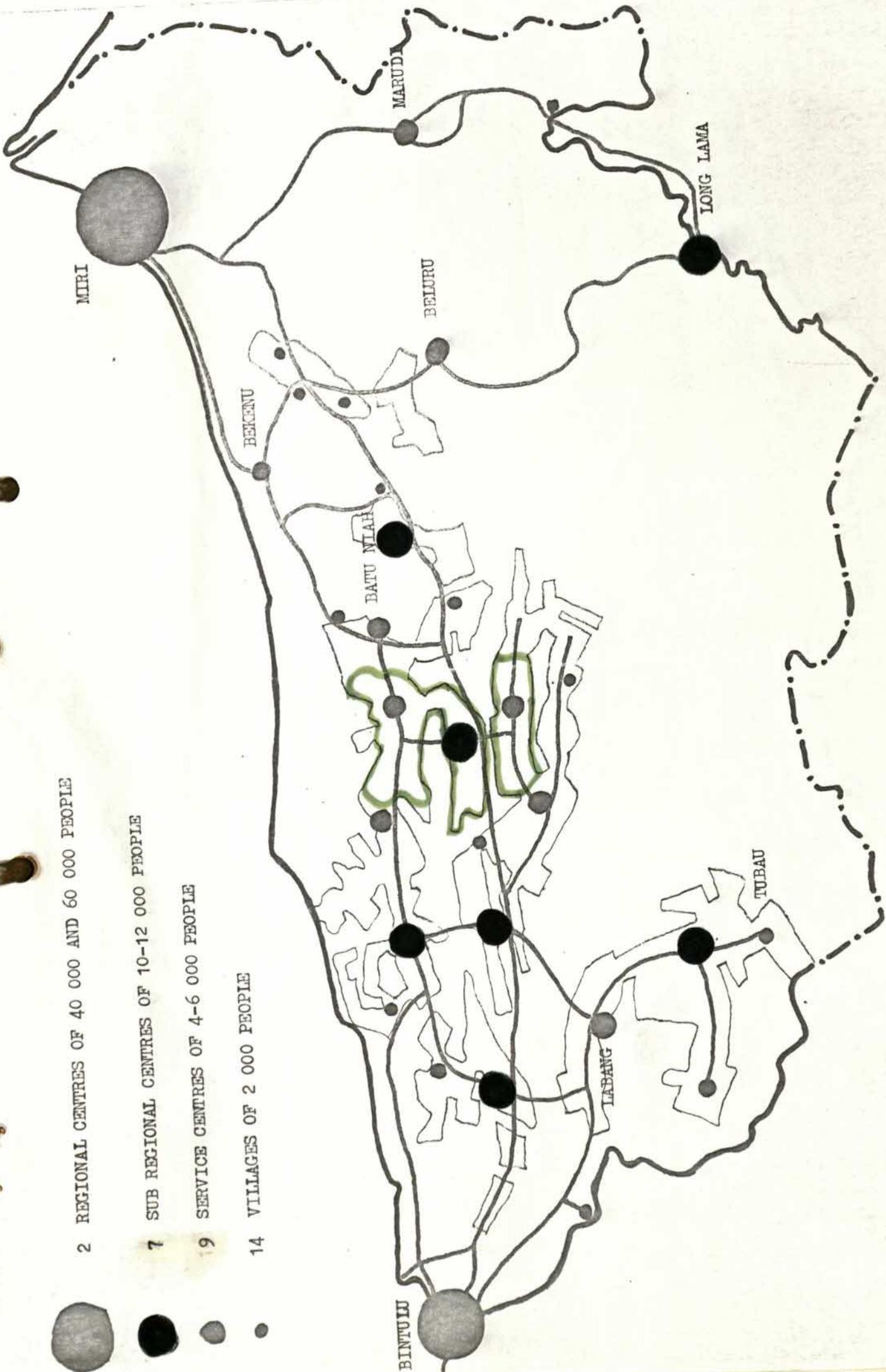


FIGURE 15 MODEL I SETTLEMENT PATTERN FOR THE STUDY AREA

- 2 REGIONAL CENTRES OF 40 000 AND 60 000 PEOPLE
- 7 SUB REGIONAL CENTRES OF 10-12 000 PEOPLE
- 19 SERVICE CENTRES OF 4-6 000 PEOPLE
- 14 VILLAGES OF 2 000 PEOPLE



SETTLEMENT PATTERN FOR THE STUDY AREA

MODEL II

FIGURE 16

DRAFT

MB/3/AGRIC

18th September, 1973

WORKING PAPER No: 56

M.H.F. Cooper & T.V. Andersen

Working Paper: AGRICULTURAL PRODUCTION SERVICES

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THE PRESENT SITUATION

1.1 INTRODUCTION

The Government can influence and promote agricultural production in many ways. Apart from the direct method of clearing forest land and developing it for agriculture there are also indirect, yet more important methods. These are the services that Government can provide; agricultural research, education, extension, credit, supply and marketing. These services are mutually dependent and an ideal chain of activities would be that commercially viable research findings and innovations would be passed to the farmers via the education and extension services; credit would be available to purchase the supplies needed to implement the research findings and efficient marketing channels, especially orientated to the particular conditions, would exist for the farm produce. Furthermore, the links in the chain would be mutually balanced. The research services would be large enough to investigate all the possible enterprises, the education would be able to train sufficient extension staff, similarly the credit, supply and marketing links would be sufficiently wide-spread and numerous to reach all farmers and, finally, the markets for the produce would be able to absorb the volume of goods produced. Such ideal balanced situations seldom exist especially in developing countries. Sarawak is a developing country and the ideal agricultural production conditions cannot be expected to be found here, particularly so in the Fourth Division and the Study Area which are some of the least developed parts of the State. Generally the marketing of agricultural produce has been neglected throughout the State but considerable progress has been made with all the other services.

Given below are short reviews of the present organisation and activities of the various services in Sarawak and in the Fourth Division. The objectives of the efforts of the Ministry of Agriculture have been summarised, in the publication "Department of Agriculture - Second Malaysia Plan 1971-1975", as follows:-

- a) to develop and exploit agricultural resources to the maximum in accordance with sound agricultural development;
- b) to increase the range and quantity and to improve the quality of agricultural produce;
- c) to improve the economic status and social conditions of the primary producers;
- d) to increase employment opportunities in primary production and assist the development of employment opportunities in agro-based industries.

1.2 THE EXTENSION SERVICE

At present in Sarawak and in the Fourth Division the agricultural Department extension efforts are concentrated around two main aspects:-

- a) the execution of subsidy schemes covering rice, coconuts, cocoa, pepper, coffee, fruit trees, annual crops, cattle, pigs, poultry and fish ponds. In each Division annual targets for each scheme are drawn up and finance allocations made. The organisation and achievements of these schemes are summarised in Appendix I.
- b) the organisation and running of Youth Settlement Schemes; so far only one scheme, the Pujut-Lopeng Settlement Scheme near Miri, has been started in the Fourth Division. A summary of the functioning of this scheme is given in Appendix II.

In addition there are the activities of staff working in Home Economics.

The extension service throughout the State, but particularly in the Fourth Division, has been created under conditions fraught with difficulties. For example, widely scattered farming communities consisting of people differing greatly in religion, customs and language; many of the farmers still practising shifting cultivation; poor communications and transport facilities; generally low education levels of staff and farmers; haphazardly created marketing and processing chains for farm produce. It is little wonder that achievements have often been less than expected. Nevertheless progress is made and, under the existing conditions, it is difficult to see how any great improvement in the services can be made. The subsidy schemes do reach a proportion of the people. An analysis of the past three years' activities on subsidy schemes in the Fourth Division reveals that on the average 1 480 farmers participate each year; this is around 12 per cent of the number of farmers in the Division. The average subsidy per participant, excluding cost of staff, amounts to \$870 per year, or in total \$1.3 mn annually. The effect of the subsidy schemes in terms of increased production is limited; it appears that although many farmers participate in the schemes they fail to follow them through or are unable to market the produce, clearly transport and marketing are restraints of equal or more importance than lack of know-how and funds.

The administrative and field staff associated with extension are shown in Table 1.1. The figures given for the State represent establishment posts but not all were necessarily filled. The figures for the Fourth Division show staff actually employed. In both cases Fisheries staff are excluded.

TABLE 1.1 AGRICULTURAL DEPARTMENT STAFF 1972*

Staff qualification and cadre	State		Fourth Division	
	Number	Percentage	Number	Percentage
Degree				
Senior Agricultural Officer (SAO)	2		0	
Agricultural Officer (AO)	13		1	
Sub-total	15	2	1	1
Diploma				
Senior Assistant Agricultural Officer (SAAO)	8		1	
Assistant Agricultural Officer (AAO)	44		6	
Sub-total	52	6	7	8
Certificate				
Senior Agricultural Assistant (SAA)	15		0	
Agricultural Assistant (AA)	259		20	
Junior Agricultural Assistant (JAA)	320		51	
Sub-total	594	77	71	78
Home Economics				
Home Economic Supervisors (HE)	3		0	
Home Demonstrators (HD)	110		11	
Sub-total	113	15	11	13
Total	774	100	88	100

Note * Source: Department of Agriculture, Sarawak.

The Table shows that the percentage compositions of staff in the Fourth Division and in the State are similar. The relative low numbers of seniors on the three staff levels is believed to reflect the young age of the services and not so much that the experienced staff are drained off to other sectors of the society.

The number of actual field extension workers in the Fourth Division was about 70. These served a farming community estimated at 14 000 families; roughly one field worker to about 200 families. This is a favourable ratio when compared to the ratios in more developed countries where corresponding figures are between one to 300 and one to 800. But throughout Sarawak the difficulties facing extension work make it necessary to have a relatively few farmers to each extension worker. These staff, in addition to handling the subsidy schemes which involves much travelling, are also often involved in the collection of Agricultural statistics.

1.3 THE RESEARCH SERVICE

Organised agricultural research work in Sarawak commenced in 1962. It started on a relatively narrow range of crops and enterprises such as rice, pepper and soil investigations. These subjects still constitute a large portion of research work in Sarawak, although during recent years the range of crops and research subjects has increased considerably to cover oil palm, cocoa, pasture, annatto, cashew nuts, spices, essential oils, lowland tea, coffee, fruits, many annual crops and livestock. Besides agronomic and husbandry practices the research subjects include entomology, pathology, plant breeding and economics. In fact Sarawak is beginning to depend on its own research work for most crops and enterprises; the one major exception is rubber which is adequately covered by the Rubber Research Institute in Peninsular Malaysia. The headquarters of the research in Sarawak is at the Agricultural Research Centre, Semongok, near Kuching. The Government policy is that the main activities of the Research Branch will continue to be directed to the improvement of crops already grown in Sarawak (with particular attention to rice) and the testing of new crops under Sarawak conditions.

The allocations of funds from State and Federal sources for research in Sarawak has been increased from M\$1.2 mn in the First Malaysia Plan to M\$2.92 mn in the Second Malaysia Plan. Recurrent and development expenditure on research during 1972 amounted to M\$1 086.6 mn. The senior staff position was satisfactory, there being one vacancy each for an agronomist, an entomologist and a plant pathologist. The staff consisted of:-

- 17 Research Officers (degree)
- 8 Assistant Agricultural Officers (diploma)
- 40 Agricultural Assistants) (certificate)
- 18 Junior Agricultural Assistants)

In addition it is stated in the Second Malaysia Plan that the Malaysian Agricultural Research and Development Institute (MARDI)... will develop effective working relations with Sarawak and will provide research specialists for mutually agreed projects, furnish essential equipment and provide training opportunities for East Malaysian personnel. Thus it is reasonable to expect that a modest request for additional research staff, as is proposed in Chapter / to support a planned development programme, will be fulfilled. MARDI undertakes a comprehensive scholarship programme for future research workers leading to degrees of B.Sc., M.Sc. and Ph.D in Malaysia as well as abroad.

In the Fourth Division research work is mainly undertaken at Kabuloh Research Station where activities started in 1964 with oil palm. Since

then observations and trials have been started on many other crops. At Paya Selanyau trials on varieties and double cropping of rice commenced in 1971. During 1973, as a result of Governments' policy to build-up the Kubuloh Research Station into the Agricultural Departments' main centre for the northern region of Sarawak, the staff has been strengthened by the posting of a graduate Research Officer to the station. The other technical research staff now stationed at Kubuloh and Paya Selanyau consist of one AAO, four AAs and three JAAs. Previously the planning and supervision of research in the Fourth Division was carried out by the Agricultural Departments' Research Division in Kuching.

1.4 EDUCATION AND TRAINING

Present Malaysian agricultural education can be summarised as follows: training at university degree level takes place in Peninsular Malaysia and abroad, primarily in Australia, New Zealand and the United Kingdom; the technical diploma level training is provided by Serdang Agricultural College in Peninsular Malaysia; certificate level training of junior Agricultural Departmental staff takes place in Sarawak at the Natural Resources Training Centre, Semongok (NRTC) as well as in Peninsular Malaysia. Training of farmers is undertaken at two levels: youths are trained at Farmers Training Centres and Farmers Institutes; practising farmers are given short courses at Agricultural Stations.

1.4.1 Departmental Staff Training

The general educational policy for staff of the Agricultural Department in Sarawak is based on demands of various Sections of the Department. The students are normally contracted for a specific post at the start of their studies. This means that the Department has to wait some two to six years (the study time plus a couple of years of experience) before efficient work can be expected from new appointees. This time lag results in a fairly constant under-staffing of the Department and makes the task of planning for the natural loss of staff (resignations, deaths, etc.) practically impossible. In addition the position is made more difficult because the agriculturally trained staff are sometimes employed by private institutions who are not able to make the decision several years ahead of their requirement.

The output of existing institutions and already planned expansions are discussed below.

(a) Degree Training

The present planned annual output of agricultural graduates from the University of Malaysia is around 100 in addition to about 50 obtaining their degrees abroad. The figure of 100 includes graduates in agriculture, veterinary science and forestry. This output, in relation to the number needed in Malaysia, is low and in the Second Malaysia Plan the need to expand the Faculty of Agriculture at the University of Malaysia as well as starting a new University of Agriculture was foreseen. Nevertheless for many years it is unlikely that the supply will meet the demand which is steadily increasing not only from the Agricultural Departments throughout Malaysia but also from bodies and institutions such as the Sarawak Land Development Board, the Sarawak Economic Development Corporation, the Sarawak Pepper Marketing Board and the Rice Marketing Board.

(b) Diploma Training

This level of technical training takes place at the College of Agriculture, Serdang. Expansions are planned to increase output to 320 diplomates by 1974. However, in the Second Malaysia Plan, even this number is estimated to be insufficient to meet demand throughout Malaysia.

(c) Certificate Training

The NRTC opened for education in 1967 and at present conducts a one year course for 40 students in agriculture in addition to courses in forestry, veterinary, home economics and in-service training of Agricultural Department staff. The entrance requirement for agricultural staff is Cambridge School Certificate and farming background is preferred. Comparing junior staff requirements of the Agricultural Department up to 1982 with the expected output of the NRTC shows that there is likely to be a deficit. Table 1.1 shows that in 1972 the number of AAs and SAAs employed in Sarawak was 274 while the Departments' own estimated requirement in 1982 is 998, an increase of 724. The NRTC output should provide 400 AAs in the ten years 1972 to 1982 indicating a deficit of 324 AAs without accounting for staff losses. The particularly high demand for AAs during these ten years is due to the abolishment by 1982 of the cadre of Junior Agricultural Assistant, of which there were 320 in 1972, and not to the needs of development in the Fourth Division or elsewhere. Thus even if the training capacity of the NRTC at Semongok is doubled in the next ten years the outturn of AAs will only just be sufficient to meet the requirements of the Departments' extension service in its efforts to maintain the existing level of extension effort, though the average educational level and training of the staff will be considerably higher.

1.4.2 Farmers Training

(a) Farmers Training Centres

The object of these centres is to give agricultural training to primary-educated youths from farming families. The hope is that they will return to their homes and take up farming on their own account. The centres accept both men and women and the courses cover the basic principles of agriculture. Sometimes, depending on the standard of education of a particular group, farm management is included in the course. Also the courses can be weighted towards the type of agriculture that is followed in the locality from which the majority of the students come. The minimum age for acceptance on the courses is: men 17, women 15. The required educational standard is primary standard six or lower secondary. Selection of trainees is usually done by the District agricultural staff. Each course lasts 14 weeks; there are three courses a year and about 30 students per course; so that roughly 90 people are trained per year per centre. Full board and lodging is provided free at each centre. In addition, each student receives 50 cents pocket money per day and is provided with a set of agricultural hand tools which can be taken with them at the end of the course.

There are seven centres actually operating and three more are planned for construction during 1973-1974.

Existing Centres are:-

Semongok)	
Sg. Pinang)	1st Division
Temudok)	
Ridan (20 trainees only))	2nd Division
Oya Road)	
Kapit)	3rd Division
Kubong)	5th Division

Planned Centres are:-

Bintulu	- 4th Division	(the site is about ten miles from Bintulu on the road to Miri)
Jakar	3rd Division	
Bau	1st Division	

(b) Farm Institutes

The training courses here are aimed at the more educated future male farmers. The minimum education standard required is a pass in Form Three, that is three years at secondary school together with a farming background. The courses, which last one year, cover general agriculture including farm management, but can be weighted to the requirements of a particular student

group. On completion of the course the students can elect to go home to farm or to join a Youth Settlement Scheme.

Boarding facilities and allowances are similar to those for the Farmer Training Centres. Accommodation varies from 30 to 40 students.

There are three institutes actually operating and two more are planned for construction during 1973-1974.

Existing Institutes are:-

Tarat	-	1st Division
Kabuloh	-	4th Division
Julau	-	3rd Division (opened in 1973)

The capacities of these Institutes are not yet fully utilised. For example the number of trainees at Tarat and Kabuloh have been:-

	<u>Tarat</u> Capacity 40	<u>Kabuloh</u> Capacity 30
1971	18	Not opened
1972	28	21
1973		26 (subsequently reduced to 24)

Planned Institutes are:-

Debak	-	2nd Division
Mukah	-	3rd Division

(c) Agricultural Stations and Commodity Stations

Six Agricultural Stations were established by 1968, two in First and one each in the Second, Third, Fourth and Fifth Divisions. They are comparatively large stations each of up to 200 acres designed to serve as both training places for farmers and for bulking selected planting material. Smaller stations have been established at Long Lama and Senga in the Fourth Division.

Two more small stations are planned for construction during the Second Malaysia Plan, one at Sarikei in the Third Division and one at Bintulu in the Fourth Division. The demand for the farmers training courses; which usually last about two weeks, has increased considerably. For this reason, accommodation facilities have been made available at Temudok, Kabuloh and Kubong in the Second, Fourth and Fifth Divisions respectively.

The selected area for the Bintulu Agricultural Station consists of about 30 acres of State and alienated land adjoining the site of the Bintulu Farmers Training Centre. Construction of buildings and farm development started during 1973.

1.5 CREDIT, SUPPLY AND MARKETING

The most common method by which these services reach the farmers throughout Sarawak is the shopkeeper-money-lender method; other less important are the Sarawak Co-operative Central Bank Limited, the Sarawak Economic Development Corporation and Co-operative Societies.

1.5.1 The Shopkeeper-Money-Lender

This system is operated by private businesses, most often small retail shops, scattered throughout Sarawak. Studies, reported in the Sarawak Gazette (Leonard, P.L., 1964, Morris, S., 1965), state that this type of credit is handled on fairly reasonable terms due to competition between the shopkeepers. The number of customers per shop is usually small and because the shopkeeper wishes to attract and retain farmer customers he is inclined to treat the farmers well. The farmer obtains farm and household materials from the shopkeeper and in return delivers agricultural produce to him. The exchange of goods can extend over a long period. An account of the transactions is usually kept by the shopkeeper but it becomes complicated by changes of local prices and estimates of quality. The chances of loss by the shopkeeper on this type of business are high and it is reasonable for him to require an average return of around 20 per cent. The credit worthiness of a farmer is based more on his record of repayments than on his actual repayment capacity as gauged by his holding size or farming ability.

1.5.2 The Co-operative Central Bank Limited

This was established in 1953 and is operated under the Co-operative Ordinance. The Bank's activities are limited to a few loans (two to six) annually to its member societies. The loans are intended only for agricultural productive purposes but investigations reveal that many loans are used for repairs to buildings, education, vehicles, marriage etc. The Agricultural Department provides technical assistance to the bank prior to making a loan, but no technical supervision is carried out during the loan period. About 20 per cent of the Bank's total assets are in loans while 55 per cent are deposited with other banks.

1.5.3 The Sarawak Economic Development Corporation

Established in 1963 the SEDC provides medium and long term credit for agriculture and fisheries. The loans extended have been primarily for

relatively large projects for rubber and pepper planting, fishing and pig projects. The amount of financing has fluctuated erratically from year to year. The average number of loans approved annually during the ten years of operation is around 400. There is a branch office of the SEDC in Miri, which in total extended 68 loans during the period 1964 to 1972. Agriculturalists are employed for the preparation and evaluation of loan applications, but field supervision by the branch staff is very time consuming due to the transport difficulties in the Division as well as the long distances between borrowers. Arrears and bad debts have been persistently troublesome in the SEDC's agricultural credit activities.

1.5.4 Co-operative Societies

The number of primary co-operative societies under the Co-operative Development Department in Sarawak in 1971 was 221 with about 21 000 members. Forty-three societies with roughly 2 200 members were in the Fourth Division. The volume of produce marketed through co-operatives was and still is negligible. In 1970 for Sarawak as a whole the rubber and pepper handled through the co-operatives amounted to 2.2 and 2.7 per cent respectively of the total value sold from the State. The 1970 report on co-operatives in the Fourth Division revealed that the value per member family of supplies sold to members and of produce marketed was \$430 and \$200 respectively.

The following table discloses great difference in co-operative marketing in the Fourth Division.

TABLE 1.2 VALUE OF PRODUCE MARKETED 1969 (\$)

Product	Miri District	Baram District	Bintulu District	Total Fourth Division	Per cent
Rubber	2 457	151 799	18 134	172 390	51
Pigs		7 274		7 274	2
Guano	48 047			48 047	14
Coffee		11 957		11 957	4
Rice		75 510	289	75 799	22
Padi		7 666	144	7 810	2
Other		16 254		16 254	5
Total	50 504	270 460	18 567	339 531	
Per cent	15	80	5		100

Source: Report on Co-operatives, Fourth Division.

The Table shows that co-operative marketing in the Fourth Division is concentrated in the Baram District and that rubber is the main product handled. This becomes even more apparent when it is realised that the whole of the guano sold from the Niah District is handled by only one Society.

1.6 CONCLUSIONS AND RECOMMENDATIONS

Considerable efforts in terms of finance and manpower are channeled into the various agricultural production services in Sarawak and, although the ideal chain of activities is not often created, progress is being achieved. Under the present conditions in the vast majority of the area there is little more that can be done from the extension aspect. The present extension effort of the Agricultural Department is considered correctly orientated because the environment for accelerated development does not exist; communications and transport facilities are poor, the farmers are often in widely scattered isolated groups and they are of differing backgrounds and religions.

However, in and around the planned development areas a very different situation will exist. Here there will be large concentrations of agricultural activity and road networks will be built which will provide good access. In addition marketing, processing and storage services will be created. In fact a new environment will be created, not only in the land directly involved in the schemes but also in the Native Customary Land (NCL) and Titled Land close to the development area. Yet the present agricultural extension service is neither trained nor organised to provide the type of intensive assistance needed to take advantage of the opportunities offered. Furthermore, it has been shown that the numbers of extension staff available and the capacity of the existing training facilities, even if expanded, cannot provide a service level over and above that now attained in the country. The new environmental conditions will require an extension service having different objectives, involving different methods and requiring special training. Therefore, it is recommended that:-

- a) for those farming areas which are not included in, or directly affected by, the planned development of this present Study the existing level of extension efforts and methods should be continued; but in an attempt to take advantage of the considerable acreage of rubber that exists in the Fourth Division the establishment of a rubber marketing system is recommended. This will be described in a Working Paper under preparation.

- b) a new specialised service is created to operate in the development areas.

Thus in future there would be two agricultural extension services operating; the existing service continuing and expanding along lines very similar to the present but with field staff generally better educated and better trained than at present. This service would be handling those areas not affected by planned development; a new and growing service organised and trained especially to support independent farmers in and around the planned development areas. The creation and functioning of this new service is described in Chapter 2 and the specialised training of its staff in Chapter 3.

The research work so far completed in Sarawak and Peninsular Malaysia is sufficient as a basis for initiating development in oil palm, rubber, rice, cocoa and beef production. Several other activities such as lowland tea, spices, annato, robusta coffee and cashew nut production require field-type research before commercial-type planting can be recommended. In fact practically all the enterprises require further research of some kind under local conditions. These aspects are dealt with in detail in Working Papers on the individual crops or enterprises. The organisation, staff and estimated costs for carrying out the work are discussed in Chapter 4.

The likely future deficits of trained agriculturists, at all levels, are problems of which the Federal and Sarawak Governments are aware. Expansions of training facilities are already in hand and more are planned. Nevertheless it would be advisable for any organisation requiring large numbers of trained agriculturists to undertake their own training programmes or, in the case of graduate staff, to consider increasing the number of overseas scholarships. The Farmers Training Centres and Farm Institutes are absorbing a considerable portion of the Agricultural Departments' training effort in a programme which can only give results in the long term future. The greatest difficulty is in organising an efficient follow-up service to support and encourage the young farmers when they attempt to take up farming on their own account. It is known that many of the trainees become submerged in their communities due to respect for their elders who follow the long established farming traditions. However, these young people will eventually form a nuclei of farmers who will be receptive of new ideas. Also the period between learning and the opportunities to practise what they have learned will become progressively shorter as Sarawak develops. Thus it seems reasonable to continue this form of training but it is suggested that those trainees who do not wish to return to their communities should be encouraged to enter normal planned development schemes rather than special youth settlement schemes. The latter are not considered a desirable system of development because no matter how successful they are

agriculturally they are likely to be failures socially. The communities formed would consist of people all roughly the same age and the same training; they would be unbalanced and therefore unstable. It would be better, it is considered, to channel trained young farmers into socially broader based schemes where they could be given priority in becoming independent farmers and where they could be expected to become leaders in the new community.

THE AGRICULTURAL DEVELOPMENT UNIT

2.1 THE NEW SERVICE

It is proposed that a new service called the Agricultural Development Unit (ADU) is created from within the Agricultural Department. The unit would work within the planned development areas; physically it would consist of several centres, that is offices and buildings; organisationally it would be made of of groups of specially trained staff carrying out various functions. At first the Unit would be small both in numbers of centres and staff but the numbers would grow in accordance with the progress of planned development.

The objectives of the ADU would be:-

- a) to supply the independent farmers, in and around the development areas, with know-how and facilities to enable them to develop and manage their holdings in the most efficient way possible.
- b) to encourage and help the farmers to organise themselves into Farmers Associations with the ultimate aim of absorbing and managing the whole function of the ADU. Thus eventually Government would be relieved of these tasks and the farmers would become the true managers of their livelihood within the more general system of Government support and guidance.

Although the ADU would emerge from the Agricultural Department it must be seen to be separate from the present extension service. For this reason new titles are suggested for the various levels of personnel. For example, the suggestion is that personnel of the executive level be given the title of Leader, while those at the Assistant Agricultural Officer (AAO) level would be called Supervisors and the Agricultural Assistant (AA) level called Extension Agents. After the initial allocation of staff from the Agricultural Department to start the ADU it is proposed that all future staff would be separately and specially recruited for this service. Recruitment through the Civil Service Commission would be avoided if possible because, as is shown later, the ultimate future of these staff lies with the Farmers Associations rather than in the Government Service. This open recruitment would allow continual selection and rejection of staff during and after training. Such flexibility would be essential to create the high standard of efficiency necessary for this vital service. The pay, allowances and employment conditions would be basically similar to those in the Agricultural Department but with some upward adjustment of pay, more rapid promotion and other fringe benefits to compensate for more stringent selection and for the loss of much of the travelling allowance. Service in the ADU would

require little or no overnight travel.

It is envisaged that many of the staff of the ADU would eventually become employees of the Farmers Associations while others after some years of service would become independent farmers in one of the development schemes. Thus various long term opportunities would exist for ADU personnel.

There would be several types of independent farming communities that would be handled:-

(a) On State Land;

- i) independent farmers of all races emerging from development undertaken by the Sarawak Land Development Board (SLDB). Generally these would be people who would have worked within SLDB during the land development period. Selected persons would take over the management of land already developed. A Working Paper entitled "Organisational Machinery for Planning and Implementing Rural Development" is being prepared which will contain a description of the envisaged selection and emergence of these independent farmers;
- ii) groups of people, generally long house people, who will have been allocated an area to develop for themselves under a "Block Alienation Scheme". Such alienations would be closely associated with the development planned to be undertaken by SLDB, but the farmers will be allocated holdings of undeveloped logged land;
- iii) individual persons, or private companies, with sufficient capital to develop the land themselves. These farmers would be allocated stretches of land closely associated with that planned for development by SLDB.

(b) On Native Customary Land (NCL) and Titled Land;

present holders of plots in areas closely associated with land planned for development by SLDB. It is in these areas of NCL and Titled Land that the road-based improvement schemes are envisaged to operate. This type of development could be initiated in other parts of Sarawak wherever the infrastructure of roads and markets exists and an ADU-type organisation established. In these areas the farmers will already own the land which, in most cases, will have been cleared of jungle and may be partially developed.

The configuration of farming likely to develop under each of these situations are described in a Working Paper being prepared. Although the patterns are expected to differ considerably the planned development will, by concentrating and integrating the development effort (incorporating

urbanisation, road construction and the creation of marketing, processing and storage facilities), create a physical, social and economic environment where it is possible and desirable to provide intensive agricultural inputs through the new, specially trained and orientated ADU staff.

The co-operation and co-ordination aspects between the SIDB and the ADU in the development areas will be described in the Working Paper "Organisational Machinery for Planning and Implementing Rural Development". In the remainder of this Chapter the creation and operation of the ADU is described.

2.2 ORGANISATION OF THE ADU

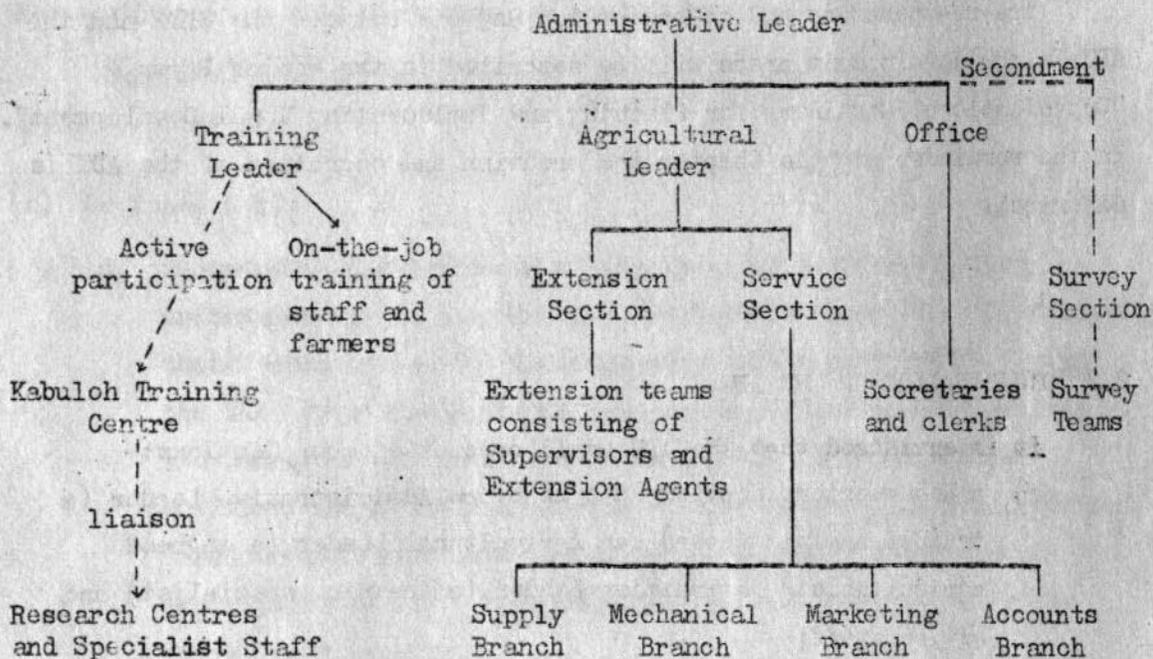
It is envisaged that the ADU would consist of four Sections:-

- a) a Headquarters Section made up of an Administrative Leader (a trained administrator), an Agricultural Leader (a degreed agriculturist), a Training Leader (a training specialist) and office staff;
- b) an Extension Section controlled by the Agricultural Leader and made up of Supervisors and Extension Agents handling agriculture and forestry;
- c) a Service Section also under the Agricultural Leader and consisting of four Branches, handling supplies, farm services, marketing and accounts;
- d) a Survey Section made up of a Trained Surveyor in charge of survey teams on permanent secondment from the Land and Survey Department.

In addition the ADU would have direct access to the research services in the Area from where the advice and assistance of the crop and animal husbandry specialists could be obtained.

The envisaged organisation of the ADU is diagrammatically shown in Figure 1.

FIGURE 1 THE ORGANISATION OF THE ADU



2.3 OPERATION OF THE ADU

2.3.1 The Headquarters Section

The Headquarters of the Unit would be located in a block of offices in some convenient town centrally situated in relation to the development areas. The main town proposed in the Sungai Galasah area north of the point where the Sungai Suai crosses the Miri-Bintulu road would be an ideal location.

The Administrative Leader would be in charge of the whole ADU and responsible for its smooth operation. He would have under him a fully equipped office with secretaries and clerks. Much of his time would be occupied with the day to day problems of starting and running a new organisation; work such as the construction of houses, offices and stores for the staff; purchase of vehicles and other equipment; staff recruitment; pay and allowances for the staff. He would be in regular contact with the Divisional Action Committee to obtain the services of the various Government Departments and Institutions. In addition close contact would be necessary with the Regional Manager and Unit Managers of the SLDB in order to ensure a co-ordination of effort. In many instances the ADU would require the assistance of SLDB. For example in the purchase of agricultural supplies, hire of heavy equipment and maintenance of tractors.

The Agricultural Leader would be responsible for the technical aspects

and day to day running of the Extension and Service Sections. Much of his time would be in the field checking and assisting the Supervisors. He would be the initiator and chief organizer of farm competitions, agricultural shows, visits by farmers to research stations and other such activities which would promote interest and a competitive spirit among farmers to improve their holdings. He would be responsible for controlling the provision of materials and farm services to farmers and would have to decide the maximum value of these that could be supplied to each farmer.

The Training Leader would be responsible mainly for on-the-job training of the ADU staff but would also be closely associated with a special training centre at Kabuloh where he would assist with the teaching and would ensure that the syllabus is correctly orientated to the needs of the ADU. He would assist the Agricultural Leader in preparing crop and enterprise Extension Manuals for use by the Extension and Service Sections to ensure that the same type and standard of advice and services are available to all the independent farmers in the development area. His duties would also cover the encouragement and training of farmers to form Farmers Associations.

2.3.2 The Extension Section

The staff of the Extension Section would be grouped into Extension Teams each consisting of a Supervisor and up to five Extension Agents. The actual number of Agents would depend on the number of independent farmers being handled within a given area. If there are too many farmers for one Extension Team then a second Team should be moved in rather than over-stretch the capabilities of one Team. On the assumptions used in Paragraph 2.5 the maximum number of farmers that one Team could handle would be 250.

Each Team would be located in towns or villages as close as possible to the farmers they are serving. For reasons of efficiency and ease of supervision the smallest isolated unit would be an Extension Team. Thus the Extension Section would be spread throughout the development areas but grouped together in Teams. The Supervisors would be the leaders of each Extension Team and their work would be in the field supervising and assisting the Extension Agents under their control. The fact that the maximum number of Agents would be five and the whole Team would be living in the same town or village implies that there would be almost daily contact between the Supervisor and the Extension Agents.

An important task of these Teams would be to co-operate with, and assist the farmers they serve, in drawing up plans of work for each crop each season. These plans would include work involving whole groups of farmers; for example, arranging the harvesting of oil palm so that contiguous groups of holdings are harvested on the same day or, in a Plock

Alienation Scheme, deciding upon the acreage of land to be cleared, prepared and planted to oil palm or cocoa. Also the plans would include details of work for individual farmers; for example, the planting and fertilising programme of a vegetable, rice or pepper garden, the construction of fish ponds or pig stys. Only those crops or enterprises considered suitable for the particular holding or situation and detailed in the Extension Manuals would be subsequently supported by the Service Section. Either the farmer or the Extension Agent could be the initiator of a particular undertaking but only with the farmers full agreement and co-operation would an enterprise be implemented.

In effect the details of work for individual farmers would form annual farm budgets. They would be simple documents drawn up at the same time each year, covering each crop and enterprise for the coming year. Three tables for each crop or enterprise would suffice. The basic layout and headings of each table for each enterprise would be standardised and printed on one page for issue to Extension Agents. The first table would contain:-

- the area of crop or size of enterprise;
- ~~the weight of produce~~ expected for sale;
- the unit value of produce at farmgate;
- the gross value of produce.

The total of gross values for all crops and enterprises would give the gross income expected from the holding.

The second table would contain the material inputs required for each crop or enterprise as laid down in the specially prepared Extension Manuals. These would show the standard input packages to be supplied by the Service Section. The quantity and value of each would be shown.

The third table would show the estimated number and timing of man days labour that the farmer would have to work.

Such budgets would become more and more accurate as experience is gained. They would show the farmer his years work programme and likely financial status. Possibly a more important use of the budgets would be as the source of information for the Service Section in estimating the quantity of materials and the level of services required in the development areas. In addition they would provide valuable teaching material and would assist the Agricultural Leader in his control of the quantities and value of inputs provided to each farmer. An example of a budget covering the standard input package for wet rice is given in Appendix III.

A similar and equally important task that would be undertaken by the Extension Teams would be the drawing up of a farm plan for each farmer. This would be a map or set of maps of the holding or parcels of land making up the

arranged with the farmers or the Extension Section. Individual farmer requirements of materials in small quantities like pesticides, would be collected personally from the store. Each farmer would have an account with the Service Section and each delivery, whether in the field or at the store, would be recorded against each individual receiving the supplies. There would be special printed forms for this purpose and the farmers signature would have to be obtained each time for each delivery of material. There would be a limit to the value of goods and services that any one farmer could obtain. This limit would vary from farmer to farmer and would be set by the Agricultural Leader. Generally the limit would be equivalent to about 60 per cent of the estimated value of sales of produce for which the only outlet would be through the Marketing Branch. Such produce would be oil palm fresh fruit bunches, poly-bag coagulum of rubber, wet cocoa beans and essential oil material. Estimates of the likely sales value of these products from each holding would be obtained from the farm budgets prepared for each farmer by the Extension Agents. The budgets would also be the source of estimates for the total quantity of materials to be ordered by the Supply Branch.

(b) The Mechanical Branch

An experienced mechanic would be in charge and have trained machine operators under him. The main purpose of this Branch would be to provide mechanical preparation of wet rice land. Equipment required for this would be of two types. Large units consisting of tractors of the Ford 5000 type fitted with cage wheel extensions and operating heavy duty rotovators; one such unit for every 200 acres of wet rice land within a reasonable distance of the operational centre. Small units of the Japanese power-tiller type to handle smaller total acreages and small isolated blocks of rice land. In addition the Branch would have:-

- i) spraying equipment of the knapsack type both hand operated and motor operated;
- ii) motor driven chain saws and hand operated cross-cut saws;
- iii) rice threshing equipment both hand and motor operated.

All the mechanical equipment (tractors, power-tillers, sprayers and chain saws) would be operated by trained employees of the Branch. The services of these units would be for hire (on credit terms) by the farmers. The hand operated equipment would be available on similar terms for use by the farmers themselves.

Records of all hiring would be kept; again by a system of printed forms which would be signed by the farmer.

Requirements for heavy equipment like bulldozers, graders and ditchers for road construction and maintenance or for land drainage would be met by

the Mechanical Branch contracting the work out to SLDB, PND, DID or any suitable private contractor.

Generally the Mechanical Branch would not become involved in the processing of farm produce. Expensive installations such as palm oil mills, large cocoa fermenting and drying centres and essential oil stills are expected to be erected and run by organisations such as SLDB and SEDC. Private firms would be encouraged to set up padi drying and milling facilities. However, the combining of farmers into groups to undertake the building and running of a small cocoa processing centre, for example, generally would be encouraged and supported as part of the process of forming Farmers Associations.

(c) Marketing Branch

An experienced tradesman would be in charge and would have under him trained recorders. The task of this Branch would be to ensure that there is an organised marketing outlet for all products from enterprises recommended and supported by the Extension Section.

The task would fall into two main categories depending on the commodity being handled:-

- i) A collection, recording and delivery function which would operate in the case of those commodities for which the only outlet would be the one organised by the Marketing Branch. These are the products, already mentioned, which would determine the limit to which materials and services could be supplied to each farmer. For each of these commodities a time and date collection round would be organised, records of quantities produced by individual farmers' would be kept and the whole consignment would be delivered to the processing plant.
- ii) Assistance would be given to farmers, if they wish it, to sell any other commodities the production of which have been part of the Extension Sections' programme but for which other outlets could exist. This includes such products as rice, pepper, fruits, vegetables, fish, poultry, pigs, coffee, annatto and cashew nuts. Some of these commodities the farmers themselves would consume, others they may wish to sell, either privately or to the Marketing Branch. Generally there would be no obligation on the farmers as to the disposal of these commodities but the Marketing Branch would ensure that there is a convenient outlet; in fact handling the product if there is no other market in the area. Every effort would be made to channel all these products through any State organised marketing organisations, for example, the Pepper Marketing Board. The actual outlet in the development area could

holding and would show the locations of various crops and enterprises. The plan would include a farming calendar in diagram form showing operations to be performed in each month. Also included would be an analysis of each enterprise over its life time. These would show the expected performance and profitability of each undertaking. Thus the farmer would be fully aware of his commitments.

Inevitably there would be a degree of overlapping between the annual budgets and the farm plans but this would be desirable in that it would ensure that the farm plan is realistic and continually brought up to date.

Each farm budget and farm plan would be made in duplicate; one kept by the farmer and one passed to the Agricultural Leader.

The Extension Agents would be in daily contact with the farmers and would endeavour to become their friends. The Agents' tasks would be to show and to teach the farmers the cultural methods of crop and animal husbandry as specified in the Extension Manuals; also to ensure the farmers know exactly what is expected of them, where they fit into the scheme, what aids and facilities are available, how to obtain these and use them correctly.

Forestry personnel would be attached to those Extension Teams stationed in agricultural development areas which contain land unsuitable for agriculture and therefore allocated to permanent forest but which are too small or too isolated to be included in State Forest Reserves. The tasks of the Forestry personnel would be to supervise and assist, initially the farming community and later the Farmers Associations, to protect and manage these patches of forest. Details of these tasks will be given in a Working Paper on forestry development.

2.3.3 The Service Section

This Section which would be under the Agricultural Leader would supply the needs of those same independent farmers being served by the Extension Section. The task would fall into four main categories each handled by a separate Branch;

- i) to supply, on credit, the materials for production; undertaken by the Supply Branch;
- ii) to supply, on credit, mechanical assistance for certain agricultural operations; undertaken by the Mechanical Branch;
- iii) to organise and assist in the marketing of farm produce; undertaken by the Marketing Branch;
- iv) to recover payment for the materials and services supplied; undertaken by the Accounts Branch.

These services are seen as one package operated by the Service Section which, having provided the means and materials for production, would recover the cost of these through the marketing of produce from the farms served. Generally there would be no provision of credit in the form of cash. The only cash payments foreseen are "subsistence" payments made to farmers in Block Alienation schemes. In these schemes farmers may require cash assistance during the period before their crops come into bearing. Recovery of this money would be also through the system envisaged here.

A unit of each Branch would function in each Development Unit. The staff would live in the main urban centre of the Development Unit and they would share an office block with the Extension Team or Teams assigned to that particular part of the Unit. Thus a physical centre, consisting of offices and stores and catering specifically for the requirements of the independent farmers, would be created in each Development Unit. A close and co-ordinated working relationship between the Extension Section and the Service Section would be essential. This would be obtained by placing both Sections directly under the Agricultural Leader. The Service Section would provide the farmers with the materials and means to carry out the improvements and innovations promoted by the Extension Section.

The tasks and functions of the Branches in the Service Section would be as follows:-

(a) The Supply Branch

This would be run by an experienced storeman and would be organised to provide the farmers with production materials such as fertilisers, insecticides, herbicides, seeds, bags etc. These would be in accordance with standard input packages as laid down in the Extension Manuals. Only the specified items would be supplied and the whole package, not only part of it, would have to be accepted by all participating farmers.

Finance for the purchase of the materials in bulk would be provided as credit to the Service Section by the Bank Pertanian, for instance, which would be required to set up an office in Sarawak.

Purchase of the materials, at least during the early years, would be through the SLDB who would be requested to add the estimated requirements of the Supply Branch to their bulk orders. SLDB would handle the supplies right up to their stores in the Development Units. At this stage the supplies would be handed over in bulk to the Supply Branch who would be responsible for their safe keeping and further distribution to the farmers.

Distribution of materials to the farmers would be handled like any retail delivery store. Materials required in large quantities, or heavy bulky goods like fertilisers, would be delivered to specific places at specific times as

be through the Marketing Branch or through some local trader. The value of any of these commodities handled by the Marketing Branch would be credited to the account of the individual farmer. Instances could arise, in practice, where the farmers in an area do not have sufficient crops which would be automatically handled by the Marketing Branch to provide sufficient credit worthiness to obtain the materials and services needed. In such cases arrangements would have to be made for the Marketing Branch to become the only convenient outlet for some other specific product.

For all the products handled by the Marketing Branch records on printed forms would be kept.

(d) Accounts Branch

A senior experienced trained accountant would be in charge with trained accountants working under him. The responsibility of the Branch would be to keep accounts of all transactions undertaken by the Service Section. It would be required to make up monthly statements of each farmers' account and arrange payment of amounts due both to the farmers and the bank which provided the original loan.

A copy of the forms recording each transaction carried out by the other three Branches of the Service Section would be passed to the Accounts Branch which would also receive monthly payments from the processing plants and other outlets for bulk deliveries of farm produce.

Thus a monthly statement of each farmers' transaction could be made. This would show the value of materials and services received by each farmer from the Supply and Service Branches and the value of the produce handled by the Marketing Branch. From this a monthly payment to each farmer could be calculated by deducting from the total sales value a previously agreed percentage or sum for the materials and services received. The deductions from all the farmer would together make up lump-sum payments of the original loan. Other deductions to cover land development costs and taxes would also be made from the farmers' earnings. The implications of these additional deductions are explained in Working Paper No. 50 "Some Social and Financial Problems in Rural Development" which outlines the Consultants' present thinking concerning the repayment, by farmers, of the capital costs of land and rural development.

A vital aspect in the whole working of the Service Section would be the recording of the transactions. This should be kept as simple, practical and foolproof as possible. Given below are some suggestions as to how the system could be run:-

- a) Each farmer could be identified by name and by a number. Both

these should appear on every form recording any transaction involving the farmer.

- b) All transactions involving a farmer should be in triplicate; one copy for the farmer, one for the particular Branch involved and one passed to the Accounts Branch.
- c) Records of bulk deliveries of farm produce to the processing plants should also be in triplicate; one copy for the plant, one for the Marketing Branch and one passed to the Accounts. In addition, a summary record, showing the quantities contributed by each farmer, should be made for each bulk delivery. These summaries would be in duplicate, one for the Marketing Branch and one for the Accounts Branch.
- d) Monthly statements of each farmer's account should be made in triplicate; one for the farmer, one kept by the Accounts Branch and one passed to the Agricultural Leader. The statements should show, very simply:
 - i) the type and value of materials and services received by the farmer during the month. This should be itemised and totaled;
 - ii) the value of produce sold itemised and totaled;
 - iii) deductions for the month, itemised and totaled;
 - iv) total value still outstanding of production materials and services received (not including land development costs);
 - v) amount due to the farmer that month.

The set of copies passed to the Agricultural Leader would enable him to obtain valuable information on the progress of each farmer, and, indirectly the efficiency of the staff of the Extension Teams. The Agricultural Leader would also use the information to determine, for each farmer, the upper limit of value to which production materials and services would be provided.

2.3.4 The Survey Section

This Section, led by a senior surveyor, would consist of survey teams seconded to the ADU from the Land and Survey Department. The Section would be responsible for the considerable survey work necessary within the development areas. The Land and Survey Department would continue with all work outside these particular areas. This work would include surveying and demarkation of the boundaries of Forest Reserves, National Parks etc.

Within the development areas the survey work would consist of mapping and demarkation on the ground of:

- a) boundaries between land suitable for agriculture (therefore destined to be cleared of jungle) and land unsuitable for agriculture (therefore to remain under forest);

- b) boundaries between Native Customary Land and State Land;
- c) boundaries of independent farmers' holdings as well as of SLDB managed areas;
- d) boundaries of residential, commercial and industrial plots within towns and villages;
- e) alignment of roads and drains.

These are all vitally important aspects of orderly development and cannot satisfactorily be undertaken as additional routine work by the Land and Survey Department. Special teams must be allocated specifically for this work.

The teams would be stationed in the main centres of each Development Unit with a central drawing office either in the headquarters of the ADU or the regional office of SLDB.

2.4 SOURCE OF FUNDS AND PAYMENT PROCEDURE

The Bank Pertanian which, it is suggested, could be the source of funds handled by the Service Section would need to start an office in Sarawak. It would operate under its basic charter and regulations and would have its own accounts and staff. A senior member of this staff would be expected to visit the ADU Accounts Branch offices periodically and ensure that the accounts are correctly kept. The handling of funds would be simple. The ADU would be allocated annually a credit account with the Bank. The amount appropriate to the estimated requirements of the Supply and Service Branches. The purchase of bulk supplies would be by the SLDB who would present their bill for the bulk materials together with the Supply Branch order to the Sarawak Branch of the Bank Pertanian from where payment to the SLDB would be made. Payments to the Bank would be made also by the Accounts Branch using the deductions from each farmers' account. The acceptance, by the farmer, of these deductions from his earnings would be a pre-requisite for participation as an independent farmer.

2.5 STAFF REQUIREMENTS

The build-up of the staff for the Headquarters and the Extension Section of the ADU is presented in Table 2.1.

The figures given are consistent with the estimates of the rate at which independent farmers will be created and are based on the following assumptions:-

- a) that the formation of the Section should commence as soon as

possible (1973 in the Table) in order to provide as much assistance and support as possible to the people involved in the Block Alienation at Sepupok and the road-based improvement scheme for Rumah Mancha in the Lambir-Subis Development Area;

- b) that further Block Alienations and road-based improvement schemes will be undertaken during 1974 and 1975;
- c) that the emergence of independent farmers from development undertaken by SLDB would first occur in 1976 when the first group of specially trained staff would complete their course at Kabuloh (see Chapter 3);
- d) that during 1974 and 1975 the number of staff involved and the volume of administrative work would not warrant a full time Administrative Leader. The work could be handled either by the Agricultural Leader or the Administrative Officer Planning and Development (Fourth Division) working part time on this job. But, by 1976 the work-load would be sufficient to occupy an Administrative Leader full time and he would need to move into the Headquarters of the ADU;
- e) that the Supervisors and Extension Agents required during 1973, 1974 and 1975 would be appointed directly from the AAO and AA cadres of the Agricultural Department. From 1976 onwards the positions would be filled by staff trained in the Training Centre at Kabuloh;
- f) the number of farmers that each Extension Agent could handle would gradually increase from about 25 at the outset to around 50 in three years. This arrangement is possible because both farmers and Extension Agents would gain experience. A farmer having been in the scheme for a year would require less assistance than a new one, and a two year farmer less assistance than a one year farmer. Eventually the experienced farmers would require little of the Agents' time;
- g) each Supervisor would be assigned initially to direct and assist about three Extension Agents in their work, this number would increase to about five in three years. This arrangement is to ensure training and very close supervision of the Extension Agents;
- h) that the Agricultural Leader in the first few years could check the work of about seven Supervisors in addition to handling the Service Section. When there are more than seven Supervisors, in about 1976, it is assumed necessary to appoint an experienced Supervisor to the post of Extension Section Leader to help out in the task of checking the Supervisors. Other Extension Section Leaders would be created subsequently for roughly every seven Supervisors.

The build-up of staff for the Service and Survey Sections is shown in Table 2.2. It is shown that the Supply and Marketing Branches are not established until 1976. This is because the supply and marketing activities cannot be commenced until the Extension Section is operating with specially trained staff. As explained earlier this will not be before 1976. However, some services of the Mechanical Branch will be required as early as 1974 to support the efforts of the Extension Section working in the Block Alienation and road-based improvement areas. Survey work is already being undertaken in the development area, therefore, in Table 2.2, the secondment of a team to this work is shown in 1973. The demand for these services will increase rapidly in the future.

Note

The figures in Tables 2.1, 2.2 and 2.3 are mere guesses at present and will have to be adjusted to fit in with final development rates, but the principles need not change.

Year	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Survey	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Service																					
Supply																					
Marketing																					
Mechanical																					
Extension																					
Block Alienation																					
Road-based improvement																					
Survey work																					
Secondment of a team																					
Total	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

TABLE 2.1 ESTIMATED STAFF REQUIREMENTS FOR THE EXTENSION SECTION OF THE ADU

Year	Number of new farmers	Admin. Leader	Agric. Leader	Training Leader	Extension Section Leader	Extension Agents		Supervisors		Total Agents and Supervisors	
						New	Cumulative total	New	Cumulative total	New	Cumulative total
1973	200	1	1			8	8	3	3	11	10
1974	130	1	1			3	11	1	4	4	14
1975	170	1	1	1		4	15	1	5	5	19
1976	280	1	1	1	1	11	26	3	8	14	33
1977	400	1	1	1	1	12	38	4	12	16	49
1978	450	1	1	1	1	11	49	1	13	12	61
1979	450	1	1	1	2	10	59	2	15	12	73
1980	520	1	1	1	2	13	72	2	17	15	88
Sub-total	2 600	1	1	1	2		72		17		88
1981 to 1995	per year 590	1	1	1	additional 7	per year 13		per year 3		per year 16	
Sub-total	8 850	1	1	1	7		195		45		240
Total	11 450	1	1	1	9		267		62		328

TABLE 2.2 ESTIMATE OF STAFF REQUIREMENTS FOR THE SERVICE AND SURVEY SECTIONS OF THE ADU

Year	SERVICE SECTION										SURVEY SECTION	
	Supply Branch		Mechanical Branch		Marketing Branch		Accounts Branch		Senior surveyor	Survey teams		
	Experienced storeman	Storemen	Experienced mechanic	Trained drivers and spray operators	Experienced tradesman	Trained recorders	Senior accountant	Trained accountants				
1973										1		2
1974			1	1							2	3
1975			1	2						1		3
1976	1	1	1	3	1	1	1			1		4
1977	1	2	1	4	1	2	1		2	1		4
1978	1	2	1	4	1	2	1		2	1		5
1979	1	3	1	5	1	3	1		3	1		5
1980	1	4	1	6	1	4	1		4	1		6
Sub-total	1	4	1	6	1	4	1		4	1		6
1981 to 1995												
Sub-total												
Total												

2.6 TRANSPORT REQUIREMENTS

All the staff except those in the offices and stores must be mobile. The Administrative Leader, Agricultural Leader, Training Leader, Senior Accountant and Senior Surveyor would require four-wheel drive vehicles while for the rest of the staff motorcycles would suffice. Loans would be made available for the purchase of the vehicles and motorcycles, and an allowance paid for duty travel. The Supply and Marketing Branches of the Service Section would require in addition transport for moving supplies to farmers and produce to the processing centres or to market. These particular services would eventually be taken over by the Farmers Associations who could contract the work out, but during the years before the Associations are formed and become well established these functions would be undertaken by the ADU. An estimate of the transport requirements is given in Table 2.3.

TABLE 2.3 ESTIMATE OF TRANSPORT REQUIREMENT OF THE ADU

Year	Four-wheel drive vehicles		Motorcycles		Lorries		Remarks
	New	Cumulative total	New	Cumulative total	New	Cumulative total	
1973	1	1	8	8			
1974		1	3	11	1	1	Lorry for Mechanical Branch
1975	1	2	4	15			4-wheel drive vehicle for Agricultural Leader
1976							
1977							
1978							
1979							
1980							
Sub-total							
1981 to 1995							
Sub-total							
Total							

2.7 THE CREATION OF FARMERS ASSOCIATIONS

Farmers Associations (FAs) are new to Sarawak. A modest start was made in 1971 with four associations which are still in their earliest stages of development. The Farmers Association Act of 1967 and the Farmers

Organisations Act of 1973 show that this type of organisation is regarded by Government as an integral part of agricultural development. The intention to create FAs in the planned development areas would be stressed from the earliest stages of ADU staff training. In fact the establishment and functioning of the ADU is seen as an essential stage in the creation of FAs.

The formation of FAs would be an important lecture subject in the sociological efforts to orientate and assist the settlers to adapt themselves to their new environment. The settlers, even before they become independent farmers, would be encouraged to take an active part in the running and organising of their communities' social activities. The same would apply to agricultural activities once the people became independent farmers. The first step would be co-operation in such activities as harvesting of oil palm where large blocks, consisting of numerous individual holdings, would have to be harvested on the same day; or mechanical rice land preparation where all the holdings in a particular area would have to be handled during the period that machinery is in the area. Many other examples can be thought of where the farmers would need to co-operate. At first this co-operation would be organised by the ADU but the natural leaders among the farmers would be encouraged constantly to take over the task. In this way farmer participation in the running of the ADU would start and expand. Gradually they would take over an increasing responsibility for the affairs of their group.

Initially individual functions, like transport of oil palm fresh fruit bunches to the mill, would be undertaken. Later combined packages of operations would be taken over from the ADU, for example, all the functions associated with oil palms. At this stage an Oil Palm Growers Co-operative could be formed. Gradually function by function and enterprise by enterprise the whole role of the ADU would be absorbed and the scene would be set first, for the creation of a series of Growers Co-operatives and finally for a Farmers Association. The first ones would be Area Associations perhaps covering a Development Unit. Two or more of these associations would eventually combine into a Divisional Association and ultimately a Sarawak State Association would be formed.

The executive and managerial positions in these associations could not all be expected to be filled by persons emerging from the farming community, in fact many would be employees especially chosen and recruited for the job. Priority candidates for these posts would be the experienced members of the ADU. These persons would be known to, and trusted by, the farmers of the area. But such direct methods would not be the only opportunity for the ADU staff to enter the management of the FAs. It would be expected and hoped that some of the Extension Section staff would be convinced that opportunities in farming in a planned development scheme would be equal to or even better

than the opportunities within the ADU. Those who so wished to take up farming as their occupation would be welcomed to do so, and it could be expected that some of these would become leaders in the core of the FAs.

2.8 STAFF QUALIFICATIONS

(a) Administrative Leader

The post would require a trained administrator with several years experience in the Sarawak Civil Service. The appointee would need to be familiar with the administrative side of rural planning and development.

(b) Agricultural Leader

He would require a general degree in agriculture with several years experience in extension and administration in the Agricultural Department in Sarawak or other parts of Malaysia.

(c) Training Leader

Because the whole concept of the ADU is new to Sarawak and because the particular techniques have to be taught to the staff it is considered necessary to have a training specialist.

The qualifications required for the post are a degree in agriculture with specialisation in extension education. Practical experience in teaching and working within an organisation similar to the ADU would be essential.

It is unlikely that a suitable man will be found locally and it is suggested that application should be made to FAO or, for instance, the Swedish Aid (SIDA) for assistance in providing the right type of person.

(d) Supervisors

The first few Supervisors would be appointed from the AAO cadre in the Agricultural Department. These will have obtained a diploma from Serdang and will have had several years extension experience in the Department. Later appointees would be by promotion of Extension Agents who would have been trained at Kabuloh and proved themselves in the field.

(e) Extension Agents

Like the Supervisors the first few Extension Agents would be appointed from the AA cadre of the Agricultural Department. They will have attended the one year's certificate course at the Natural Resources Training Centre, Semongok, and will have had several years field experience in the Agricultural Department. Later appointees would enter the ADU through the training centre

educational requirements for entering Kabuloh would be Form V.

(f) Storeman in charge of the Supply Branch

He would need to be a well educated, trustworthy person with experience in running a retail, or similar type, business and be able to make up quantity estimates of materials required as well as keeping accurate records of stores. He must be capable of checking the records and stores of staff under him.

(g) Mechanic in charge of the Mechanical Branch

The experience and ability to organise the day-to-day operation and maintenance of machinery attached to the Branch would be the most important qualification.

(h) Tradesman in charge of the Marketing Branch

A practical businessman would be required; one with the ability to appreciate the marketing requirements of a wide range of agricultural products and be able to organise outlets for them. He would be required to check the recording of transactions carried out by staff under him.

(i) Accountant in charge of Accounts Branch

He would need to be a senior man, trained in accountancy and of proven trustworthiness. He must be able to instruct junior accountants and check their work.

2.9 COSTS

Table to drawn up based on the numbers shown in Tables 2.1, 2.2 and 2.3.

3.1 INTRODUCTION

Success in any new scheme or organisation can nearly always be credited to a well trained and educated staff. However, the level of training and education needed is often exaggerated or misused. The highest efficiency of efforts and funds spent on training and education is gained where each participant has the precise know-how needed for the job he or she is doing.

The belief that an Extension Agent must be able to answer all agricultural questions in order not to lose face is a misconception; an honest answer admitting lack of knowledge with a promise to find out the correct facts introduces respect and understanding between farmer and Agent. However, this misconception has often led to the belief that specialist advisors are necessary at the farm level. Such specialisation would be extremely costly and would place too great and unnecessary demands on education and training.

A particular principle envisaged in the operation of the ADU is that the staff of the Extension Section should be in frequent, direct contact with the farmers. The efficiency of these staff will therefore depend on their personality, on their ability to converse with the farmers, on their general knowledge of agriculture, on their familiarity with local and practical agriculture and particularly on their knowledge of, and ability to operate the current extension or development programme. The training scheme described in this Chapter is designed specifically to provide staff for the ADU. Training would commence at a special centre and would continue during service. Trainees would be of all races. Therefore it would be possible in the future to allocate an Extension Agent to assist farmers of the same race if this is found to be desirable, but the present thinking is that such controlled allocation of staff would not be desirable or necessary.

3.2 THE AGRICULTURAL EXTENSION TRAINING CENTRE AT KABULOH

It is proposed that the Farm Institute at Kabuloh is converted into an Agricultural Extension Training Centre aimed to cater specifically for the needs of the ADU. The Kabuloh Institute has been particularly chosen because it is conveniently situated in the Study Area and will have the advantage of active land development taking place closely where practical.

training and demonstration can be undertaken. The capacity of the existing boarding and teaching accommodation is 30 which, assuming an annual training course, is greater than the requirements of the ADU in the Study Area. However, it is highly probably that agricultural development, similar to and running concurrently with that planned in the Study Area, will be taking place in other parts of Sarawak and it too will require specially trained extension staff. Thus the outturn from the Centre is expected to be fully utilised.

The Centre would remain under the Agricultural Departments' training organisation but the teaching syllabus would be specially orientated to include subjects related to new settlements and the planned agricultural development in the area. This would be in addition to the general syllabus now followed. The method of study would include considerable practical work aimed at teaching the techniques of dealing with farmers and assisting them to adjust to the new agricultural environment. The additional training needed by the Extension Agents to eventually work in Farmers Associations would be taken into account. Special short courses in the handling of credit, marketing and supply would be given.

3.3 STAFF REQUIREMENTS

The permanent teaching staff at the Kabuloh Farm Institute, consisting at present of:-

- one principal - an AAO diplomate;
- two lecturers - AAs with certificates;
- one woodwork instructor;
- one machinery instructor;

would require strengthening. It is proposed that an experienced Agricultural Officer be appointed to take over charge of the centre. The present principal would become his deputy and Senior Lecturer, while one of the present AA lecturers would be retained together with the woodwork and machinery instructors.

Considerable guidance and assistance could be given to the Centre by the Training Specialist attached to the ADU. In fact he would be responsible for drawing up and teaching most of that part of the syllabus pertaining to the ADU and Farmers Association work. In addition supplementary lectures and discussions on specific subjects would be given by other staff members of the ADU, the Kabuloh Research Station and other institutions. This high level of teaching is considered essential in view of the vital role that the ADU will have in the overall development plan. Success in the field can only be anticipated if the staff training is of the envisaged standard.

A one-year course followed by on-the-job training directed and supervised by the Training Specialist is considered adequate. The training would rely heavily on local research for providing much of the technical details of cultural and managerial practices. The incentives of planned, practical training leading to ensured employment, following a successful completion of the course, are expected to prove sufficiently attractive to eliminate problems of enrolment. Prospective students would be males having passed Form V and be at least 17 years old, slightly older students would be preferable. The academic requirement would be the same as demanded by the NRTC so that students having completed the course would be equivalent to the AA cadre in the Agricultural Department.

The conversion of the Farm Institute into an Extension Training Centre is not likely to take place before January, 1975 because the final report of the Miri-Bintulu Regional Planning Study will be presented in April, 1974 by which time a normal course for young farmers will have started. Furthermore, even if an earlier acceptance of this proposed scheme is possible it is unlikely that staff of the calibre envisaged for the Training Specialist and the Principal of the Centre will be made available sufficiently quickly to take up their posts before January, 1975. Thus the first output of trainees can be expected in January, 1976. This timing has been taken into account in the estimation of staff requirements for the ADU.

3.4 COSTS

The existing facilities at Kabuloh would be fully utilised. In addition a bus costing about \$50 000 and teaching equipment totaling about \$45 000 would be necessary.

Recurrent annual costs, based on present expenditures of operating the Farm Institute, are estimated as follows:-

	\$
Agricultural Officer (salary plus allowance)	20 000
Two Assistant Agricultural Officers (salary plus allowances)	15 000
Woodwork and Machinery instructors	12 000
Maintenance of buildings	10 000
Provision of electricity and maintenance of water supplies	4 000
Transport and travelling	6 000
Messing (\$1.50 per student for 330 days)	15 000
Other student allowances	5 000
Farm expenditures (in addition to sale of farm produce)	15 000
Labour (cooks, drivers and farm labour)	16 000
Administration ((office and teaching equipment, telephone etc.)	4 000
Total	\$122 000

4.1 INTRODUCTION

It is the Governments' intention that the Kabuloh Research Station should become the main centre of research for northern Sarawak. Also the Government plans to establish a Livestock and Pasture Research Station in the Fourth Division. Thus the research aspect of the agricultural production services is likely to be well cared for, but it is essential that the research should be orientated towards the specific requirements of the area. In this Chapter some guidelines and ideas are given for the organisation of research in the Study Area. Details of aspects requiring investigation for specific crops and enterprises are given in Working Papers dealing with the particular crops and enterprises.

Generally plans for agricultural research have to be of a long term and tentative nature because the work is seldom short term. For example, to prove commercial viability of a crop variety could take several years; with some luck a true indication of its worth might be obtained in four or five years. Reliable findings from livestock research could easily take 15 or more years if cross-breeding has to be examined. The unpredictable nature inherent in agricultural research makes the estimation of future requirements for staff and resources particularly difficult.

4.2 FUTURE AGRICULTURAL RESEARCH IN THE AREA

Basically the aims of research in the Study Area should not differ greatly from the present objectives, namely:-

- a) to investigate the feasibility of growing new crops and crop varieties in the area;
- b) to investigate new agronomic and husbandry practices for crops already grown commercially;
- c) to evaluate successful commercial farming and pin-point subjects requiring investigation.

It will be particularly important for the research to provide the basic practical farming information which would be used as teaching material for the extension services and which would be fundamental to the economically sound operation of the Supply Branch of the ADU.

Commercially viable research findings and innovations can be expected to be adopted quite rapidly on the SLDB managed areas and on large private estates. This will be due most often to the high level of education and

training of the managers of these enterprises, but the generally poorly educated, independent small-holders will require teaching and persuading to adopt new ideas. Under the envisaged future conditions in the Study Area this persuading and teaching of independent farmers would be a function of the staff of the Extension Section of the ADU. They would have been taught the new innovations at the Kabuloh Training Centre and at in-service courses, and their efforts in the field, when followed by the cultivators, would be supported by the Service Section.

Although much of the future research work should be undertaken at the Kabuloh Research Station and Paya Selanyau there will be need for off-station commercial trials as well as the establishment of several sub-stations. Commercial trials are required for cocoa and beef production and the sub-stations are necessary because some soil types, important in the Study Area, do not occur on the Kabuloh Station. Field-scale (two to five acres) plantings of robusta coffee, lowland tea, annato, cashew nuts, lemon grass, citronella grass and patchioli are required to establish their suitability for planting as diversification crops. Several other crops require further production trials; they include various spices (turmeric, ginger, chillies, vetiver grass) for extraction of colouring and flavouring material; tapioca for production of dried chips, various fruits and illipenuts. In addition research should continue into the double cropping of rice and the growing of short term crops in wet rice areas during the rice off-season, and soil conservation trials, particularly associated with pepper growing, should be undertaken.

Most aspects of agronomic and husbandry practices should be investigated for all these crops. This work should cover fertiliser requirements, weed control, entomology, pathology and product processing.

The planned Livestock and Pasture Research Station should have the responsibility of carrying out research on pasture development and pasture management as well as cattle, pigs and poultry breeding. The establishment of a commercial beef breeding ranch is planned. The ranch would be based on imported animals and aimed at producing breeding stock for other ranches as well as young steers for fattening. The growing-out and fattening of the steers would be carried out on small-holdings. Thus an important aspect of work on the Livestock Research Station would be working out and testing details for such a programme. Tests and investigations with pigs and poultry on locally available feedstuffs (waste from oil palm mills, trash sea fish, pond fish, tapioca etc.) should be carried out.

The suggested locations of the two Research Stations, the sub-stations, ranch and commercial trials are shown in Figure 2. (Yet to be drawn. It will be followed by a short description of each place giving its size and particular function.)

4.3 FUTURE STAFF REQUIREMENTS

An estimation of the staff requirements for research in the Fourth Division is given in Table 4.1. The Table shows that as the work load builds up in the future so an increase in research staff can be expected. The projections beyond 1980 are subject to considerable change and it will be necessary to keep the work under continual surveillance and to adjust staff numbers in accordance with the long term outlook.

The broad nature of the work in both crop and animal husbandry will require that close co-operation is maintained with the specialist research staff at Semongok and such an arrangement is assumed to occur in the estimation of staff requirements.

TABLE 4.1 ESTIMATED TECHNICAL STAFF REQUIRED FOR RESEARCH IN THE FOURTH DIVISION

	1973	1974	1975	1976	1977	1978	1979	1980	1990
<u>Kabuloh Research Station</u>									
General Research Scientist and Officer I/C	1	1	1	1	1	1	1	1	1
Agricultural Economist	-	-	1	1	1	1	1	1	1
Farm Manager (SAAO)	1	1	1	1	1	1	1	1	1
Research Assistant (diplomates)	4	4	6*	6	7	8	9	10	10
<u>Livestock Multiplication and Pasture Research Station</u>									
Animal Husbandry Specialist and Officer I/C	-	1	1	1	1	1	1	1	1
Pasture Agronomist	-	1	1	1	1	1	1	1	1
Veterinarian	-	1	1	1	1	1	1	1	1
Research Assistants (diplomates)	-	3	3	4**	6	6	6	6	6

Note * By 1975 it is anticipated that the volume and diversity of work will require extra Assistants especially in agronomic trials and running of sub-stations.

** The increase in the number of Assistants is foreseen to be needed in research and for animal husbandry training of the ADU and Departmental extension staff.

4.4 STAFF QUALIFICATIONS AND JOB DESCRIPTIONS

Academic qualifications and job description for the senior research staff are given below. All staff would be recruited by, and be responsible to, the Research Branch of the Sarawak Agricultural Department, but they would be required to live on, or very near, their respective Stations. If expatriates are appointed to the posts the assignments should be for an initial period of two years and the training of local understudies should be part of their terms of reference. The duties of all the senior staff would include involvement in the training of ADU staff at the Kabuloh Training Centre. For example, the staff of the Extension Section of the ADU would require special training in the care and fattening of steers, pigs and poultry. Thus the livestock and pasture research staff would be responsible for checking this part of the Kabuloh training syllabus as well as giving occasional lectures and demonstrations.

4.4.1 Staff at the Agricultural Research Centre - Kabuloh

(a) General Research Scientist I/C

The position is already occupied by a graduate agriculturist who is responsible for the efficient working of the whole station. He is responsible for the technical aspects of the research work which is planned and executed in co-operation with Specialist Research Officers based at Semongok.

(b) Agricultural Economist

The economic aspects of agriculture will be so important among the independent farmers that it is considered essential to have this part of farming taken care of by a trained agricultural economist.

Although there are Agricultural Economists stationed at Semongok they are too far away and too occupied with economic problems affecting agriculture as a whole in the State that the practical on-the-farm problems which will affect independent farmers in the development areas will tend to be neglected.

In practice the post could be attached either directly to the ADU Headquarters or to the research. Consideration of the pros and cons of the alternatives has led to the conclusion that it would be most advantageous for the position to be attached to the Kabuloh Research Station.

The qualifications required for the post are a degree in agriculture with agro-economics either as a speciality or, preferably, as a post graduate degree. A few years of practical experience are essential.

The post would require close co-operation with the Research Scientists

throughout Sarawak to ensure the economic soundness of any production, processing or marketing innovations recommended to farmers. The economist would also be responsible for formulating the recommendations into a convenient form for use by the extension staff of the ADU and the Department. In addition he would be required to supplement the work already started at Semongok on present farm management and farm accounts in order to establish bench marks for new research or changes in farming methods.

(c) Farm Manager

This position too is already filled. The duties of the post are mainly in the field organising and carrying out the cultural and managerial practices required by the various treatments on the different experiments. The man occupying the position is in charge of the labour and machinery on the Station and allocates tasks to the Research Assistants who supervise and help the labourers in actually carrying out the work.

4.4.2 Staff at the Livestock and Pasture Research Station

(a) Animal Husbandry Specialist I/C

The special responsibilities of the Animal Husbandry Specialist, besides being manager of the Station, would include primarily research problems relating to management of beef cattle, but also pigs, poultry and possibly buffaloes under the local conditions. Another major aspects would be the preparation in detail of schemes for growing-out and fattening of steers on private farms.

The position would require the academic qualifications of a degree in animal husbandry (as distinct from veterinary science) and preferably a post graduate degree in animal nutrition. The appointee should have wide practical experience from similar jobs in Malaysia or from abroad, and should be familiar with livestock research as well as livestock economics.

(b) Pasture Agronomist

The tasks for this position would include all aspects for establishing suitable pastures and for their management under local conditions at the livestock station and surrounding farms.

The qualifications required would be a degree in agronomy with either a post graduate study of pasture and fodder crops, or considerable experience of pasture research in the wet tropics.

(c) Veterinarian

This position would require a person with a general degree in veterinary

science together with experience or special training in tropical diseases. The task would involve research work in the prevention and control of diseases among the animals on the Station as well as assisting in providing services to the commercial ranch and farms involved in the schemes for breeding, growing-out and fattening of beef animals, pigs and poultry.

4.5 COSTS

To be worked out after discussions with Government.

APPENDIX I

SARAWAK STATE AGRICULTURAL DEPARTMENT SCHEMES

I.1 ASSISTANCE TO PADI PLANTERS SCHEME (APPS)

In an effort to increase padi production in Sarawak and, wherever possible, to reduce the area of hill padi cultivation the Agricultural Department introduced, in 1958, a scheme to encourage the opening-up of new swamp lands and to improve the standards of cultivation on swamp land already farmed. It has been estimated that in any given year over half the swamp padi area lies fallow.

The scheme provides for a subsidy of \$150 per acre spread over two years and a maintenance grant of \$10 per year for five years. Also incorporated in the scheme is a subsidy for the supply of ammonium phosphate to hill padi areas. This is not aimed at encouraging hill padi farming, but at enabling a family to meet its rice requirements from a smaller area by increasing yields, thus conserving unfelled jungle. This is necessary under present day conditions because there are many occupied areas in Sarawak where no suitable swamp land exists. The use of ammonium phosphate at planting has shown an average increase in yield of about 30 per cent.

In general the APPS only operates in swamp areas of up to 300 acres where drainage and flood control are the limiting factors. The minimum acreage allowed in a scheme is ten acres with at least five participants. The scheme provides for assistance in kind, although a small cash element is available based on work actually completed. Larger schemes or those where irrigation is involved are constructed by the Drainage and Irrigation Department.

I.1.1 Eligibility

Any person being a proprietor of land or being a native occupying land under native customary law is eligible for participation in a scheme. In addition, persons possessing rented land for which there is written permission for occupancy for at least five consecutive years are eligible. Non-natives can only come to such an arrangement in a Mixed Zone Land area.

Application to join schemes are made from October to December of each year for participation in the following year.

I.1.2 Selection, Survey and Approval

Inspection of the area, to check the topographical and soil suitability, is done at the time of application. A survey of the area, together with the design and proposed layout of the works is undertaken by the APPS staff of the District assisted by the AAO if required. Participant farmers are expected to assist with the cutting of trace lines and to show farm boundaries. Where labour is hired it is charged to the scheme.

Processing the application involves checking of the land titles or ownership of customary right land and obtaining approval of the District Action Committee.

I.1.3 Implementation

A local APPS committee is formed which normally consists of a chairman and four members, all participants of the scheme. This committee, with the advice and co-operation of the Agricultural Department, organises all the work on the scheme, makes requests for materials, receives and distributes subsidies and materials, settles land disputes and ensures good discipline among the participants.

I.1.4 Subsidy Entitlement

First year: Up to a maximum of \$75 per acre is allowed for both cash and materials. It includes:.. purchase of sufficient tools, materials for water gates, knapsack sprayers (ten acres per sprayer), pesticides, cash for work on drains or bunds but not for both. Improved seed is provided free if the seed is available.

Second year: Up to a maximum of \$75 per acre. The money is used for:-

- i) fertiliser (50 pounds urea plus 75 pounds CIRP per acre);
- ii) weedicide (Paraquat, four pints per acre to assist land preparation);
- iii) MCPA (four pints per acre for weed control after planting);
- iv) Pesticides;
- v) cash payment for destumping at \$20 per acre;
- vi) mechanised cultivation if required, at the contract price of \$2 per hour by power-tiller owned by the Department.

It is expected that with the \$150 assistance per acre the land will be completely improved by the end of the second year.

I.1.5 Maintenance Grant

\$10 per acre per year from the third year onwards for five years is given to completed schemes which are maintained.

I.1.6 Assistance for Wet Padi Planting inside a Drainage and Irrigation Scheme

\$50 can be awarded as follows:-

Tools	\$10 per acre
Drains and bunds	\$20 per acre
Fertilisers	\$20 per acre

Funds which cannot be spent in one year can be carried over to the next year.

I.1.7 Assistance to Hill Padi Planting

Amphos (11:48) is sold only to hill padi planters at the subsidised rate of \$1 per ten pounds.

TABLE I.1 1973 PROPOSED ALLOCATION OF APPS SCHEMES, FOURTH DIVISION

Schemes	District			Total
	Miri	Bintulu	Baram	
	Acres			
New schemes	500	500	700	1 700
Second year schemes	375	182	460	1 017
Maintenance schemes	500	1 500	2 000	4 000
Amphos (tons)	4	3	6	13

TABLE I.2 SUMMARY OF PREVIOUS ACHIEVEMENTS, FOURTH DIVISION

Year	Assistance to swamp padi planters		Hill padi fertiliser subsidy
	Number of blocks	Total acres	Tons
1966	30	1 838	50
1967	11	749	6
1968	59	2 512	9
1969	10	1 263	5.5
1970	21	615	12.6
1971	15	430	9.23
1972		1 235	

I.2 COCONUT PLANTING SCHEME

This scheme, which was initiated in 1959, aims mainly at assisting people in the coastal areas to establish permanent small-holdings of coconuts, but farmers in other suitable riverine areas are also eligible to participate. The effect of the scheme in Sarawak as a whole can be seen in the gradual increase of production of copra and oil over the years. However, the scheme has not attained the success that was expected. A survey on the crop has shown that only about 50 per cent of the oldest coconuts planted under the scheme are producing. The highest yield recorded was about 15 piculs (2 000 pounds) of copra per acre per year. The average yield ranges from 1.5 to 10 piculs (200 to 1 333 pounds) of copra per acre at different locations. An economic yield is considered to be 10 piculs (1 333 pounds) of copra per acre per year. The low percentage of productive acreage coupled with the low average yields has painted a black economic picture of the Coconut Planting Scheme. One of the chief reasons for this is the lethargic attitude of most participants many of whom are interested solely in the cash element. This results in generally poor maintenance of the garden. For this reason, the amount of the cash subsidy has been halved since 1971. Also there is a more stringent selection of participants, more extension work on crop husbandry and the improvement of the quality of copra produced.

I.2.1 Eligibility

Any person being a proprietor of land or being a native occupying land under a native system of customary law is eligible.

I.2.2 Selection, Survey and Approval

Applications to join a scheme are called for annually by the Department of Agriculture, usually between January and March.

Land of all applicants is examined by Departmental representatives to ascertain its suitability for coconut planting and subsequent supervision.

Unsuitable land is defined as:-

- i) land of exceptionally low fertility (for example Karangas);
- ii) peat over five feet deep before shrinkage;
- iii) land liable to prolonged salt-water flooding;
- iv) steeply sloping land (slopes greater than 20 degrees);
- v) water logged land where adequate drainage is impracticable;
- vi) areas where natural vegetation is composed of nipah palm and mangroves;
- vii) areas under sheet lallang;

viii) areas less than one mile from a sawmill. Applicants with suitable land are further screened by the District Development Committee.

I.2.3 Implementation

Nurseries of specially selected seed are raised by contract under the supervision of the Agricultural Department. Planting is done under the supervision and advice of the Department.

There is a procedure for cancellation of participants from schemes if the person does not comply with advice given in accordance with the rules of the scheme.

I.2.4 Subsidy

The subsidy covers the first four years of the growing period, after which time the palms should have reached the stage where routine maintenance only is required. The subsidy is divided as follows:-

TABLE I.3 DIVISION OF COCONUT SUBSIDY

Item	First year	Second year	Third year	Fourth year	Total per acre
	Dollars				
Planting material	25				25
Cash subsidy ⁽¹⁾	25	10	10	10	55
Fertiliser ⁽²⁾	10	8	12	15	45
Drainage ⁽²⁾	20	20	-	-	40
Pesticides, weedicides fencing, poisons etc.			45		45
Total					210

Note

- (1) Miscellaneous materials can be issued in lieu of cash subsidies.
- (2) If drainage or fertilisers are not required then cash is not given in lieu. Fertilisers are considered necessary on coastal sands not on clay or shallow peat soils. Drainage may be necessary on clay and shallow peat soils. Areas where both drainage and fertilisers are necessary must be certified suitable by the District AAC before commencement of a scheme.

Where planting is carried out in a block of 100 acres or above in a Block Alienation Scheme the participants are entitled to \$80 per acre in the first year paid in cash after having satisfactorily felled the jungle and prepared the land. However, this subsidy is subject to the approval of the Ministry of Agriculture and Forestry, and to the conditions that the Drainage and Irrigation Department is involved in the scheme and that the land is under virgin jungle.

TABLE I.4 ACHIEVEMENT OF THE COCONUT PLANTING SCHEME, FOURTH DIVISION (ACRES)

Year	District			Total
	Miri	Bintulu	Baram	
Total up to 1965	1 149	1 480	499	3 128
1966	94	160	75	329
1967	16	386	3	405
1968	192	350	150	692
1969	90	308	50	448
1970	12	103	12	127
1971	28	307	28	363
1972	350	108	28	486
Proposed allocation 1973	250	350	-	600

I.3 THE AGRICULTURAL DIVERSIFICATION SCHEME

This scheme was started in 1966 during the First Malaysia Plan. It was, and still is, aimed at a diversification of Sarawaks' agriculture away from the heavy dependence on rubber and pepper. The scheme is designed to encouraged the planting by small-holders of such crops as have potential local and overseas markets. Crops like oil palm, cocoa, coffee, fruit and several annuals (maize, soya beans, vegetables, tobacco, essential oils and spices). The Government consider that the Diversification Programme could make a substantial contribution to the States' foreign exchange earnings as well as protecting the individual small-holders' income against fluctuating commodity prices.

There is also a Farm Unit Scheme whereby farmers who have received a course in practical agriculture in the Farmers Training Centres are assisted to start a sound agricultural enterprise using the knowledge they have acquired at the Centres.

For economic reasons and ease of implementation the following minimum

and maximum acreages or units are allowed for each of the schemes.

<u>Scheme</u>	<u>Minimum</u>	<u>Maximum</u>
Perennials:		
a) Cocoa	3 acres	15 acres with not more than 3 acres annually
b) Coffee	$\frac{1}{2}$ acre	3 acres
c) Fruit trees	1 unit (30 trees)	1 unit (30 trees)
d) Others	$\frac{1}{8}$ acre	3 acres
Annuals	$\frac{1}{2}$ acre	3 acres
Farm unit	$\frac{1}{4}$ unit	1 unit

I.3.1 Fruit Tree Subsidy

Thirty plants of good variety fruit trees are issued as a unit together with fertiliser for three years. The total subsidy allowed per unit is \$100 spread over three years. Units are not confined to one species. The importance of citrus, particularly in upriver areas, is stressed.

I.3.2 Miscellaneous Perennials (Bananas, Pineapple, Breadfruit etc.)

The subsidy is \$250 per acre for purchase of planting materials, fertiliser and pesticide. It is applicable up to the time of first harvest or for three years. For crops which mature later than three years, the subsidy is completed when the \$250 have been spent.

I.3.3 Annuals

A subsidy of \$100 per acre is available for distribution in kind; such as selected seed or planting material, fertilisers, pesticides etc.

I.3.4 Farm Units

The subsidy is \$200 per unit issued in kind.

TABLE I.5 SUMMARY OF ACHIEVEMENTS OF THE AGRICULTURAL DIVERSIFICATION SCHEME
IN SARAWAK AND THE FOURTH DIVISION

Year	Fruit trees		Cocoa		Coffee		Annual crops		Farm units	
	Sarawak	Fourth Division	Sarawak	Fourth Division	Sarawak	Fourth Division	Sarawak	Fourth Division	Sarawak	Fourth Division
1966	648	91	Nil	Nil	Nil	Nil	558	Nil	99	23
1967	896	156	Nil	Nil	Nil	Nil	353	Nil	137	29
1968	844	148	Nil	Nil	Nil	Nil	370	24	237	46
1969	1 211	176	314	Nil	189	7	771	62	259	49
1970	843	151	484	Nil	310	47	892	91	285	52
1971	670	137	590	Nil	420	78	1 200	171	495	95
1972	710	130	800	60	540	130	1 275	160	550	100
1973 proposed	970	210	1 000	140	730	130	1 650	300	600	110

I.4 SUPPLY OF PLANTING MATERIAL SCHEME

The scheme, started in 1969, provides for the Agricultural Commodity Stations to produce high quality planting material for issue under the Agricultural Diversification Scheme. Concentration is particularly on maize, soya bean, groundnuts and robusta coffee, but also the bulking-up of special padi seed, Indian and Australian sugar cane varieties and the production of budded fruit trees is undertaken. The work is handled by the normal staff on the station but some bulking-up of seeds is done by selected small-holders.

I.5 LIVESTOCK DISTRIBUTION SCHEME (PAWAH)

The Government is aware of the shortage of local beef for the Sarawak market and realises the importance that improved beef supplies has in achieving the goal of improving the nutrition of the population. The local beef market potential is high and should act as an incentive to local farmers to embark on beef production. Several schemes have been aimed at stimulating that production.

The first attempt was a scheme whereby Government sold buffaloes at a subsidised rate to farmers. In 1969 the Pawah Scheme, from Peninsular Malaysia, was introduced to Sarawak. Units of ten female cattle or buffaloes plus one male were given free to groups of selected farmers. The female calves born from these were returned to Government for re-issue to other farmers. Experience and observation subsequently showed that the cattle units are relatively more successful and popular than the buffalo units. The buffaloes caused damage to the fields by their wallowing habits. The present scheme is a continuation of the Pawah Scheme but is designed for distribution of cattle only. Already it has been found that the scheme is very expensive and extremely difficult to administer due to land ownership, transport and accessibility problems.

I.6 PIG PRODUCTION

The Department of Agriculture has, for many years, been maintaining herds of pigs for the purpose of supplying commercial breeders with high quality stock. It is the Departments' aim to have nucleus herds in all Divisions in order to be able to maintain the supply of good stock to the breeders in the event of any major disaster such as the swine fever epidemic of 1967. This nearly wiped out the pig industry in Sarawak. Until 1969 the main breeds kept by the Department were Tamworth and Berkshire imported from Tasmania. In 1970 Landrace and Large Whites were imported from Western

Australia.

Weaners are supplied to commercial breeders who sell pork into the local market. But some breeders are selected to supply the Pig Subsidy Scheme with weaners.

I.7 THE PIG SUBSIDY SCHEME

This scheme was started during the First Malaysia Plan. It has proved popular as a Government effort to improve the standard of husbandry and to improve the diet of the rural people. It is common for the longhouse and village farmers to keep pigs but the animals are usually of the local breed which is small and unthrifty. Under the scheme a selected farmer, generally one who has passed through one of the Farmers Training Centres, receives a unit of assistance consisting of three crossbred weaner pigs for fattening, building materials for a sty and sufficient high protein concentrate to mix with locally grown carbohydrates to fatten his pigs. On the sale of these he is expected to purchase new stock and concentrate feed mix, and in this way to gradually build-up the size of the enterprise.

A criterion for selection into the scheme is that the applicant must have planted sufficient carbohydrate feed, usually tapioca, to feed the pig unit; suitable markets must also be available. The weaners for the scheme are usually supplied by selected commercial breeders who have been supplied with good breeding stock from Government maintained herds.

The cost of a unit is as follows:-

Three weaners at \$60 each	180.00
Building material for sty	50.00
Protein supplement (nine bags at \$17 each)	153.00
	<u>383.00</u>

TABLE I.6 PERFORMANCE OF THE PIG SCHEME IN SARAWAK AND FOURTH DIVISION

Year	Sarawak		Fourth Division	
	Units	Weaners	Units	Weaners
1966	445	1 228	64	129
1967	141	384	15	34
1968	132	300	21	38
1969	180	539	11	33
1970	141	410	26	77
1971				
1972				
Estimate 1973			52	156

I.8 INLAND FISHERIES SCHEME

The main object is to encourage the rural communities to undertake freshwater fish culture to supplement their diet and make good the shortage of fish which has been brought about by destructive fishing practices such as the use of fish poisons.

The scheme was started during the First Malaysia Plan and aims not only at the development of fish culture in ponds and dams but also at the stocking of lakes, rivers and wet padi areas. More recently the cultivation of turtles and, in brackish waters, of mussels and oysters has been undertaken. In addition, there are Departmental Fish Breeding Stations producing fish fry for issue to pond owners, and there is an Inland Fisheries Training programme designed to train staff, commercial pond keepers, farmers, school leavers and students. The courses, which last two weeks to a month, cover fresh water fish culture, brackish water fisheries and aquarium fish keeping.

I.8.1 Fish Pond Subsidy

This is a cash and kind subsidy for development in both fresh water and brackish water areas. It is to encourage farmers to construct ponds of the recommended size (about one-tenth of an acre). A cash subsidy of \$200 per acre is paid in addition to the issue of fish stock, pipes, cement for sluice gates and spillways, and lime and fertilisers for treatment of the completed ponds.

In brackish areas materials such as earthenware pots and plastic coated wire are issued to farmers starting oyster culture. Those people who have completed a course in tropical fish keeping are eligible for issue of popular varieties of tropical aquarium fish.

TABLE I.7 PROGRESS OF THE SCHEME IN SARAWAK AND FOURTH DIVISION

Year	Sarawak		Fourth Division	
	Ponds	Acres	Ponds	Acres
1966	990	155	217	27
1967	973	225	129	14
1968	1 053	226	89	23
1969	1 415	293	104	8
1970	1 070	287	123	19
1971				
1972				
Estimate 1973			-	40

I.9 PEPPER SUBSIDY SCHEME

This is a new subsidy scheme started in March, 1972. The objectives are to assist farmers:-

- i) to take measures for the control and prevention of foot rot in established gardens;
- ii) during the period before immature gardens come into bearing;
- iii) to establish new pepper gardens.

I.9.1 Details of the Scheme

Category A

(a) Assistance to Existing Mature Gardens

The assistance is given in both cash and kind for drainage and foot rot prevention. Drainage subsidy is paid at five cents per vine whilst foot rot prevention is given in the form of Bordeaux mixture at 50 per cent of the tender price of the recommended rate of Bordeaux mixture.

Category B

(b) Assistance to Immature Gardens

Assistance is given at 50 per cent of the cost of the recommended rate of fertiliser plus trace elements application. The subsidy is given up to the third year only.

Category C

(c) Assistance to New Gardens

This is given for the following:-

- i) to purchase posts up to the value of \$100 per applicant. Given in cash on condition that the total number of posts required are delivered on site;
- ii) 50 per cent of the cost of the fertiliser and trace elements required for the holding from the time of establishment up to the end of the third year.

Rooted cuttings are supplied free by the Department of Agriculture.

THE PUJUT-LOPENG SETTLEMENT SCHEME

The scheme is situated within the 1 200 acres State Reserve just inland of Miri. Much of this swampy land has been previously cultivated and a rudimentary drainage system existed on part of the area. New drainage and irrigation works have been planned and construction started in July, 1972. The object of the scheme is to combine the agricultural training of secondary school leavers with a settlement scheme.

The first batch of 17 students from the Kabuloh Farm Institute in the Fourth Division completed the course at the end of July, 1972. The students are a mixture of all ethnic groups. The second batch of about 20 trainees will complete their course in January, 1974. The plan is initially to develop the land communally then to issue holdings of land, under title, to individuals in the second or third year depending on how well the scheme as a whole progresses. Each settler will receive about 13 acres of land (eight acres for coconuts, three for padi and two for a house and crops of the settlers own choice). Participants will be entitled to assistance from the various schemes, for example the Coconut Planting and Assistance to Padi Planters Schemes.

Once titles have been issued the settlers can obtain credit from the Sarawak Economic Development Corporation for housing and farm projects. The settlers will receive a maintenance allowance of \$50 per month for the first three years on the scheme after which they will be expected to have developed sufficiently to maintain themselves. This allowance may be terminated earlier at the request of the settler thus reducing the total loan.

Tools and equipment (which could include vehicles and power-tillers) will be loaned to the settlers initially. On receipt of titles all this equipment will become the property of the group and the capital cost will be repayable to Government. The settlers will not be charged for Departmental staff wages, scheme development costs or temporary accommodation.

Repayment of their accumulated loan, which is expected to be about \$5 800 per settler, will commence in the eighth year and be payable in monthly installments of not less than \$50. The loan is interest free.

TABLE II.1 ESTIMATED COST FOR THE PUJUT-LOPENG SETTLEMENT SCHEME

Buildings:

Assembly hall/dining hall/kitchen	}	Total \$115 000	
Dormitory			
Store/toolshed			70 000 in 1972
Bathroom and toilets			45 000 in 1973
Four door barracks			

Other costs envisaged in 1973-1974

Contract work	6 000
Tools and equipment for settlers in January, 1974	29 000
Planting materials	10 000
Wages and allowances	14 000
Fuel and oils	3 000
Improvement of access road and contingencies	15 000
Electricity supply	60 000
Drainage and irrigation	300 000
	<u>300 000</u>
Total	<u>\$437 000</u>

Summary of costs

Buildings	115 000
Other costs	437 000
	<u>437 000</u>
Total	<u>\$552 000</u>
	=====

APPENDIX III

EXAMPLE FARM BUDGET FOR WET RICE CULTIVATION

TABLE III.1 OUTPUT

Area of wet rice	1.5 acres
Expected weight of produce per acre	2 750 pounds
Expected total weight of produce	4 125 pounds
Expected total weight for sale	2 000 pounds
Unit value of produce	\$19 per picul
Estimated value of rice for sale	\$286

TABLE III.2 INPUTS

<u>Operation</u>	Estimated cost		<u>Quantity required</u>
	<u>Per acre</u> \$	<u>To farmer</u> \$	
Mechanical cultivation	30	45	1.5 acres two passes
Fertiliser	22	33	180 pounds Nitro 26 37 pounds Triple Super phosphate
Seed (treated with seed dressing)	5	7.5	20 pounds
Herbicides, one application	7	10.5	4½ pints MCPA
Pesticides, two applications	4	6	3 pounds Agrocide 26 dispersible powder
Bags (provided by the Marketing Branch)			10 bags
	<u>\$68</u>	<u>\$102</u>	

TABLE III.3 LABOUR REQUIREMENT

<u>Operation</u>	<u>No..of man days</u>	<u>When required</u>
Drain maintenance	3 x 2	July/August and February
Nursery	6	Late August
Relevelling and bund making	4½	September
Transplanting	12	Late September/early October
Weeding, pest control	4	November-January
Bird scaring	8 (sharing with neighbours)	January/February
Harvesting	24	February/March

REFERENCES

Department of Agriculture	1970	Second Malaysia Plan 1971-1975	Sarawak
Department of Agriculture	1970	Manual of Agricultural Divers- ification Scheme - Second Malaysia Plan 1971-1975	Field Branch, Sarawak
Department of Agriculture	1972	Manual of Pepper Subsidy Scheme - Second Malaysia Plan 1972-1975	Field Branch, Sarawak
Department of Agriculture	1970	Syllabus for the Basic Agric- ultural Course - Natural Resources Training Centre, Semongok	Education Branch, Sarawak
Act of Parliament	1967	Farmers' Association Act 1967 No. 22	Malaysia
Liao, H.C.	1967	Brief Introduction to Farmers Associations	Kuala Lumpur
Liao, H.C.	1967	Farmers' Association Training Material - Purchasing Service	Kuala Lumpur
Liao, H.C. and Ujang, A.	1967	Guide for Operation of Supervised Farm Credit	Kuala Lumpur
	1967	Farmers' Association Regulations 1967 and Farmers' Association Rules 1967	Office of the Registrar of Farmers' Associations

MemorandumNotes for discussion on the Phasing of Exploitation & Agricultural DevelopmentAssumptions

Agriculture: After 1977 Agricultural Development will be outside Priority Area South and rise to between 10 and 13 000 acres of unoccupied land each year in addition to development in small areas along the Beluru Road. Each block should be completely exploited before Agricultural Development begins and released not later than August of the year concerned so as to allow under-brushing, felling & burning before planting in April the following year. Also provision for a nursery in the early part of the year may have to be made. Important note: under-brushing needed for rodent control in forest enclaves must not be done until after the burn.

Priority Area South

	<u>Acres</u>
Total area found suitable for Agricultural Development from results of semi-detailed Soil Survey	54 600
Retained in Forest Reserve	<u>5 600</u>
Balance	49 000
Less occupied land (as at August 1972).....	<u>9 000</u>
	40 000

Area of Forest yet to be exploited, approx.	<u>Acres</u>
Niah F.R. West	5 500
" South East (2 small areas)	500
Sawai P.F. to North a)	1 000
b)	<u>500</u> <u>7 500</u>
Area exploited (except for salvage).....	<u>30 500</u>

Assuming the whole 38 000 acres must have been made available for release by September 1977 the phasing will be as follows (and involve removal of 1 500 acres from FAO unit 3):

Year (% area of exploitation)	Release to Agriculture (1 000 acres)				
	Area Exploited		Gross Release to Agricultural Development		
	in year	Cumulative	in year	Cumulative	Balance
Niah S.E. 1974	$\frac{1}{2}$	33	$5\frac{1}{2}$	$5\frac{1}{2}$	$27\frac{1}{2}$
Sawai N.(a) 75	1	34	10	$15\frac{1}{2}$	$18\frac{1}{2}$
(b) 76	$\frac{1}{2}$	$34\frac{1}{2}$	$10\frac{1}{2}$	26	$8\frac{1}{2}$
Niah W. 77	$5\frac{1}{2}$	40	12	38	2
FAO Unit 3 78 (Less $1\frac{1}{2}$)	5	(start 1976) 13	7	7	6
79	6	19	8	15	4
80	2.5	21.5	6.5	21.5	-

Sawai P.F. Outside the semi detailed soil survey area there are 30 700 acres in unit 3 requiring semi detailed soil survey revision of boundaries before exploitation, and estimated to provide 70 per cent final allocation = 21 500 acres.

Unit 1 will follow and then unit 2 (or development across boundaries as an alternative).

Forestry: Exploitation is to be completed in 25 years (FAO units 1 and 2) or 23 years (unit 3) at an annual rate building up from 4 million cu. ft. in first five years to 7 m thereafter from an average annual acreage up to 6 to 7 000 acres each year in each unit.

Whether to be cleared for Agriculture or retained as permanent forest the total net commercial volume will be removed. Initially the only difference in method would be directed to reduction of damage, and strict observance of minimum diameter in permanent forest. Production techniques and markets during the coming 25 years will evolve towards more intense utilisation of currently non-marketable and marginally marketable species. Smaller sizes, too, may be marketable with effect on silvicultural restrictions in permanent forest. Two years notice is required before road construction can begin.

On these assumptions is built the following tentative phasing:

Sequence (years ?)	<u>Action</u>
1.	a) Integration of plans and finance for roads.
	b) Semi detailed soil survey and, preferably <u>within 6 months of pegging rentises</u> (to avoid their re-opening), demarcation of boundaries by more permanent posts at salient points (including crossing points on soil survey lines) and marking trees below 18" diameter $\frac{1}{2}$ chain apart, with red paint rings to define the permanent forest/Agricultural Development boundary (including forest enclaves to be excluded from the final clearance as well as worked as permanent forest). F. R. excision boundaries also to be demarcated in the usual way with triangular aluminum tags every chain.
	c) Prismatic compass survey of boundaries and map preparation by the exploiting agency under Agricultural and Forest Officer supervision.
1.d?2	Forest Engineer's topo survey logging, block demarcation (yellow paint) inventory and road planning. Hopefully begin road construction and exploitation including road-trace salvage.
2?3	Feeder Road Construction to extend through the Agricultural Development area or at least through the first agricultural development block of 10 to 13 000 acres. Continue exploitation.
3?4	Complete exploitation and cleaning of boundaries (including those of the enclaves) Forest Department closure procedure. Checking of boundaries and replacement of lost boundary marks of permanent forest, Lands and Surveys survey of boundaries (including exclaves) and maps prepared for Agricultural Development on 1:10 000 (?) scale. Gazetting of excision by Development Blocks followed by release for Agricultural Development.

FSW/VS
2.11.1973.

THE FELLING CYCLE IN TROPICAL HIGH FOREST

The need for reconciliation between the desires of the exploitation agency and the controlling agency is most apparent when trying to fix the felling cycle. Harvesting trees as their growth begins to slow down is the silvicultural ideal. This would mean, in typical Tropical High Forest with a negative stand table (few trees per acre in the lowest and highest diameter classes and the majority in the middle range) a short felling cycle with a high minimum diameter for a limited felling. The exploitation agency would prefer to take the entire merchantable crop at every harvesting which will inevitably lead to lengthening felling cycles.

A minimum felling diameter much higher than the minimum merchantable diameter might seem a good compromise provided there were a minimum profitable stand at the end of the felling cycle. In Queensland, with careful and skilled control a genuine selection system is evidently a success but it must be the only successful real polycyclic system in Tropical High Forest. The evidence is against the system working here, even though a short first felling cycle can probably be confidently expected.

FO D^o/MAL/009 Working Paper 19, February 1973, on Investment opportunities for wood-based industries in the Dipterocarp Forests of the Bintulu area of Sarawak, Chapter 3.3 quotes Semenanjung Malaysia Silvicultural research data as suggesting an annual productive yield of 55 to 60 cubic feet of clear bole volume in trees of the 6 to 18 inch diameter classes left standing after the initial harvesting operation. On this basis another felling after 25 years is anticipated. To assume this would mark the birth of a sustained system of a 25 year felling cycle would be a mistake though one certainly hopes it will mark the birth of sustained yield.

The evidence against high diameter limits and a polycyclic system is based chiefly on figures for felling damage but also on growth rate evidence and tree spacing calculations. Damage is so great that the proportion of stems likely to fall into the commercially exploitable category in future felling cycles of the same length as the first is reduced at each harvesting until the cycle must become based more and more on the much smaller figure of mean annual increment from seedling to commercial maturity. Different individuals and species vary so greatly in rate of growth and ability to regenerate continuously that crops are bound to be uneven whether the aim be for a monocyclic system or not.

Figures for damage during harvesting are worth noting as evidence:

- Measurements in Mabira Emmeration in Uganda (Dawkins) showed that each tree, of about 8 ft. girth destroyed when felled .05 acres of pole and adolescent stock, within which area the stand must be regarded as reduced to the beginning of the rotation.
- Nicholson, 1958. Malayan Forester XXI, pp 235-245 gives a table showing counts in Longmanis W.C. on 30 plots, 3-6 acre replicates of 6 plots, 1, 2, 4 and 5 virgin and No.3 selectively logged 10 years before.

<u>Replication Number</u>	<u>Trees</u>	<u>No. per acre (count on 100 acres ÷ 100)</u>	
1	Fallen or broken off	7.02	} 45%
2	Bark damage	2.49	
3	Crown damage	.76	
4	Crown damage of little consequence	2.10	8%
5	Undamaged a) good form b) bad form	11.13	{ 8.17 35% 2.96 12%

The details also show correlation between the volume of timber extracted and the total damage:

<u>Replication Number</u>	<u>Extracted B. Area p. acre sq. ft.</u>	<u>Vol. cu.ft. p. ac. extracted cu.ft.</u>	<u>Total damage %</u>	<u>Broken & fallen %</u>	<u>Bark & crown damage %</u>
1	39.4	1750	41.5	26.2	15.3
2	34.5	1500	60.6	34.9	20.7
3	15.9	690	27.4	19.8	7.6
4	32.5	1440	54.1	39.9	14.2
5	25.6	1150	40.1	27.2	12.9

Fox 1969, Misc. Report Research Branch F. D. Sabah compares damage in 1957 (old style methods) and 1967 (new style)

	<u>Trees per acre</u>	
	<u>1958</u>	<u>1969</u>
1. Not damaged	11.1	3.9
2. Bark damaged (no crown)	1.2	1.3
3. Crown (no bark)	2.9	2.4
4. Both bark and crown	1.3	1.6
5. Fallen or broken off	7.2	9.2
Total	<u>23.8</u>	<u>18.4</u>

Fox 1968, Malayan/Forester 31(4) pp 326-347 "The influence on logging damage of climber cutting prior to logging in the Lowland Dipterocarp Forest of Sabah" gives figures for 10 rectangular treatment plots
 a) climbers cut and poisoned b) control

<u>Plot Numbers</u>		<u>Extracted</u>		<u>Damaged %</u>		<u>Bark & crown damage</u>
		Basal area sq.ft.	Volume cu.ft.	Total	Broken	
2, 4, 5, 8, 9	Treated	32.3	1554	70.3	42.6	26.7
1, 3, 6, 7, 10	Untreated	44.0	2119	84.1	62.3	22.4

Climber cutting seems to be correlated with less damage but the figures are suspect in this respect because damage has been shown to be correlated with basal area per acre felled and the untreated area has a greater basal area; but there is no doubt about the total damage being high in both the treated and untreated plots.

G. H. Carson, Malayan Forester 20 p.120 1957 reports 14% total area completely stripped of regeneration and damage to a larger area, and on p.232. "even after logging 3,000 to 29,360 seedlings per acre were found though less than 100 per acre were over 5 ft. in height." Only 19 trees per acre over 12 inches girth at breast height could be found: of these 57% were damaged.

P. F. Burgess, Malayan Nature Journal 1971 24 pp 231 to 239 in "The effect of logging on Hill Dipterocarp Forest" records that, over 100 acres in average lower hill forest in Trengganu, the proportion of basal area of trees over 4 ins diameter were: Felled for timber 10%, undamaged 35%, destroyed in extraction operations 55%, total basal area taken 180 sq.ft. per acre.

There are no figures on felling damage in Sarawak to compare with those quoted above, but if we assume, as the F.A.O. team do from interpretation of aerial photographs that, broadly, the stands of timber geographically near to those of F.A.O. Unit 2 (Similajau) are similar then comparison between Diagnostic Sampling figures after exploitation in Niah F.R., Bakas et al and original stocking of Unit 2 may give some clue as to what regeneration to expect after felling.

Diameter classes units	Number of Stems			
	F.A.O. Unit 2		D.S. Stocked plots (total 40 per acre)	
	MD2	MD3	NIAH	BAKAS et al
24" +	5	9	5	1 to 3
18" +	14	19	n.a	n.a.
12" +	36	44	7	4 to 7
8" +	82	80	n.a	n.a.
Poles +	n.a	n.a	8	n.a.
Seedlings +	n.a	n.a	23 (57%)	17 to 27 (43 to 67%)

Few trees below 24" diameter were taken in the felling, indeed the DS Figures for that size suggests the minimum profitable diameter for export logs is rather more than 24". If, however, we assume all trees of 24" + are felled there should remain unextracted 31 trees of 12" and 18" classes in MD2 and 35 in MD3. The very low figures for plots stocked with 12" to 18" diameter classes can only be explained by a very high destruction figure. Indeed the very high proportion of stems less than 12" diameter in Niah (16 out of 23 per acre stocked or 70 per cent) is not a good augury for a second felling in 25 years time.

Evidence accumulates that each 100 foot tree of 30" diameter destroys on felling, seedlings, poles, saplings and adolescent stock over .05 acre. Most trees when felled destroy considerably more than this and tractors (particularly caterpillar tractors) add to the damage. If the rich MD3 forest is fully exploited down to 18" commercial diameter, then the 19 trees per acre will on felling, push back to year zero of the rotation over half the felling area except in so far as the damage overlaps.

I dare hazard a guess (I have not seen the figures) that the Semenanjung Malaysia diameter increment figures are for trees with almost full size crowns which are established high in the pecking order. Recent research in Nigeria (Lowe, verbal communication) suggests that in T.H.F. trees that have lost status in the pecking order (the dominated trees) have a small root system as well as small crown and they can never catch up on release from dominance. Seedling, sapling and small poles can but not the larger poles.

Growth rates of the order of .5 inches diameter per annum can only be expected from a limited number of species. Such species are intolerant of shade and therefore unsuited to a polycyclic system. Moreover large crowns are needed for rapid growth and these must be developed in the pole stage - conditions practically impossible in a polycyclic system.

The number of stems per acre that can be supported in Tropical High Forest at high growth rates (Malaysia and Queensland Sample Plots) seems to be governed by their combined basal area which should be kept within the range yet to be discovered in Sarawak (80 to 120 sq. ft. in Uganda). This allows about forty 24" diameter trees per acre. If this is found to apply to Sarawak is there an indigenous species which can reach 24" diameter in 35 years? I doubt it.

Granted, then, that our local Silvicultural information is as yet insufficient to fortell the length of time between the first and second harvest (the first felling cycle) and still less to suggest a subsequent length of felling cycle, on what should the annual cut be based?

Restricting exploitation of the more valuable species to trees that have passed their maximum production would at least favour the exploitation of species of poor merchantability so as to make up the yield. Fixing a higher minimum growth limit for the more valuable species so as to shorten the first felling cycle will indeed reduce the damage at the first felling but it would increase it at the next. Would the resultant reduced yield be acceptable to the exploiting agency? Are the hazards sufficient to justify a minimum diameter above the minimum commercial diameter? I think not. A guess that the first felling cycle might be as low as 25 years could be reasonable but nevertheless dangerous. If in error than overcutting would result. The conservative course is correct. Be hopeful of a short first felling cycle but be prepared for a longer one and base calculations on half the accepted rotation for indigenous fast growing Shoreas, which is $70 \div 2 = 35$ years. If industrial economics make calculations on a shorter period essential then 30 years for Sarawak is acceptable but less than that cannot be justified on published information available without undue hazards to fortune.

The above is a stage in the argument: a pause between the academic and the practical. The effect of the release of land for agriculture and the incorporation into the forest estate of land mistakenly in the past released for that purpose has yet to be estimated. There is no mention of silvicultural treatment which could affect the felling cycle length perhaps. Unpublished evidence, too, has yet to be unearthed.

FSW/ml

23.10.1973.

Identification

Name of project: Semi-Detailed Soil Survey
Suai-Miah R.D.U.

Project No.: Sector:
(completed by FE)

Contents

General description of contents:.....

a) Delimitation of boundaries between agricultural land and land unsuitable for agriculture to be done in co-operation with Survey Department

b) Soil Survey at Semi-Detailed level in Kebatu Area (South of Sungai Seawai Semi-Detailed Survey Area)

Special description of contents:.....

Requirements for:-

a) 2 Soil Survey Assistants for a period of roughly 3 months

b) i) 2 Soil Surveyors (Land Classifiers) for 6 months

ii) 2 Soil Survey Assistants for 2 months

iii) Chemical and Mechanical analysis (1800 sample)

iv) Cutting of Trace Lines (Soil Survey)

v) Field Equipments

vi) Field Labour

vii) Transport. air and land

Costs and revenues

1) Costs and revenues are stated in 19..... prices.

2) Total investment costs:.....\$.

From this invested in year:

1:.....\$	2:.....\$	3:.....\$
4:.....\$	5:.....\$	6:.....\$
7:.....\$	8:.....\$	9:.....\$
10:.....\$		

3) The depreciation period:..... year.

Annuities: 7%:..... 10%:..... 15%:.....\$
(completed by FE)

NOT APPLICABLE

Costs and revenues

- 4) The wage share of the total operation costs:.....%
- The average annual increase in labour productivity:.....%
- 5) Total operating costs for each year in 25 years:
 - 1:.....\$ 2:.....\$ 3:.....\$ 4:.....\$
 - 5:.....\$ 6:.....\$ 7:.....\$ 8:.....\$
 - 9:.....\$ 10:.....\$ 11:.....\$ 12:.....\$
 - 13:.....\$ 14:.....\$ 15:.....\$ 16:.....\$
 - 17:.....\$ 18:.....\$ 19:.....\$ 20:.....\$
 - 21:.....\$ 22:.....\$ 23:.....\$ 24:.....\$
 - 25:.....\$
- 6) Total revenues for each year in 25 years:
 - 1:.....\$ 2:.....\$ 3:.....\$ 4:.....\$
 - 5:.....\$ 6:.....\$ 7:.....\$ 8:.....\$
 - 9:.....\$ 10:.....\$ 11:.....\$ 12:.....\$
 - 13:.....\$ 14:.....\$ 15:.....\$ 16:.....\$
 - 17:.....\$ 18:.....\$ 19:.....\$ 20:.....\$
 - 21:.....\$ 22:.....\$ 23:.....\$ 24:.....\$
 - 25:.....\$
- 7) Possible variation in the costs and revenues stated in 2) 5) and 6): investment costs \pm %
 - operation costs \pm %
 - revenues \pm %
- 8) Working capital going to be bound in the project:.....\$
- 9) A short description of possible economies of scale concerning investment costs and operation costs respectively:.....
 -1.....
 -
 -
 -
 -
 -
 -
 -
 -
 -

Costs and revenues

10) Unit costs (only fill in if the project is aggregated):

investment unit costs:.....

.....

.....

.....

operation unit costs:.....

.....

.....

.....

.....

Derived effects by implementing the project

1) Main effects on the environment:.....

.....

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.....

.....

2) Employment: a) Construction:.....

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.....

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b) Operation:.....

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.....

.....

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.....

3) Input other than labour: a) Construction:.....

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.....

.....

Derived effects by implementing the project

b) Operation:.....

.....
.....
.....
.....
.....

4) Yearly production:.....

.....
.....
.....
.....
.....

5) An estimate of the indirect costs and revenues:.....

.....
.....
.....
.....
.....

6) Net requirements of foreign exchange:

1:.....\$ 2:.....\$ 3:.....\$ 4:.....\$
5:.....\$ 6:.....\$ 7:.....\$ 8:.....\$
9:.....\$ 10:.....\$ 11:.....\$ 12:.....\$
13:.....\$ 14:.....\$ 15:.....\$ 16:.....\$
17:.....\$ 18:.....\$ 19:.....\$ 20:.....\$
21:.....\$ 22:.....\$ 23:.....\$ 24:.....\$
25:.....\$

7) References:.....

.....
.....

Links

1) Name of project:.....

Project Number:.....Sector:.....

2) Name of project:.....

Project Number:.....Sector:.....

Links

- 3) Name of Project:.....
Project Number:.....Sector:.....
- 4) Name of Project:.....
Project Number:.....Sector:.....
- 5) Name of Project:.....
Project Number:.....Sector:.....
- 6) Name of Project:.....
Project Number:.....Sector:.....
- 7) Name of Project:.....
Project Number:.....Sector:.....
- 8) Name of Project:.....
Project Number:.....Sector:.....
- 9) Name of Project:.....
Project Number:.....Sector:.....
- 10) Name of Project:.....
Project Number:.....Sector:.....
- 11) Name of Project:.....
Project Number:.....Sector:.....
- 12) Name of Project:.....
Project Number:.....Sector:.....

Possibilities of financing

(put one or more crosses)

- | | | | |
|-----------------------|--------------------------|-----------------------------|--------------------------|
| 1) Federal Government | <input type="checkbox"/> | 5) Public funds | <input type="checkbox"/> |
| 2) State Government | <input type="checkbox"/> | 6) Private domestic savings | <input type="checkbox"/> |
| 3) Local Government | <input type="checkbox"/> | 7) Private foreign savings | <input type="checkbox"/> |
| 4) Statutory Bodies | <input type="checkbox"/> | 8) Public foreign savings | <input type="checkbox"/> |

Remarks:.....
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.....
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.....

Date:..... Name:.....

DRAFT

WORKING PAPER No: 57

Aug. 73

File Ref : MB/3/FINC/LAND RENT
Date : 25.10.1973
Authors : C. J. Mathiesen
 F. H. Andersen
Subject : LAND RENT

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LAND RENT

1. INTRODUCTION

1.1 General

Working Paper No.50, "Some Social and Financial Problems in Rural Development" was a first step in presenting problems arising in connection with the payment for the use of land which belongs to and has been developed by the State.

In the present paper a further treatment is given to these problems. However, it must be kept in mind that we are here touching upon fundamental principles of government, which would usually be considered outside the scope of a Regional Planning Study.

The reasons for taking up these problems nevertheless are:

- a) that the development envisaged by our planning will lead to fundamental changes in the socio-economic structure of the society; changes which necessitate new legal and administrative approaches,
- b) that the way in which these problems are solved will have a retroactive effect on the organisation of agricultural development, which in turn will influence our proposals,
- c) that the conditions on which land is handed over to the future users, in immediate continuation of our present planning, may not easily be changed later on, even if they prove unsuccessful in achieving the social and economic objectives of the Government.

1.2 Land Transfer

One conclusion contained in Working Paper No.50 was that the Government should make sure that specific economic support given to individuals - for instance a lot of already cleared and planted land - as a measure of promoting the general development, should be paid back, wholly or partly by these individuals, if or when they have reached a stage where their real income is supposed to be above what is considered to be the minimum standard of living. If this principle is accepted it could be realised either:

- a) by giving the farmer who takes over the land after it has been developed proper ownership based on contractual payment of the value of the land, or

b) by handing over the land on a lease contract, binding the farmer to pay an annual Land Rent for the use of the land, which still remains the property of the State.

1.2.1 Selling of Land

The first solution may lead to certain difficulties. It must be based on the settling of a sales price for each lot of land, and on a payment schedule, which includes re-payment of the sales price and payment of interests over a number of years, as the buyer usually would have no capital for direct payment.

Sales price: this could be settled at various amounts. On a non-subsidy basis the price should cover the development costs (clearing, planting, infrastructure) and an assessed value of the land as such. A lower price than that would imply an element of subsidy, which could not be regained later on if conditions improved. By applying a fixed sales price the risks and chances of future cost and price changes would be carried wholly by the farmer. A price decrease would hit him hard as he had to pay his annual installment rates at a fixed amount. A price increase would give him a profit which would be capitalised in the shape of higher sales price for his land, thus increasing the burden of his successor. Most likely the State would have to give individual subsidies in case of extreme reductions of crop prices, and at any rate farmers would feel themselves heavily burdened by their debt payments.

Payment schedule: this would depend on the length of time chosen for re-payment and on the interest rate. The choice of these quantities would in turn depend on tradition, actual economic situation and an evaluation of the farmers' capabilities. An element of subsidy could be included in the settling of the payment schedule, for instance by applying an interest rate lower than the 'general interest rate of the society' (opportunity cost of capital). The importance of various assumptions can be illustrated by the following:

Sales price: \$15 000

Annual re-payment and interest (by annuity):

Interest rate	Repayment period		
	20 years	25 years	35 years
5%	\$ 1 200	\$ 1 050	\$ 915
7%	\$ 1 410	\$ 1 290	\$ 1 155
10%	\$ 1 755	\$ 1 650	\$ 1 560

It clearly appears that the settling of payment elements has a significant impact on the net amount left for the farmer and his family. The smallest annual instalment - \$915 - is obtained by an interest rate of 5% and a term of 35 years, the largest - \$1 755 - by 10% and 20 years.

1.2.2 Renting of Land

Land which is owned by and has been developed by the State could very well be handed over to independent farmers for productive use, without including a personal ownership, thus providing the farmer with a "usufructuary right", which gives him a right to stay on the land, to cultivate it and keep the output for himself, apart from the land rent. This right could include the right to transfer the land to his intestate successors on similar conditions as he had himself.

The output from the farm, then, would have to cover the following:

- a) payment for various material inputs such as seed, fertiliser, tools and transport;
- b) payment for labour done by the farmer, his family and possible hired labour;
- c) payment for the services of the land as developed by the State.

The latter part should be transferred to the State, while the two former should be allotted to the farmer. If the farmer has a skill, an efficiency and energy above the "standard" farmer, he will earn more than the less skillful, efficient and industrious, as the payment should be the same for units of land of same quality.

The advantage of this system is, that the Land Rent could be periodically - for instance annually - adjusted to the development of prices of the main crops and to the general economic development of the society. In this way the connection between the cost of providing the developed land and the payment for the land would be cut; instead a connection would be established between the payment for the land and the value of the production originating from this land. In fact this system would imply that "Sarawak is rich when production prices are high - and poor when they are low", while the other selling-of-land-system would imply that "the farmers are rich when prices are high - and poor when they are low".

This latter consequence might be considered fully acceptable in cases where conscious and well established investors enter a market. They are prepared to run a risk; and they have the professional and technical qualifications to evaluate the chance/risk probability. This, however,

does not apply to the type of farmers, which would usually be thought of in our development plans.

1.3 Character of Land Rent

The Land Rent is not a tax but a payment for using properties belonging to the State. The assessment of the Rent should therefore be carefully undertaken. The farmer has no influence on development of market prices, but he can influence his own physical output by the skill and efficiency of his work. The Land Rent System will leave him with a greater surplus the better his farming is.

When farming has been developed into a well-established industry, giving its performers a good personal income it should of course be considered to tax this income along the same principles as applied to the rest of the society. As however the assessment of farmers' income traditionally is a difficult affair, it could be preferable to base the income taxation on a Land Tax principle as further mentioned below. The Land Tax would then be a payment separate from the Land Rent.

By applying a Land Rent System it is avoided to charge the settlers a capital amount for the land. The transfer of land both the first time and later will therefore be much easier than in case of usual private ownership. Equally important is that the possibilities of land speculation is diminished as any increase in land value will accrue to the State in shape of increased Land Rent.

The Land Rent System can be applied to existing State Land and to land bought or otherwise acquired by the State from Native Customary Land. On already Titled Land and on Native Customary Land a modified Land Rent could be introduced as an Incremental Land Value Rent, which would withdraw to the State any incremental land value due to the general development and to improved market conditions. This would remove or at least reduce land speculation also from other lands than State Land.

1.4 Social Consequences of a Land Rent

As already mentioned the Land Rent System will enable the State to hand over land to users with no capital for payment of an initial sum. Likewise future liquidity problems in connection with realienation of land from one person to another will be avoided. The new user will just

take over the obligation to pay the annual Land Rent.

The Land Rent will at the same time assure that farmers taking over State Land are not unduly benefitted at the expense of the rest of the Society, and that they within their ability contribute to the payment for the services of the land they use and for the investments undertaken by the State in improvement of the land. In this way the farmers also contribute to the recurrent revenues of the State and thus to a continuous development of the State.

The Land Rent will fluctuate with the world market and local market prices of the produce growing on the land, thus reducing or removing any rigidity in payment terms, which in periods of low prices might lead to specially established release provisions.

By connecting the Land Rent with soil surveys it will contribute to a proper land use and also protect the individual farmer against unpredictable losses subsequent to fluctuations of prices. Finally it will also help in the selection of farmers, as persons who are not able to produce the surplus necessary to pay the Land Rent must give up the land, which can then be utilized by more able persons.

2. LAND VALUE AND LAND PRICE

As already mentioned in paragraph 1 several ideas about land tenure are outlined in Working Paper No.50. One of the most outstanding ones deals with the right of individual persons to collect "unearned incomes" by holding land and by buying and selling land. In the paper it is said:

"It appears particularly important for the Government to prevent its aids and subsidies becoming capitalised in higher land prices which would be to the benefit of just a few luckily chosen persons instead of improving the lot of the mass of the people. Prevention of this can be obtained through a taxation¹⁾ based on an assessed value of the land".

The emergence of land value can be illustrated by the following formular:
If

v = market value of the land

r_t = revenues from the land in year t ,

c_t = cost²⁾ in year t by obtaining r_t and

i = rate of interest corresponding to the "opportunity cost of capital",

1) actually not a taxation, but a land rent.

2) c_t includes the amount which the landowner should be paid for the work on the land done by himself and his family.

we have

$$v = \sum_{t=1}^{\infty} \frac{r_t - c_t}{(1+i)^t} \quad (1)$$

If $r_t - c_t$ is a constant amount equal to x in all years the calculations become as simple as

$$v = \frac{x}{i} \quad (2)$$

If for instance $x=1\ 000\$$ and $i=0.10$ corresponding to an "opportunity cost of capital" equal to 10% we have

$$v = \frac{1000}{0.10} = 10\ 000 \$$$

- or in plain words: the land value of a certain piece of land is the surplus - above labour and material costs - obtained from this piece of land, divided by the interest rate.

The amount "x" constitutes a surplus, which can be bigger or smaller according to the quality of the land and it's location in relation to the activities of the society. More fertile land and land sited in urban development areas earns a bigger surplus than less fertile land and land sited in rural areas respectively.

A potential buyer is ready to pay "v" (10,000\$) for the land because the annual surplus "x" (1,000\$) obtained from the utilization of this land corresponds to the expected - and required - interest payment (e.g. 10%) on an amount of "v".

It is seen from equation (2) that if "x" is zero the land has no market value. If "x" is positive the Government can affect the market value in falling direction by imposing a rent on the land. This will increase the annual cost of utilizing the land " c_t " and thus lower "x". "x" will become zero if the rent is sufficiently high.

"x"

In a dynamic society, however, could not be expected to be a stable quantity. As mentioned above, "x" is not only dependent of the quality of the land but also of the Government's distribution of the resources of the country - it's investments, aid and subsidies - and the general economic situation in the country, which in turn is influenced by the policy of the Government.

If "x" increases, the owner of the land can obtain an "unearned income"

either by selling his land to a higher price - measured in real terms - than his buying price, or by using the land for that production, which the increased "x" is due to. This can be illustrated by the following example:

A piece of land near the coast is used by the owners for rice growing. The land is poor and "x" is small. The value of the land is calculated to, say 10\$ per acre.

One day the Government decides to build a port at the coast near the land in question. The land formerly used for rice growing is now demanded for other purposes, such as housing and storage facilities. These activities yield a larger surplus than rice growing, and "x" increases.

Some of the farmers sell their land for a price which reflects the larger "x". The value of the land is for instance increased to 100\$ per acre and the farmers collect 90\$ per acre as "unearned income" because of the Government's investment in the port.

Another group of farmers change from rice production to production of services. They build houses, storage facilities and the like on the land and let out the facilities. The rent reflects the increased value of the land and the farmers collect an "unearned income" equal to the difference between the new and the old "x".

By building the port the Government has accomplished an altered income distribution in the society in favour of the landowners in question. This, however, was not the purpose and from a general point of view it seems unjust.

The injustice becomes even more pronounced in cases where the Government itself wants to place some public facilities on the land and has to pay the new high price for it. Under these circumstances all taxpayers in the country contribute to the payment of "unearned incomes" for a few fortuitous people. The collection of this income is made possible solely by the Public investment in the port.

The system contains so obvious injustices, that many countries try to limit the possibilities of individual persons to collect "unearned incomes" by owning and selling land. A Land Rent is imposed on the land, so that a certain rate of the production value of the land is runningly handed over to the Public and a special tax is imposed on the "unearned surplus" obtained by selling land. Nowhere, however, the collection of Rent and

Tax is carried out to the bottom. The amount of "unearned incomes" is cut, but not totally removed. This is mainly due to two causes; firstly that the landowners are so numerous and influential, that the political possibilities to come through with heavier Rent and Tax are sparse, and secondly that the development of the society goes on so fast, that the Public is unequal to reevaluate the land, concurrently with the actual changes in production value.

Until now the above mentioned problems have not been overwhelming in Sarawak. The number of individual landowners has been modest and their collection of "unearned incomes" has been low apart from the urban areas. The Sarawakian society is, however, on it's way into a powerful modern development, promoted by the Government by it's investments and general policy. This means that the production value of the land in some areas in the near future will increase rapidly, because improvements of for instance infrastructure and public utilities will made it possible either to operate the land more rationally or to convert the use of the land to a more profitable production. As the market value of land grows with the production value, a situation will soon emerge, where land speculation and the collection of "unearned income" by private persons are no longer a marginal matter, but a significant social problem. The change of income and wealth-distribution in favour of the landowners may create social problems and the increased purchasing power emerging from the realization of the incremental land values may set off an inflation and affect the balance of payment adversely.

A Rent and Tax System which takes the sting out of land speculation, but not totally removes it, has as mentioned been the only political possibility in most countries and may be so in Sarawak too. On the other hand, the background of Sarawak for a thorough-going Land Rent System seems to be much more favourable than that of many other countries. This is due to the fact, that private individual ownership of the land as known from the west-european countries hardly is to be found in Sarawak. Large areas of land are owned by the State itself; land under Native Customary Rights, which constitutes a major part of the remaining area of the State, has a special non-titled status of ownership and land titled to private individuals is only in very few cases alienated to them in perpetuity. Most often the terms of alienation are fixed at 60 or 99 years, whereupon the land is passed back to the State for public use or for re-alienation with compensation. A thorough solution of the problem may therefore be possible in Sarawak, and as a contribution to the discussion on the subject, a System, which intends to

prevent undersired speculation in land, is outlined below in paragraph 4. However, in order to relate the proposed system to the present rules laid down in the Sarawakian Land Code, the main principles and most outstanding provisions of the Code are summarised in the next paragraph.

3. MAIN FEATURES OF THE SARAWAKIAN LAND CODE

The Sarawakian Land Code is based on the principle that all land in Sarawak belongs to the State. Nobody can obtain proper ownership in the European sense of the word, but it is possible to lease a piece of land from the State in a certain term of years by paying a Premium when the land is alienated and a yearly Rent in the lease period. However, in practice Native Customary Land constitutes an exception. Informal it is looked upon as belonging to the Natives in question, but as soon as areas of Native Customary Land obtain status as Native Area Land or Mixed Zone Land, thus being surveyed and recorded by the Land and Survey Department, the State formally takes over the land. This^{is} expressed by the fact that continued occupation of the land is based on a lease contract.

The conditions - Term, Premium, Rent, etc. - on which State Land has been and is alienated vary considerably. As far as Terms of the leases are concerned a dispersion is found from 5 years up to perpetual.

Perpetual leases are not very common and are only found in Kuching. Leases on 999 years and 900 years are also found but like the perpetual ones not in large numbers. Most of the Long Term leases - often called grants - were issued under the Brooke regime. Most leases are issued at a Term of 60 or 99 years. The present provisions about Terms of leases are stated in the Land Code under Section 213 as rule No.13.

This rule provides:

"The maximum Term for which any lease of State Land may be issued without the sanction of the Director, except on replacing an existing title shall be as follows:

- a) for agricultural land 60 years
- b) for residential purposes 60 years
- c) for shop lots, factory sites and sites for buildings other than residential:
 - 1) for permanent buildings of brick or concrete, or for wooden buildings of a type and specification approved by the local authority to warrant the grant of a 60 years lease 60 years

2) other wooden buildings	25 years
d) burial grounds	99 years
e) for a lease replacing customary tenure	99 years
f) for cattle grazing	5 years"

Concerning the Premium to be paid, when State Land is alienated, the dispersion is from nil to current market value of the land. The present rules, which are found in Section 213 in the Land Code, are as follows:

- "1) In urban development schemes sponsored by Government the amount of Premium payable on alienation would be the cost of the land (including the cost of any acquisition) plus the cost of development, but, where this exceeds the market value, Superintendents are required to make recommendations for the reduction in the Premium to be charged.
- 2) The amount of Premium payable on any other alienation of State Land outside an urban development scheme (but not including the alienation of agricultural country land) should be left to the discretion of the Superintendents, but in no case it should exceed 25% of the market value at the time of alienation.
- 3) The amount of enhanced Premium, payable for conversion of the conditions of title from a lower to a higher and better use, should be left to the discretion of the Superintendents, but in no case it should exceed 25% of the difference of the two market values at the time of alienation or re-alienation.
- 4) The Premium to be charged for alienation of country land for agricultural purposes under Block Alienation Schemes should be \$3/- per acre.
- 5) In residential Block Alienation Schemes where services such as roads, water and electricity supplies are provided by Government, the amount of Premium payable on alienation would be the cost of the land (including the costs of acquisition if any) plus the cost of development, but, where this exceeds the market value, Superintendents are required to make recommendations for the reduction in the Premium to be charged. In cases where no services are provided by Government, the amount of Premium to be charged should be left to the discretion of the Superintendent, but in no case it should exceed 25% of the market value at the time of alienation.

- 6) The Premium is nil for land alienated for the following purposes:
- a) educational purposes
 - b) health clinics
 - c) burial grounds
 - d) charitable institutions, benevolent and other welfare societies
 - e) civil service, youth clubs and cultural societies."

Section 18 of the Land Code deals with Native Customary Land, saying:

"Native Customary Land can be titled by issuing a lease not exceeding 99 years free of Premium, Rent and other charges. The land shall be used for agricultural purposes only.

Where land leased under this section is transferred or sub-leased to a person other than intestate successors or the use of the land is changed from agricultural purposes to any other purpose, the appropriate Premium, if any, Rent and other charges under this ordinance shall be payable as if the land has been first alienated on the date of transfer or sub-lease or change of use, as the case may be."

In the lease period a yearly Rent is to be paid. The provisions about this are as those of Terms and Premiums stated in section 213 in the Land Code. They are as follows:

- 1) Town or suburban land and country land used for other than agricultural purposes:

The rates stated in the table below stipulates the maximum amount of Land Rent to be charged per year for each grade of land (see about grading below) and for each particular purpose, i.e. commercial, industrial, residential or other purposes. It is recognised that some parcels of land in the outskirts of a town in the high grade may be of less value than parcels of land in the centre of towns in the lower grade. Hence, it is considered that it is inappropriate and unequitable to fix a minimum rate of Rent. The land valuer can then fix the Rent for land within each grade without being restricted by having to adhere to a fixed minimum set of values.

Cent per square foot	Commercial	Industrial	Residential	Others ^{*)}
Special grade (Kuching)	8	2	1	1/2
Grade I	6	7/4	7/8	7/6
Grade II	4	3/2	3/4	3/8
Grade III	2	1	1/2	1/4
Grade IV	1	1/2	1/4	1/8

*) The term "others" means land for agricultural purposes in town and suburban land.

To give a feeling of what is covered by the different grades, the present grading of 4th Division is stated below:

<u>Towns and Bazaars</u>	<u>Grade</u>
1. Bekemu	III
2. Beluru	IV
3. Bintulu	II
4. Kuala Baram	IV
5. Kuala Nyabor	IV
6. Kuala Tatau	IV
7. Labang	IV
8. Lutong	III
9. Marudi	II
10. Miri	I
11. Niah	IV
12. Batu Niah	IV
13. Pandan	IV
14. Sangan	IV
15. Sebauh	III
16. Suai	IV
17. Tatau	III
18. Tubau	IV
19. Fifth mile Riam Road Bazaar	IV
20. Lambir	IV
21. Krokop	III
22. Lubok Nibong	IV
23. Long Teru	IV
24. Long Akak	IV
25. Long Lama	IV
26. Long Linei	IV
27. Leppu Leju	IV

28. Long Belepau	IV
29. Bakam	IV
30. Brighton	III
31. Kuala Sibuti	IV

2) Agricultural country land

The yearly Rent for land used exclusively for padi cultivation or cattle grazing is 20 cents per acre. For land used for any other agricultural purposes \$1/- per acre.

Up to and including the first day of January 1973 the Land Rent payable for town or suburban land, or country land used for other than agricultural purposes was 2% of the assessed market value of the land. The market value was assessed at intervals of 10 years from the date of registration of the lease. This system was found to have three serious drawbacks. Firstly, the procedure of revising the assessed market value of the land at fixed intervals resulted in inequity in the charging of Land Rent. For example, two, more or less similar parcels of land in the same locality might bear different Land Rent if they were revised at different times. Secondly the revisions of assessed market values appeared to have a spiralling effect of the land values and thirdly the rapidly increasing land values led to an excessively high level of Land Rent on alienation and on revision, thus making the continued staying on the land very difficult or impossible for many people.

Country land used for agricultural purposes was charged a Land Rent of 20 cent per acre for land used exclusively for cattle grazing purposes; \$1/- per acre for land used exclusively for padi cultivation; and \$3/- per acre for land used for any other agricultural purposes.

It is evident that the Rents to be charged according to the provisions of the new system are very low in comparison with those assessed in accordance with the former rules.

Besides the provisions about Terms of leases, Premium and Rent following statements of the Land Code should be cited to round off the picture of the present policy of land.

Section 17 of the Land Code:

"In the absence of any special conditions to the contrary contained in the document of title the Government may re-enter and resume possession of lots of suburban land which remain unoccupied and unimproved for two years from

the date of registration of the document of title and no claims shall lie for the refund of any premium, rent or other considerations, which may have been furnished."

Section 33:

"In any case where the land has been abandoned for at least three consecutive years or in case of a breach of or a default in the observance of any of the conditions of the said document of title the Superintendent declare the estate or interest secured by that document of title to be forfeited and re-enter the land."

Section 26:

"No person claiming under document of title shall, in absence of contrary provision contained in that document of title, have any right, upon the expiration of the term secured thereunder, to any renewal, whether upon the same conditions or otherwise."

The proviso of section 26 allows the Director to exercise his discretion and, in fact, it is the policy to renew a lease at the request of the former registered proprietor.

The Government, then, has a legal right to take over land, when the Term expires, without any compensation to the former occupier. In this connexion it is of great interest to know how "land" is defined. A definition is found in the Land Code part II saying that "land" includes things attached to the earth or permanently fastened to anything attached to the earth. "Land" is then interpreted as comprehending every species of ground, soil or earth - whatsoever, as meadows, pastures, woods, moors, waters, marshes, furze and heath - houses and other buildings.

In short it could be said that section 26 entitles the Government to take over land and fixtures when the term of lease expires without any economic compensation to the former registered proprietor.

Section 27:

"No outgoing proprietor or other person shall have any right or claim against the Government in respect of the value of any improvements that may be in existence on the land at the date of the expiration of the estate or interest under which that land was held."

Section 39 contains general provisions relating to the cultivation of land. These provisions are most important in securing the proper development of agricultural land. They are as a matter of policy as far as

possible vigorously enforced.

Section 46 deals with the provisions of resumption. They are rather comprehensive allowing resumption for all public purposes. It appears from the rules that "public purposes" are given a very broad interpretation.

Section 47 allows the Government to "freeze" the value of land which will, or may, be required in a process of resumption. The "frozen" value becomes valid only in case of resumption. Private dealings of land can still go on on basis of the current market value.

According to the Land Code Directions stated under section 38 following special condition of the lease may be imposed: "This land may not be transferred, subleased, charged or otherwise dealt in without the approval in writing of the said Superintendent during the initial period of 10 years from the date of registration of this lease." In some cases the period can be extended to 15 years or even to cover the whole lease-period.

Zonation: As it appears above the State of Sarawak is divided into 4 categories of land, namely;

- 1) town land
- 2) suburban land
- 3) country land used for other than agricultural purposes
- 4) country land used for agricultural purposes

Within each category of land the Director of Land and Survey Department can restrict the use of the land to certain purposes. The categories 1)-3) could be restricted to either commercial, industrial, residential or agricultural purposes and the category 4) to some closer defined types of crops or to cattle grazing.

As mentioned above, if the conditions of the lease are converted allowing the land to be used for more profitable purposes an enhanced Premium and Rent are to be paid. However, the amounts which are charged correspond far from the incremental land value.

Summarizing it must be stated that the provisions of the Land Code do not prevent private persons from collecting "unearned incomes" by holding and selling land. The rules of Premium and Rent are in fact so, that

considerable subsidies are given to people leasing land from the State. The Premium which is charged in the first alienation of a piece of land is often below the current market value, and in the following re-alienations the Premium never exceed 25% of the current market value. As the leaseholder in question normally is allowed to sell the land to the current market value within the lease period he can obtain an "unearned income" equal to the capitalized value of the subsidy. Thus the subsidy is not transferred to the new leaseholder or to the State, but to the person who happened to be the first leaseholder.

A subsidy which enable people to acquire a piece of land for agricultural, residential, commercial or industrial purpose could be a good and socially reasonable provision. On the other hand leaving the same people the possibility to capitalize this subsidy into an "unearned income" by selling the piece of land is hardly desirable and most likely unintended. This seems to be widely agreed in Sarawak, and attempts to cope with the problem has been made by the passing of some of the rules and provisions of the Land Code mentioned above. It concerns for instance the rule allowing the Government to freeze land value, the rule allowing the Government to take over free of charge land and fixtures by the end of the lease term, the provision forbidding people to sell the land within a certain initial period and the directive allowing the Land and Survey Department to zone the land, i.e. to restrict the use of the land to certain purposes. These provisions restrain the land speculation, but they certainly do not remove it.

In the next paragraph, a system, which intends to prevent undersired speculation in land, is outlined. It is found on the main philosophy of the present Land Code, that all land in the State belongs to the State, and it is built up by clear-cut and simple rules and should consequently be rather easy to administer.

4. LAND RENT SYSTEM

4.1 General

The System outlined below could be carried through without new legislation, just by putting emphasis on some of the provisions in the present Land Code. However, for promotional reasons and for the sake of clearness it appears most appropriate to establish new legislation.

As mentioned in paragraph 1 the Land Rent imposed on existing State Land and land bought or otherwise acquired by the State from Native

Customary Land should be equal to the value of the output from the land less the payment for various material inputs and for labour done by the occupier of the land, his family and possible hired labour. On already Titled Land and Native Customary Land the Land Rent should be introduced as an Incremental Land Value Rent, which would withdraw to the State any incremental land value due to the general development of the society and to improved market conditions. The consequence of this approach is, that the collection of Land Rent in the first many years mainly will concentrate upon State Land and land sited in developing areas. Large parts of Native Customary Land and already Titled Land outside the development areas will be exempted from paying Land Rent, as the incremental land value in these areas in many years forward probably will be zero or utmost moderate.

In the following the principles of an effective Land Rent System will be outlined. The System should cover all land, both land belonging to the State, already alienated land and Native Customary Land. Because of a slightly different procedure in the accomplishment of the system in State Land and in "private occupied" land, it is found convenient to deal with the two kinds of land separately.

4.2 State Land

If land belonging to the State is alienated to private persons it should as at present be on a lease basis. The lease contract should provide the person with an "usufructuary right", which gives him a right to stay on the land, to utilize it and to keep the output for himself, apart from the Land Rent. The "usufructuary right" might include the right to leave by will the land to his intestate successors on similar conditions as he had himself. However, transfer of the land to others than his intestate successors should not be allowed. (See below about possibilities of exemption from this rule). The land belongs to the State and the State should decide who is going to take over, if the person **wants** to dispose of the land in question.

In special cases where the leaseholder wants to move away from the land, but a member of his household wants to stay, the member in question should have the possibility to apply for taking over the land. If he meets certain criteria - which are not going to be specified here - he should be allowed to take over the lease contract.

State Land should be alienated to individual persons free of charge, no Premium, no initial amount should be paid for the lease contract.

Instead they should runningly pay a Land Rent to the State for utilizing the land. The Rent would be fixed by the State and should as near as possible deduct from the output of the land, that amount, which constitutes the payment for the services of the land itself. As the returns from the land are fluctuating over time the Rent should be adjusted regularly, for instance every year.

An example may clarify what is meant. A "standard" rubber growing farmer has in year 1 a total output from the land equal to \$3 000 (the value of the yield from the rubber trees), and in year 2 - because of **price** reductions on rubber - a total output equal to \$2 700. His costs for materials and equipment in both years equal to \$300 and the reasonable earnings for his and his family's work on the land are evaluated to \$2 200 in year 1 and \$2 300 in year 2. The \$100 increase in year 2 is due to a general increase in the real wages in the society from year 1 to year 2. The Land Rent corresponding to the value of the services of the land should then be \$3000 less \$300 less \$2200 equal to \$500 in year 1 and \$2 700 less \$300 less \$2 300 equal to \$100 in year 2.

Then, for land used for farming the system would allow the "standard" farmer to earn a reasonable amount for himself and his family. In fact, the income of the "standard" farmer should be of a size which makes it competitive to the earnings which can be obtained by working in town. By reducing the gap between the incomes obtainable in the country side and in the urban areas respectively the System would contribute to reduce the prompting to urban migration.

In years where the returns from the farm are small the Rent should also be small. As the returns increase the Rent should be correspondingly increased, but the amount left for the farmer and his family should rise in accordance with the general growth of real wages in the State. The Land Rent should be the same for units of land of same quality. This means that if the farmer has a skill, an efficiency and energy above that of the "standard farmer", he will earn more than the less skillful, efficient and industrious.

The recommended Land Rent System would render superfluous the provisions of lease terms. There is no economic reasons for limited terms, when the value of the land is fixed once for ever equal to zero. Neither are they necessary as a means for the Government of acquiring land. The present rather comprehensive provisions of resumption of land to

the State would be sufficient to secure the Government the land which is needed for public purposes.

If the leaseholder of State Land wants to dispose of the land and move away, it should be obligatory for him to sell his real property (residential house, store buildings, houses and sheds for livestock, etc.) to the State. This is a consequence of the provision saying that transfer of the land to other persons than his intestate successors (after his death) is not allowed and the fact that land and fixtures cannot be separated physically. Conversely it would be obligatory for the State to buy. The price should be assessed by impartial persons and should be of a size which enables the seller to buy real property of the same standard elsewhere in the country. The evaluation should be based on some fixed criteria such as number of square feet, building materials, technical and sanitary installations, age, standard of maintenance, etc.

If the farmer had improved the land (drainage, irrigation, levelling, terracing, etc.) he should be paid a bonus from the State. On the other hand if the land had deteriorated due to negligence by the leaseholder a damage payment should be claimed from him.

Within the Land and Survey Department the establishment of a special office to manage the distribution of land and the buying and selling of real properties would be necessary. Participating in all transactions of land this office will get a complete knowledge of demand and supply. This knowledge will be useful when the Land Rent is reviewed once a year, because surplus demand or surplus supply might indicate that the present Land Rent is too low or too high respectively. This statement is derived from the economic theory of perfect competition. Assuming perfect competition, the demand for land will only exceed the supply if the production value of the land less costs of material less Land Rent constitutes a larger amount than that, which can be obtained elsewhere in the society by the same effort.

Even if it is obvious that perfect competition is not prevailing in Sarawak, or in any other country for that sake, the imbalance of demand and supply can be used as one of the indicators for changing the Land Rent.

The quality and location of the land, the kind of crop growing on the land and the crop yield and price could be other indicators of the size

of Land Rent. Valuable information about qualities and crops could be obtained from the soil survey work, which, under all circumstances, must precede any large scale development or improvement scheme, and from the running work done by SIDB and Agricultural Development Units.

The central and divisional registers of land should be extended to contain closer information about the quality, location and use of every single lot of land recorded. Changes in these factors should be carefully reported in order to keep the registers up to date. Also proper statistics of yields and prices of the main crops would be necessary in the work adjusting the rates of Land Rent. All information could be processed on electronic computers. The resulting Land Rents could be presented in 2 matrices, as shown below, one for agricultural country land and one for towns and suburban land:

Basic rates of Land Rent^{*)} for agricultural country land

ACTIVITY	QUALITY OF LAND				
	1	2	3	4	5
Palm oil	Rates of Land Rent				
Rubber					
Wet padi					
Hill padi					
Pepper					
Cocoa					
Pineapples					
Cattle					
Other					

*) The basic rates of Land Rent should be adjusted according to the location of the land. In practice it could be done by multiplying the basic rates of Land Rent by factors reflecting the value of different locations. If for instance the basic rates of Land Rent reflects the Rents payable in the most remote areas (location 1) the multipliers could be: as shown below:

Location	Land Rent multipliers
1	1.00
2	1.25
3	1.50
4	1.75
5	2.00

Location 5 is areas closest to the final markets (towns) or central places for collection of goods for sale or export.

Basic rates of Land Rent*) for towns and suburban land

ACTIVITY	LOCATION				
	1	2	3	4	5
Commercial	Rates of Land Rent				
Industrial					
Residential					
Others**)					

*) The basic rates of Land Rent should be adjusted according to the quality of the land i.e. it's physical ability to bear buildings. As in the case of agricultural country land a set of multipliers could be set up.

*) The term "Others" in the last column means land for agricultural purposes in towns and suburban land.

In some areas the Government might, for social reasons, lower the Land Rent i.e. assess the Rent below that stated in the matrix. If for instance some public infrastructural investments increases the value of land in a residential area for agricultural labourers, the Government can choose not to increase the Land Rent accordingly. In such cases, however, it must be secured, that the persons benefited will not be able to convert the benefit into "unearned incomes" by letting out their houses to a price which reflect the increased land value.

4.3 Native Customary Land and State Land Already Alienated

Native Customary Land and State Land already alienated is land held by individual persons or groups of persons. Some have paid a Premium for the land while others without payment have a prescriptive right to the land.

The present value of these areas of land is rightly looked upon by the occupiers as their lawful property. Encroaching on these values without compensation would be confiscation of private property and as such incompatible with the Constitution. This value must therefore stay untouched as private property. However, future increases in this value

due to the development of the society could legally be absorbed by the Government through an Incremental Land Value Rent.

To state what are the land values "today", i.e. the date from which a revised Land Code could come into force, all Native Customary Land and State Land already alienated should be assessed by the Land and Survey Department.

For State Land alienated on terms below 100 years the future land values should be assessed too. As the Government has a contractual right to take over the land when the lease expires, the assessed values should decline year by year until they reach zero the last year of the term. The assessed decrease in the land values could be progressive, degressive or linear over the remaining lease period.

For State Land alienated on terms exceeding 100 years - a so-called grant of land - the assessed "today" value should be valid in all future.

After the assessment, the Land Rent System which has been outlined for State Land, could in principles be imposed on Native Customary Land and State Land already alienated. The amount claimed as Land Rent should have a size which keep the market value constant³⁾ equal to the assessed value. For State Land alienated on terms below 100 years this means, that the yearly payment of Land Rent increases correspondingly to the decrease in the assessed value of the land.

However, the market value could fall below the assessed value indicating that the land fails to pay the full amount for labour done on the land, materials and interest on the invested capital. The situation could for instance emerge if some crop prices drop down. Consistency would then require a subsidy to be paid in order to sustain the market value of the land. If the price-drop is considered to be of short duration, this could be a reasonable action, but if it is estimated to be of a more permanent character, measures should be taken to change the use of the land or to remove people to other areas of the country where other productions could be started.

3) By "constant" is here meant constant in real terms, as the assessed land values should be index regulated to secure the occupiers against inflation.

land and the buying and selling of real property. As in the case of State Land the occupier gets an amount, fixed by impartial persons, for his real property, but, beyond this he is also paid an amount for the land equal to the assessed value, index regulated.

If the economic possibility is present the Government can choose not to resell land bought from private persons, but give it status as original State Land and pass it on on a pure rent basis.

4.4 Examples

In this sub-paragraph a number of examples are presented in order to illustrate how the proposed system would work in different situations.

1) Private contractor building dwellings to let out:

- the contractor apply Lands and Surveys for permission to build dwellings to let out.
- having received the permission and built the dwellings he is allowed to let them out to a price, which he fixes himself. The price then would cover the annual capital costs and running ^{costs} / of the house and the Land Rent.

2) Private contractor building dwellings to sell:

- the contractor apply Lands and Surveys for permission to build dwellings to sell.
- he receives permission if Land and Survey Department judges that there is a need for dwellings in the area in question.
- having received the permission and built the dwellings he is allowed to sell them to a price, which he fixes himself. The Land Rent would be adjusted according to the new utilisation of the land, thus preventing the contractor to collect an "unearned income" by selling the land.

3) The connection between the assessed value and the Land Rent for State Land already alienated on a term below 100 years:

- The value of the land is assessed on the assumption that the present rate of Land Rent is payable continuously. Assuming other things being equal the Land Rent payable every year should increase by an amount corresponding to the successive decrease in the assessed value.
- Provided that the leaseholder is allowed to stay on the land beyond the term of the lease, and that he is allowed to keep for himself an amount of the output from the land equal to the payment for the labour done by

himself, his family and possible hired labour and an interest on the capital bound in the land³⁾, the yearly increase in the Land Rent is calculated as the difference between the two assessed land values multiplied by the rate of interest. If for instance the difference in the assessed land value from year 1 to year 2 is \$200/-, and the interest is 10%, the yearly increase in the Land Rent would be \$20/-.

4) Incremental Land Value Rent for Native Customary Land and State Land already alienated :

- If the possibility appears to change the use of a lot of land from a lower to a more profitable production the value of the land will increase. Following the rules outlined above the Government should impose an Incremental Land Value Rent on the land in question. The Incremental Land Value Rent is calculated by means of the rates of Rent given in the Land Rent matrices for State Land and appears as the difference between the Rent payable in the present and the future use. If for instance the use of a lot of Native Customary Land has the possibility to change from agricultural purposes to residential, and the Land Rent matrices shows, for the land in question, a Rent equal to \$1 and \$4 respectively for the two purposes, the Incremental Land Value Rent should be \$3 per acre.
- If others of the indicators of Land Rent change, say, the price on one of the main crops has gone up thus increasing the value of the land, the same procedure for calculating the Incremental Land Value Rent should be adopted.

4.5 Conclusion

The System outlined in paragraph 4 will, if implemented, effectively prevent speculation in land. Further more the system will promote a considerable flexibility in the resource allocation of the society; firstly because the mobility of the population will increase, as the collection of all supply and demand of land and real property in one authority - the Land and Survey Department - will make the market utmost "transparent", and secondly because of the possibility of the Government to impose rent on land in accordance with it's most appropriate utilisation. The latter means that the Government could turn the productive use of the land, so that a maximum output could be ensured to the

3) The capital bound in the land is put equal to/at any time assessed land value .

simultaneous benefit of the users and the society. Beyond this the System constitutes a tool, which enable the Government to influence rather effectively the distribution of land between different ethnic groups and classes of population in the State, thus avoiding any adverse social effects from restricted access to land. Finally, but not less important, the System in time will contribute essentially to the ^{public} revenues. It could be one of the main measures to overcome the future financial problems of the State Government envisaged in the MID-TERM REVIEW of the SECOND MALAYSIA PLAN.

It must be emphasized that following the system the only reduction the landusers' freedom of action is, that they are not allowed to sell their land and real property to whom ever they like, but only to the State. As long as the landuser pays his Rent he can do what he likes with his land within the restrictions imposed by other legislation, or any agreement made at the time of alienation, for instance on delivery of "fresh-fruit-bunches" to a palm oil plant. Also, he has still the right to let the land descend to his intestate successors in accordance with the statutes valid in the State.

The system would be rather easy to handle and the immediately required staff increment might be modest firstly because the Land and Survey Department already now has a staff at its disposal, administering the present Land Rent System and secondly because the number of land-transactions in Sarawak "today" is rather small. From the headoffice of Lands and Surveys in Kuching it has been reported that the number of landtransactions in 1972 was just above 7 000.

The system constitutes a thorough solution of the problem connected with incremental land values. However, a more marginal, i.e. a less fundamental approach might be preferred or might be the only political possibility. Consequently some marginal solutions of the problem are presented in the next paragraph.

5. MARGINAL SOLUTIONS

5.1 State Land

It is still assumed that land belonging to the State is handed over to individual persons for productive use on a Land Rent basis, but their rights might now include the right to transfer the land and their real estate to whom ever they like on similar conditions as they had themselves. This would render superfluous the special office within the

Land and Survey Department managing the distribution of land and the buying and selling of real property. At the same time, however, the guarantee against individual persons collecting "unearned incomes", is substantial diminished. For social and practical reasons the Land Rent most often would be fixed lower than the service of the land indicates. This means that the landuser has the opportunity to obtain an "unearned income" when he transfers the land, because people will be willing to pay an amount to take over land which pay a surplus beyond the payment for materials and labour.

The Government could forbid any kind of economic compensation, when State Land is transferred from one person to another, but it would probably not have any considerable effect. The money would still be collected by the transferent either by increasing the price of the real estate or by requiring money paid "under the counter".

If a free price formation on State Land is accepted by the Government a larger or smaller part of the income obtained by the transfer of land could be collected by the State by imposing a tax on this kind of earnings. However, an arrangement like this would be very difficult to handle effectively, as it in most cases would be very difficult to estimate what is the payment for the land and what for the real property. Payment "under the counter" would also in this case be a possibility to by-pass the regulation.

5.2 Titled Land and Native Customary Land

If the "landowners" keep their present right to sell their land and real property to others than the State, they would be in a position to sell the land for a higher price than that, assessed by the Land and Survey Department. The problem would be the same as for State Land; a ban on this kind of income would have very little effect, and a tax would be very difficult to administer effectively.

It must be envisaged that the adoption of marginal solutions never fully solves the problem about individual persons obtaining "unearned incomes" by using the land and by buying and selling land. Marginal solutions can only patch up the system and diminish it's, indeed, very adverse consequences. The only adequate possibility to solve the problem is to adopt a thorough solution like that outlined in paragraph 4.

6. LAND TAX

As already mentioned in paragraph 1 the Land Rent is not a tax but a transfer to the State of that part of the output from the land, which is due to the land itself. The landuser's income from the land is certainly not affected by the Rent as the Land Rent amount emerges as the difference between the total output and the payment for materials, transport and labour necessary to obtain this output.

When the landuser's total income reaches a certain level a tax should be imposed on him as on any other member of the society. As, however the assessment of this income in the rural areas traditionally is a difficult affair, it could be preferred to base the income taxation on a Land Tax principle. A simple Lump-Sum Tax seems to be rather convenient. It imposes no penalties on increased production and it is easy to administer. The Tax should be defined as a Lump-Sum Tax per acre, so that larger landusers would pay proportionately more in total tax.

7. FURTHER ELABORATION ON THE PROPOSED LAND RENT SYSTEM

Further elaboration on the proposed Land Rent System is considered outside the scope of the Regional Planning Study. If the ideas behind the system are found interesting and acceptable and a further elaboration is wanted a considerably amount of work has to be done in developing the sketch into a detailed scheme. This task will require persons with technical and professional knowledge of the subject. However, the scheme has a character which makes it probable to attain foreign aid, either on a multilateral basis through UNDP or as bilateral technical aid. In fact, lately especially UNDP has drawn much attention to the problems concerning incremental land values caused by public subsidies and investment, and it is most likely that this organisation would be highly interested in participating in the detailed elaboration of the scheme.

8. SUMMARY

The reason for the elaboration of the present paper is a statement in Working Paper No.50 saying:

"It appears particularly important for the Government to prevent it's aid and subsidies becoming capitalised in higher land prices, which would be to the benefit of just a few luckily chosen persons instead of improving the lot of the mass of the people. Prevention of this can be obtained through a taxation⁴⁾ based on an assessed value of the land".

4) actually not a taxation, but a land rent.

This statement is deepened in paragraph 2, among other things by a description of which consequences a public investment in a port could have on the value of the land surrounding the port. It is further mentioned that many countries in the world try to limit the possibilities of individual persons collecting "unearned incomes" by owning and selling land. Normally they choose to impose a rent on the land and to claim a special tax on the "unearned" surplus obtained by selling the land. Nowhere, however, is the collection of Rent and Tax carried out to the bottom.

In Sarawak the possibilities for a thorough going Land Rent system seems to be much more favourable than that of any other country. This is due to the fact that vast areas of land have a special status of property. Large areas of land are owned by the State itself and a major part of the remaining area is land under Native Customary Rights.

In paragraph 3 the main features of the Sarawakian Land Code are outlined. The basic principle of the Code is, that all land in Sarawak belongs to the State. Private persons cannot own land, but they can lease land from the State, most often on very favourable conditions, especially if modern production techniques are considered. A large element of subsidy is laid down in the present land alienation system, and eventhough some provisions are passed to limit the possibilities of the leaseholders to capitalize the subsidy, they still collect considerable amounts of "unearned incomes" when they dispose of the land within the lease-period.

By putting emphasis on some of the provisions of the present Land Code a thorough going Land Rent System, preventing private persons from obtaining "unearned incomes" by holding and selling land, emerges. The System is presented in paragraph 4. It should cover all land, State Land, already alienated State Land and Native Customary Land. The Land Rent imposed on State Land should be equal to the value of the output from the land less the payment for various material inputs including transport and for labour done by the leaseholder, his family and possibly hired labour. On already alienated State Land and Native Customary Land the Land Rent should be introduced as an Incremental Land Value Rent. The consequences of this approach would be, that the collection of Land Rent in the first many years mainly will concentrate upon State Land and land sited in developing areas. Large parts of Native Customary Land and already alienated State Land outside the development areas will be exempted from paying Land Rent, as the incremental land values in these areas in many years forward probably will be zero or utmost moderate.

State Land should as at present be alienated to private persons on a lease-basis. The lease contract should provide the person with a "Usufructuary right", which gives him a right to stay on the land to utilize it and to keep the output for himself, apart from the Land Rent.

The "usufructuary right" might include the right to leave by will the land to his intestate successors on similar conditions as he had himself. If the leaseholder wants to dispose of the land, he retransfer it to the State. It would be obligatory for him

to sell his real property to the State, and conversely, it would be obligatory for the State to buy. A special office should be established in the Land and Survey Department to manage the distribution of land and the buying and selling of real property. Also the assessment of the Land Rent could most probably be appropriately taken care of by Lands and Surveys.

For Native Customary Land and Titled Land the system should be the same as for State Land, only it is necessary to assess the value of all land before imposing the Incremental Land Value Rent. This assessment would be carried through by the Land and Survey Department.

The thorough going Land Rent System outlined in paragraph 4 will, if implemented, effectively prevent speculation in land. Further more it would promote a considerable flexibility in the resource allocation of the society and constitute a tool, which enable the Government to influence rather effectively the distribution of land between different ethnic groups and classes of population in the State. The Land Rent would in time develop to be an essential source of finance for the Government. Then, the payments of private persons for utilising properties belonging to the State would be used to general advancement of the development of the State. However, a less fundamental Land Rent approach might be preferred or might be the only political possibility. It could for instance within the System be allowed individual persons to hand over or sell the land to whom ever they like. In this case it would be possible for the transferent or seller of land to obtain an "unearned income". It would appear either as a real price on the land, as money under the counter or as an overprice on the real estate. Marginal solutions are dealt with in paragraph 5.

In paragraph 6 it is established that the Land Rent is not a tax but a transfer to the State of that part of the output from the land, which is due to the land itself. When the landuser's income reaches a certain level a tax should be imposed on him. A simple Lump-Sum Tax per acre seems to

be rather convenient.

Finally it is stated that further elaboration on the proposed Land Rent System is considered outside the scope of the Regional Planning Study. However, the scheme has a character, which makes probable the attainment of foreign aid, either on a multilateral basis through UNDP or as bilateral technical aid.

DRAFT INTERNAL WORKING PAPER

File Ref. : MB/3/FINC/GEN
Date : 25.7.1973
Author's name: F. H. Andersen
Subject : PREMIUM BONDS

1 INTRODUCTION

Within the society and the Government there may be several different opinions about gambling. Some may accept gambling provided it will not expand into a hazard; others find that gambling is immoral, harmful to the people and waste of money, and therefore should be fought. Others again consider, that when gambling is a fact and probably will continue to be so, an attempt should be made to canalize some of the money used on this kind of activity into reasonable purposes.

If the latter attitude is predominant, it might be proper to look for a system, which could absorb some of the gambling money and canalize the amount into the courses wanted.

One such system is introduced in this paper under the heading "Premium Bonds". Premium Bonds are securities, being bonds and lottery tickets at the same time, combining the characteristics of both. Like ordinary bonds they may be transferable, interest yielding and redeemable after a certain number of years, and like ordinary lottery tickets they give the owners the chance of winning a prize.

By introducing this system it is hoped to increase the propensity to save by moving money from ordinary gambling, i.e. consumption, to Premium Bonds, which are a kind of savings. The savings thus obtained should be lent for development purposes.

In the following paragraphs a short description of the Premium Bond idea is given together with a few recommendations on how to handle it.

2 THE PREMIUM BOND SYSTEM

The pool of gambling is naturally paid by the gamblers themselves, and, as the bonds are redeemed at par after a certain number of years, the stake must be a smaller or bigger part of the interest yield obtained by lending the money procured by the sale of bonds. The bigger the part of the interest used on gambling will be, the bigger naturally the prizes can be. Most often the whole amount of interest, all administrative expenses

deducted, is used as stake.

The system may then be as follows:

- a) Premium Bonds are issued every half year up to an amount which covers the demand. The Bonds are sold at par.

The demand will probably fluctuate over time, being high just before a drawing and low just after. To turn the high demand to account and to prevent that this demand results in surplus quotation on the Bonds at the free market, the half yearly issue should take place in the months just before a drawing.

- b) All the Bonds may have the same denomination, e.g. \$10.
- c) The term of the Bonds may for instance be 10 years, after which they are redeemed at par.
- d) Interests may be paid twice a year, but instead of being distributed proportionately, it is pooled and divided into prizes, which are drawn every half year.
- e) The Bonds are not bearer securities and may be freely transferable.

3 THE APPLICATION OF THE ACCRUED CAPITAL

As in the case of "Sarawak People's Savings and Loan Society" (see Working Paper on this subject), the capital accrued may be used for development purposes. Statutory bodies as Sarawak Land Development Board, Sarawak Economic Development Corporation and Borneo Development Corporation, other development organisations, local councils and local associations with common purposes may be the main absorbers of the Premium Bond money.

To avoid the building up of a new big credit institution the money should be handed over to the organisations mentioned above on fixed conditions as regards the size of the interest and the redemption period. They might lend the money or use it themselves as they like within certain specified fields. The only requirement would be that they realize, when they use Premium Bond money and keep special accounts for it.

4 THE ADMINISTRATION OF THE ARRANGEMENT

The system has to be administered entirely by the Public Sector. State Financial Secretary (SFS) could be the administrative core of the arrangement, issuing the Bonds and managing the drawings.

The sale of Bonds can take place from any Public office and also banks, stockbroker's offices, local "Society" offices, etc. can be used.

A special office set up under SFS could administer the account between the Premium Bond fund and the development organisations in question.

5 THE IMPLEMENTATION

When SFS has worked out a proposal for the arrangement, and the political approval is obtained, a great promotion campaign has to be carried through, emphasizing that:

- a) the Bonds are redeemed at par after a certain period -
"all to win nothing to lose".
- b) the accrued capital is lent for development purposes
in Sarawak.

FHA/ml

29.8.1973.

DRAFT INTERNAL WORKING PAPER

File Ref. : MB/3/FINC/GEN
Date : 25.7.1973.
Author's name: F. H. Andersen
Subject : SARAWAK PEOPLE'S SAVINGS AND LOAN SOCIETY

1 INTRODUCTION

The present paper is a broad outline description of the purpose, extent and structure of a new savings and credit institution. It is a first introduction of the scheme and as such not elaborated into details. A more careful study of the subject will be necessary if the principles behind the scheme are found acceptable and realistic, but it is felt, that this further elaboration has a character, which brings it outside the scope of the Regional Planning Study.

The identification of the scheme is a consequence of the assumption made in the Perspective Plan, that the savings rate is going to increase substantially in the next twenty years. From 11.5 per cent in 1970 the rate is expected to grow to a good 17 per cent in 1990. This growth is probably not obtainable without incentives which succeed in mobilizing the economic resources of the Sarawakian people. It will be necessary to introduce new conditions for savings, which appear attractive for potential savers.

SARAWAK PEOPLE'S SAVINGS AND LOAN SOCIETY is meant as one of the means to increase the propensity to save in the State. It should not be established as a direct competitor to the existing savings and credit institutions, but as far as possible fill out missing functions within this business.

In order to attract savings the Society puts emphasis on meeting the demands of most depositors. These demands could be:

- a) nearness of the savings institution to the savers;
- b) maintenance or increase of the real value of the amount saved;
- c) guarantee to the savers against losses encountered by the investment of the amounts deposited;
- d) knowledge of and influence on how the saved money is invested.

In the following an attempt is made to state the basic framework for the activities of the "Society", to describe what can be done to meet the four conditions mentioned above and to outline guidelines for the administration and the implementation of the "Society". Paragraphs 2 to 5 deal with the four conditions, 6 to 7 with the structural framework for the activities of the "Society" and 8 to 9 with the administration and implementation.

2 NEARNESS OF THE SAVINGS INSTITUTION TO THE SAVERS

At present there are savings institutions and banking facilities only in the major towns of Sarawak. This means that a lot of people are not able to make regular use of this kind of service in their economic activity.

To overcome this disadvantage the whole State should be divided into "savings districts" and a local branch of the "Society" should be placed within each district.

The size of a "savings district" may vary with the population density, as a local "Society" branch needs a certain number of depositors to be run profitably. The districts should then be large in sparsely populated territories and small in densely populated.

A centre of population and trade and its catchment area would most often constitute one "savings district". The "Society" branch should be placed in the centre, and if public offices are to be found the branches should be established in or in connexion with these.

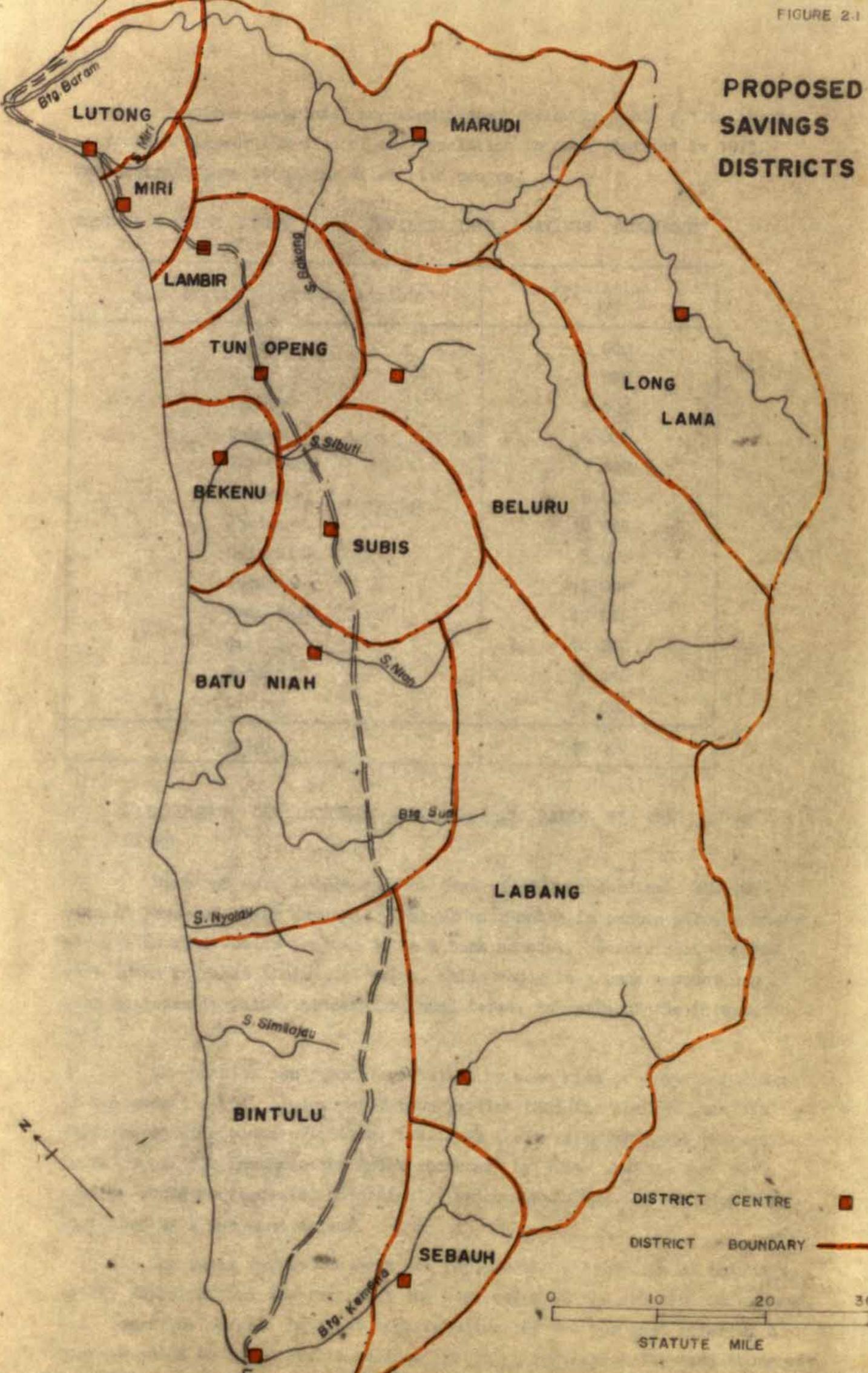
In order to reach every person in the "savings district" and serve him regularly all the branches should have a bus and/or a boat at their disposal. These "savings buses" or "savings boats" should be specially designed for the purpose and work in the districts to fixed schedules.

The establishment of the local "Society" branches and the service offered by the savings bus/boat arrangement are expected to make the people in all areas of the State familiar with banking business, resulting in their frequent use of this kind of service.

Figure 2.1 shows how the Study Area could be divided into a number of "savings districts". The partition of the area is carried out on the basis of the figures of the population forecast about the size and distribution of the population in 1975.

In order to create viable "Society" branches the minimum size of the population is put at 5 000. The calculations behind this figure are very insufficient and should be carried out more carefully at a later stage.

PROPOSED SAVINGS DISTRICTS



Thirteen "savings districts" are identified. Below in table 2.1 is shown in rounded figures the size of the population in each district in 1975. The district gets its name after its centre.

Table 2.1 THE STUDY AREA DIVIDED INTO "SAVINGS DISTRICTS"

Name of the "savings districts"	Population 1975
Lutong	10 000
Miri	30 000
Lambir	5 000
Bekenu	6 000
Tun Openg	7 000
Beluru	6 000
Subis	10 000
Batu Niah	7 000
Marudi	12 000
Long Lama	10 000
Bintulu	20 000
Sebauh	10 000
Labang	7 000
Total	140 000

3 MAINTENANCE OR INCREASE OF THE REAL VALUE OF THE AMOUNT SAVED

More and more people realise that inflation undermines the purchasing power of their savings. This often results in people placing their savings in real estate instead of in a bank account, because real estates most often increase their real value, while money in a bank account may even decrease in value, measured in real terms, in spite of the interest paid.

The problem can find its solution by some kind of index regulation of the amount saved. Index regulation implies that the savings maintain their purchasing power over time, i.e. keep their value measured in real terms¹⁾. If for instance the index increase by 3 per cent a year, the savings would be regulated accordingly, which means that they too would be increased by 3 per cent a year.

The index regulation does not replace the attribution of interest to the deposits, but the fact, that the real value of the deposits is secured, will lower the savers' interest requirements. If 3-4 per cent interest a year is added to the deposits besides the index regulation the conditions of

Note 1) The index regulation concept is further explained in paragraph 7.

the "Society" might be competitive to those of ordinary savings institutions.

4 GUARANTEE AGAINST LOSSES

It is extremely important for the propensity to save that people feel that their money is secure whatever happens.

The guarantee against losses encountered by the investment of the amounts deposited may be based on:-

- a) the provision of a surplus on lending activities of the "Society" to be collected in a central guarantee fund;
- b) a general guarantee given by the Government.

5 KNOWLEDGE TO AND INFLUENCE ON HOW THE SAVED MONEY IS INVESTED

This is perhaps the cornerstone in the attempt to mobilize the economic resources of the people.

The right promotion and implementation of this item will result in:-

- a) that people become aware of the procedures of banking business;
- b) that they get a fair view over the money flow;
- c) that they get a feeling of responsibility for the development of their State.

Much can be obtained by letting people participate in the processes of decision, i.e. by giving them influence. This can for instance be secured if:-

- a) the highest authority of the local level is a General Assembly consisting of those depositors in a "savings district" who have been a member of the society for a certain length of time and saved a certain amount of money.
- b) the daily management is in the hands of a board, to which the General Assembly elects representatives.

The subject of the administration of the "Society" is elaborated a little more in paragraph 8.

6 STRUCTURAL FRAMEWORK FOR THE ACTIVITIES OF THE "SOCIETY"

6.1 Deposit

One of the really important reasons why an arrangement such as the "Society" might increase the propensity to save is the growing need

of the population for stable value savings to meet sickness, unemployment and old age.

The development of the Sarawakian community towards a modern urbanised and industrialised society means that more and more people are going to move from the rural areas to urban areas to work as salaried personnel. This movement may result in a changed family structure. The family will often be scattered and the old family security system within which, disabled, unemployed and old persons are nursed and supported by other members of the family may to some extent be dissolved.

Of course this development will increase the need of the individual person to save money, and the "Society" should be organised in such a way, that it would be the natural institution for this kind of savings. The "Society" should specialise in accumulated savings for pre-determined purposes, such as savings for a house, for old age pension, for education and for sickness and unemployment.

The savings arrangements might not only include individual persons but also public and private undertakings which want to set up savings and/or insurance schemes for their workers and employees.

The depositors shall deposit money on their accounts regularly and the society works out calculations, showing them how much money they will obtain after 1, 2, 3, 4, etc. years, provided the deposit of a certain fixed amount per week or per month. After every index-regulation new calculations are carried out because the size of both the future deposits and the future achievements are increased nominally. Everything should be done to make the system simple and easy to understand and to make the conditions and the achievements as distinct as possible for the depositor.

6.2 Loan

Another aspect of the "Society" is its lending activity. The "Society" has the possibility to create low interest long term credit. This kind of credit will in any respect be sound for the development of the State. It will extend the pay back period of investments and thus lower the burden of debt servicing, whereby more stable business conditions are created. The need for low interest long term credit is already present and there are few possibilities of obtaining such loans.

The loans of the Society might be granted on 4-5 per cent interest. This would leave an interest marginal on 1-2 per cent as the interest on the deposits, as mentioned above, might be 3-4 per cent. The interest marginal would pay for the administration, funds and the like.

The principal of the loan should be index-regulated to meet the corresponding requirements of the depositors.

The local "Societies" should first and foremost lend money for local activities, but also joint ventures between two or more local "Societies" in order to finance larger non-local activities would be a natural business.

A close co-ordination with the Agricultural Development Units (ADU's) would be desirable as regards both the savings and the loan activities.

7 INDEX REGULATION

Index regulation of savings means in principle that the depositor can buy the same amount of commodities and services for the saved money in year zero, that is the year where the money is deposited, and in any year in the future. In other words the savings keep up their real value.

The attribution of interest on index regulated savings results in an increase of the real value of the amount saved; thus it does not only follow the development in prices but also the general growth of wealth, defined as increasing real income per capita.

For the borrower the index-regulation means that the principal of the loan increases concurrently with the prices. However, if the increase in income is equal to that in prices then the loan burden²⁾ is constant over time. In case the income increases faster than the prices, i.e. the real income per capita is growing, then the loan burden is decreasing.

Index regulation can be worked out on the basis of several different types of price indexes. In this connection however a "consumer price index" is preferred, as it best of all reflects the nominal increase in the general cost level of an average household.

The assumptions for the elaboration of a "consumer price index" are:-

- a) that investigations are carried out which explain how the consumption of households of different size and income is composed.
- b) that price indices for those commodities and services which are found relevant are set up.

Given (a) and (b) the "consumer price index" appears as a weighted average of the price indices of the commodities and services.

New investigations about the composition of consumption must be carried out at intervals, e.g. every five years, so that the selection of commodities and services constantly is up to date.

Note (2) The loan burden is defined as the relation between the principal of the loan and the saver's annual income.

The "Society" should be established as a Statutory Body.

The administration of the "Society" would be carried out on two levels, State level and local level.

At the State level a "Society" Council should be set up. The members of the Council would be appointed by the Parliament after recommendation from the Government. Persons from Housing Department, Sarawak Economic Development Corporation, Sarawak Land Development Board, Borneo Development Corporation and Bank Negara should be among the members.

The Council should work out general guidelines for the activities of the "Society", control the local offices, act as coordinator in cases where two or more local "Societies" are involved in the same business and constitutes the deciding instance when disputes appear within the "Society". Finally it is the task of the Council to approve or reject lending proposals from the local "Societies".

Under the Council the central guarantee fund is built up. The local offices may contribute in proportion to their liabilities.

On local level each "Society" office is managed by an officer appointed by the Council. This officer has to be a well educated person with a good knowledge of banking business and with a good ability to communicate with the general public. Besides being the office manager the officer is the chairman of the local "Society" Board. The Board consists of depositors in the local "Society" elected by the General Assembly among its members. A depositor will have access to the General Assembly after a certain period of admission, provided that he has deposited a certain amount of money.

The General Assembly is the highest local authority. Besides electing members for the Board it would decide about fundamental questions.

The Board controls the administration, and has proposals for lending activities worked out. Loan objects must be carefully described before they are sent to the Council for approval.

As mentioned in paragraph 1, this paper is only an outline description of a new savings and credit institution - "Sarawak People's Savings and Loan Society". If the ideas behind the "Society" are found acceptable and it is decided to implement the system, a considerable amount of work would be involved in elaborating the sketch into a detailed scheme. This task will require persons with technical and professional

knowledge of the subject. However, the scheme has a character, which makes probable the attainment of foreign aid, either on a multilateral basis through UNDP or as bilateral technical aid.

The "Society" should be established through exactment owing to its far reaching character and purpose, and because of the government's financial participation, firstly as a guarantor against losses encountered by the investment of the amounts deposited in the "Society" and secondly as the payer of the initial expenditures, which among other things include the Society's basic fund.

The rules should be prescribed by the responsible Minister and might imply that the Parliament sets up the "Society" Council after recommendation from the Government. The composition and the task of the Council are described in paragraph 8.

After the political approval of the proposals of the Council, a number of persons would be trained to the job as administrative manager for the local "Society" offices.

A publication should be prepared to inform the Sarawakian people about the new Savings and Loan Society and the persons educated for the job as administrative managers might travel around in their respective areas delivering lectures and promoting the ideas behind the "Society".

The promotion must emphasize the two main purposes of the "Society" which are:-

- a) to increase the propensity to save in order to accelerate the development of the State; and
- b) to secure the real value of the savings of the Sarawakian people in order to secure a sound basis for long term savings.

From a special date, e.g. the National Day, the 31st August, the "Society" starts to receive deposits. After for instance half a year the depositors, who are admitted to the General Assembly, elect the local "Society" Board, whereupon the lending business can commence.

FHA/ml

29.8.1973.

MIRI - BINTULU REGIONAL PLANNING STUDY

ASSOCIATION PAPER

PRESENT STATE • CHARACTERISTICS
OF THE STUDY AREA

— JANUARY 1973 —

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MIRI-BINTULU REGIONAL

PLANNING STUDY

ASSOCIATION PAPER
PRESENT STATE
CHARACTERISTICS OF
THE STUDY AREA

by Michael Iuul
Hamzah Hj. Drahman
Chia Pit Chung

JANUARY 1973

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P R E S E N T S T A T E
C H A R A C T E R I S T I C S O F T H E S T U D Y A R E A

C H A P T E R 1

I N T R O D U C T I O N

The purpose of this Interim Report is to give a survey of important aspects of economic relations in Sarawak and the Study Area. The material will be the basis for planning calculations and considerations presented in other papers and reports, which could, therefore, in turn concentrate attention more on the future and less on the past and present time. It has been attempted to relate the presented information to the year 1970, and to a certain extent to describe previous development up to this year.

Major sources of information have been official statistics, public reports and information collected from public agencies and private enterprises and persons. To some extent the report will repeat data which are already known. However, it has been the primary purpose to bring the material up to date (that is 1970) and to present it in a way which is suitable for planning.

It is hoped that readers will respond by sending us corrections and amendments so that our planning basis can become as complete as possible.

NATURAL RESOURCES

2.1 GEOGRAPHY

2.1.1 Location

The Study Area extends roughly from longitude 113 degrees east to 114 degrees 38 minutes east and latitude 3 degrees north to 4 degrees 36 minutes north of the equator. It is about 130 miles long on a line drawn direct from the Brunei border near Kuala Baram to Bintulu and 60 miles wide at the widest point from Kuala Niah on the coast to Long Pila on the Batang Baram. The total area is 3.5 million acres or 37 per cent of the Fourth Division.

2.1.2 Physiography

The present nature of the physiography results from the geologically very recent uplift that occurred during the early and middle Pleistocene period; the erosion cycle initiated at this time is active at the present and is still at a relatively young stage. Therefore, terrain forms are characterised by intense dissection and generally steep slopes, the higher hills and steeper slopes occurring in the south-east of the area where uplift was greatest, and the lower hills and gentler slopes of the more mature topography in the north-west where uplift was least. Areas of locally greater than average uplift occur as, for example, in the Lambir hills. Associated with this general uplift was movement along certain anticlinal areas, imparting a north-east to south-west trend in much of the area.

Oscillations in sea level during the Pleistocene have given rise to the formation of raised terraces on the coast and along rivers and the inland edges of the large alluvial flats. At the end of the Pleistocene period, the sea level was rather higher than at present, and many of the river valleys were flooded, with marine or estuarine conditions existing south along the Baram to at least Marudi, and probably further south. The gradual lowering of sea level to its present level allowed extensive areas of alluvium to be deposited as deltaic deposits in the Baram, and as semi-lagoonal deposits along the coast behind beach strand-lines as, for example, between the Sibuti and Nyalau rivers. Due to the poor drainage of these areas, considerable depths of organic deposits have

accumulated rapidly over much of the alluvial flats.

The Study Area can be divided into the following broad physiographic units:-

a) Alluvial flats and terraces: these areas provide the only significant areas of flat or very gently sloping land, the major areas occurring in the lower Baram-Tinjar drainage system, and the coastal flats associated with the lower sections of the Sibuti, Niah, Suai and Nyalau rivers. Much of this flat land is covered by variable depths of peat. Terraces occupy only small areas, and are generally rather eroded, so that actual areas of flat or very gently sloping land are limited.

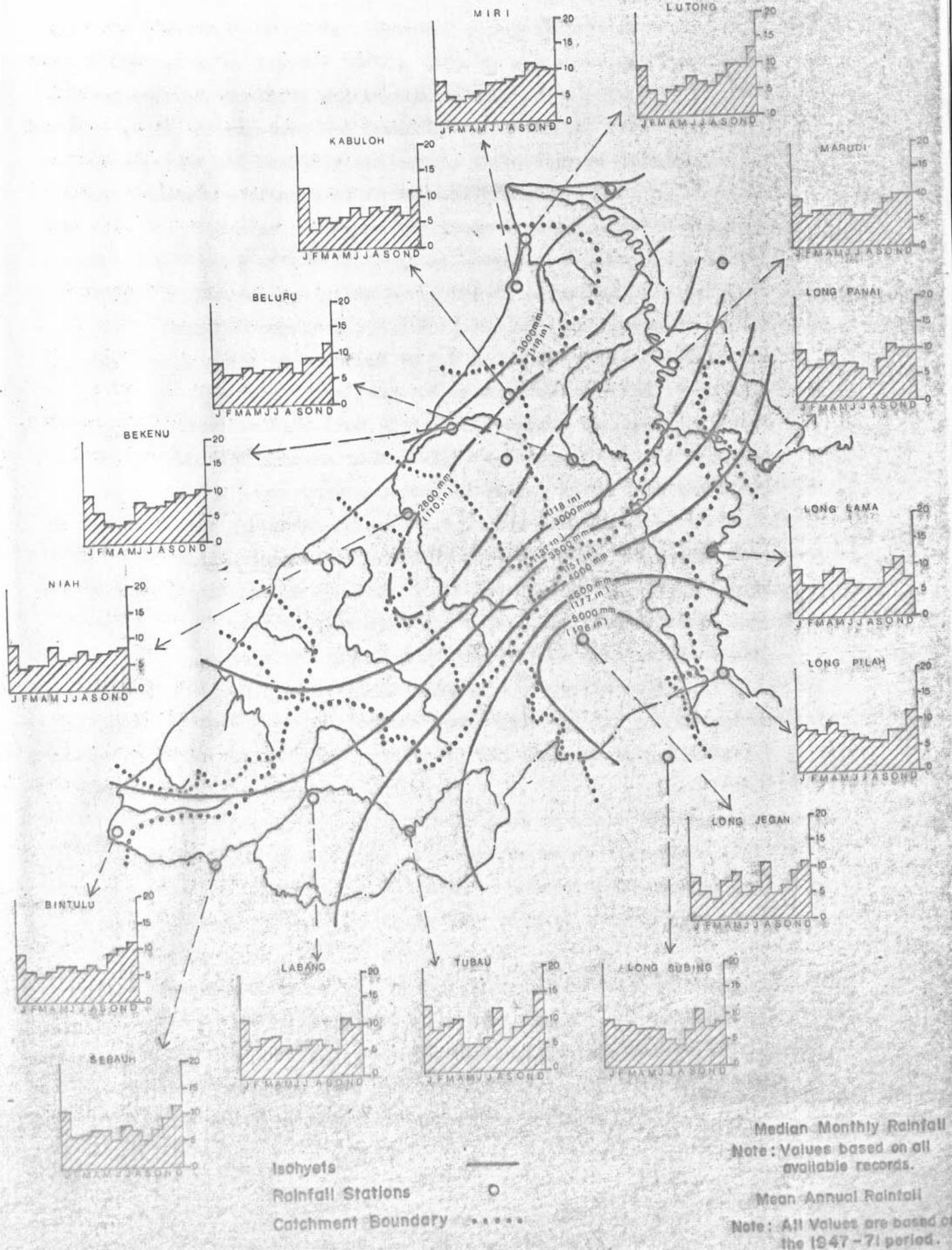
b) The lowlands: these are areas of land lying between sea level and 300 feet, associated with the more mature topography described in the above section. Slopes are short and moderately steep and the terrain is generally undulating to rolling. River valleys are narrow, but not incised except in their head-water reaches. This unit contains a high percentage of the land with agricultural potential.

c) The uplands: lying between 300 and 600 feet, this unit is more highly dissected, with steep slopes of greater length than in unit (a). River valleys are generally very narrow and often incised, and the terrain is hilly. Only very limited areas of land with agricultural potential exist.

d) Highlands: ranging from 600 feet to a maximum of over 4 000 feet in the Dulit range, this unit is characterised by intense dissection with long very steep slopes, and deeply incised drainage. The terrain is very hilly to mountainous, and contains virtually no land with agricultural potential.

There are two major river systems, the Baram in the north and the Kemena in the south and a number of smaller rivers; the Sibuti, Niah, Suai and Similajau. These rivers are important as they have been the traditional transport lines and still carry a considerable human and goods traffic. The Baram, which is second in size in Sarawak only to the Batang Rajang, has numerous rapids and gorges in its upper and middle courses, making navigation difficult and reduces its value as a means of communication. Most rivers are subject to flash flooding, particularly in their middle and upper reaches, which

MEDIAN RAINFALL AS PERCENTAGE OF MEAN ANNUAL RAINFALL



poses problems for the development of their associated alluvium.

2.1.3 Climate

The Study Area has a Tropical rainy climate (Sub-class Af in the distribution of Koppen; 1916). This is characterised by constant temperature, humidity and high rainfall.

a) Temperature and humidity: mean annual variations of temperature and humidity are small, while diurnal temperature variations are often 5 to 10 degrees (Fahrenheit).

b) Sunshine: because the Study Area is close to the equator the main factor affecting sunshine hours is the weather. Bintulu, with a higher rainfall than Miri, has considerably less sunshine than Miri. Over the period 1959-68 Miri had an annual average of 6.7 hours sunshine per day as compared to 5.8 hours per day in Bintulu.

c) Rainfall: the range of mean annual rainfall over the Study Area is considerable; from 98 to 196 inches. The area of lowest annual rainfall appears to extend in a tongue southward from the swamps of the lower Batang Baram and Batang Bakas into the middle Sibuti and Niah basins (Figure 2.1). The area of highest rainfall lies at the eastern edge of the Study Area where the Batang Baram and Batang Tinjar emerge from the highlands of the interior. The main rainfall gradient is thus from the coast, at first falling, and then rising steeply to the highland on the eastern margin. It would appear that a gradient exists southward along the coast, although the nature of this gradient between Kuala Niah and Bintulu is undocumented by any data so that the location of the isohyets over the Suai and Similajau basins is speculative.

Though the common assertion is that rainfall is heavy and frequent, there appears to be a slight tendency for areas with lower rainfall to show greater variability. It would be deceptive to assume that no dry season exists. However, like so many climate generalisations, this statement conceals more than it reveals.

The only feature of the monthly rainfall distribution which seems to apply almost to the whole Study Area is that the wettest months tend to fall in the period October-January and particularly in the last two months. This is the time immediately before and during the early weeks of the northeast monsoon or "landas".

There is, however, very little uniformity over the Study Area in the monthly rainfall distribution. For the convenience of differentiating areas with different monthly rainfall characteristics, the Study Area may be divided into four sub-areas, namely Coastal, Kemena, Lower Baram and Interior.

In the coastal area, the driest month follows more or less immediately after the wettest period, thus falling usually in February or March. Thereafter there is a gradual build-up to the next peak period. In some localities secondary peaks may occur when local conditions encourage increased convection activity during the slack-wind period between the northeast and south monsoons. An example of this may be Niah. In other coastal localities suitably exposed to the south, a secondary peak may arise during the south monsoon period from the shifting opposition between the sea breeze and monsoon air flow.

In the Kemena area, running in from Bintulu at the coast to Tubau, the driest month appears to occur later in the year than in the coastal area to the north, although Bintulu itself still has a distribution fairly similar to the Coastal one. The stations further up the Kemena river show various secondary peaks, notably in April at Labang and Tubau, barely noticeable at Sebauh. This intermonsoon peak, probably due to straight convection, is more commonly developed inland and inhibited near the coast by the sea breeze which also penetrates further up the Kemena valley than it does over adjacent land areas. Another secondary peak occurs around August during the south monsoon period. The reason is obscure but may be related to details of local topography and exposure, and the orientation of the main river valley.

In the lower Baram area, the distribution between peak periods is relatively even, possibly dictated by the absence of local relief. Beluru, on the edge of the flat swamp forest area, shows slight tendencies to have intermonsoon secondary peaks.

In the interior region, the area of greatest relief, local topography becomes dominant and the distribution is very irregular. Intermonsoon peaks tend to be marked, and the main peak appears to be in October-November before the onset of the northeast monsoon air flow.

2.2 LAND USE

Fourth Division covers 9.5 million acres out of which 3.5 million acres, or 37 per cent, are inside the Study Area. 86 per cent of Fourth Division is under swamp and hill forests. The hill forests cover about 86 per cent of the 8.2 million acres of forest land in Fourth Division.

Table 2.1 presents the results of a planimetric measurement of land use classes in the Study Area (including the Lambir-Subis Development Area) using the Sarawak Land Use Map Series No. 22, printed in 1968. The table shows that about one-fifth of the land is, or has been, under cultivation of some type. Forest covers nearly 2.8 million acres or 79 per cent of the Study Area; of this acreage 75 per cent is hill forest. Settlements and non-agricultural land uses take up almost two per cent of Study Area. A further breakdown of the figures in Table 2.1 is given in Appendix I.1.

TABLE 2.1 LAND USE CATEGORIES WITHIN PLANNING UNITS⁽¹⁾

Planning Unit	Forest land	Agricultural land	Urban Settlements, Non-agricultural and Unproductive lands	Total acres
Baram	1 027 484	278 017	9 499	1 315 000
Bintulu	714 448	245 610	30 942	991 000
Miri	1 040 255	193 173	13 072	1 246 500
Study Area	2 782 187	716 800	53 513	3 522 500

Note (1) The planning units are derived from a division of the Study Area into units for planning purposes. The delineation of the planning units is fully explained in the interim report "Development Strategies".

The percentage distribution of the forest, agricultural and non-agricultural uses of land in the Study Area is indicated in Table 2.2. Further details are given in Appendix Table I.3. Of the three planning units, Miri has the largest acreage of hill forest (806 000 acres) compared with 639 000 and 635 000 acres for Bintulu and Baram planning units respectively. But the future agricultural development potential within the hill forest areas lies mainly within the Miri and Bintulu planning

units. At present large areas of hill forest land, which appear to have a potential for agricultural development, are still under Forest Reserves, Protected Forests and Communal Forests. A total of 1 328 000 acres of the Study Area is still gazetted under the above categories of forests. This acreage includes both hill and swamp forests.

TABLE 2.2 LAND USE TYPE AS PERCENTAGE OF TOTAL PLANNING UNIT

Planning Unit	Forest land	Agricultural land	Urban settlements, non-agricultural and unproductive lands	Total
Baram	78.1	21.1	0.8	100
Bintulu	72.1	24.8	3.1	100
Miri	83.5	15.5	1.0	100
Study Area	78.3	20.2	1.5	100

Not all the agricultural land is currently under some crop because about 495 000 acres of the total 716 800 are considered to be associated with the shifting cultivation of hill padi.

Wet padi cultivation and land suitable for such cultivation lies mainly in the Baram and Miri planning units, concentrated in the planning sub-units Sibuti, Bakong and Marudi.

Market gardening areas are located near urban and semi-urban centres. A particular concentration of these areas is found around Miri, Bintulu, Marudi, Batu Niah and in the Lambir-Subis Scheme. Since the land use map was compiled some significant changes have taken place in the expansion of permanent agriculture, particularly oil palm growing in the Lambir-Subis Development Area where, in 1971, the area under this crop was 5 600 acres. Pepper acreages have also increased particularly among Dayak communities along the Miri-Bintulu road.

The pattern of agricultural land use is still predominantly one of small holdings, with only few farms over 10 acres. Commonwealth Development Corporation (CDC) and Sarawak Land Development Board (SLDB) estates are exceptions. Yet the Iban system of individual land ownership in scattered holdings often results in some individuals owning more

than 10 acres. The intensity of cultivation and land use depends on the type of crops grown. Chinese owned pepper and market gardening lands are the most intensively cultivated. Generally the intensity of cultivation of wet padi land is low and the cultural methods still primitive.

2.3 LAND TENURE

2.3.1 Land Tenure Classification

The land tenure system in Sarawak is quite complicated. Therefore, a short description of the different land tenure classes, of which there are five, is given below. The technical/legal details are explained fully in the relevant section of the Land Code 1957.

Under the Land Code 1957 the five recognised land tenure classes are as follows:-

a) **Mixed Zone Land:** is land which may be alienated to any person, irrespective of race and without any legal restrictions. It can be held by natives and non-natives under a mixed zone land title, or by Native under Customary Rights. Chinese and other non-natives may hold only this class of land.

Thus in an area gazetted as Mixed Zone Land it is possible to find land held under Mixed Zone title, land under Customary Rights and possibly Reserved Land, that is State Land, Land under Customary Rights in Mixed Zone areas stay as they are until the Rights are extinguished and a title is then issued; and in the case of Reserved Land, until the reservation is cancelled.

b) **Native Area Land:** is land which has been declared as such by the Governor in Council; it also includes land held in title by any native other than land within a Mixed Zone. Once an area is declared Native Area Land, the Interior Area Land and any unalienated Mixed Zone Land included in the declaration becomes Native Area Land, but Native Customary Land and Reserved Land within the gazetted Native Area Land remain as they are until extinguished or cancelled.

c) **Native Customary Land:** is land held by natives who have acquired that right through legal felling of primary forest for padi cultivation. As from 1st January, 1958 Native Customary Rights may only be created in accordance with the Native Customary Law of the community concerned by any of the recognised methods under sub-section 2 of Section 5 of the Land Code,

if a permit to fell jungle upon Interior Area Land is obtained. No recognition of Rights shall be given to any area of land cleared without a permit after the coming into force of the Land Code, that is 1st January, 1958. Illegal occupation, therefore, creates no rights to the land; it is, however, generally difficult, if not impossible, to detect illegal felling in remote areas.

The difference between Native Customary Land and Mixed Zone Land or Native Area Land is that in the former the areas are not surveyed and no titles are issued. If titles are issued the land ceases to be Native Customary Land and instead it becomes either Mixed Zone Land or Native Area Land as described above.

d) Reserved Land: this category of land includes those under the following legal status:-

- i) Any land reserved to the State;
- ii) Land in National Parks, Forest Reserves, Protected Forest;
- iii) Government occupied land. No titles are issued for such land;
- iv) All other land declared as such.

e) Interior Area Land: is land not falling into any of the above categories.

2.3.2 Distribution of Land Tenure Classes

The percentage distribution of the land tenure classes by planning units is indicated in Table 2.3, which also shows the acreage of each respective tenure class.

The percentage distribution of the five land classes by planning units shows that Miri has the largest part of the Mixed Zone acreage, while Baram takes the largest parts of the Native Area and Native Customary Land, as shown in Table 2.3.

Of the categories Mixed Zone, Native Area and Native Customary Land assessed as possibly suitable for agriculture it is estimated that 31, 63 and 53 per cent are respectively within Baram, Bintulu and Miri planning units. Using 1970 population census figures it can be calculated that the ratio between the number of rural inhabitants and the acreage of potential agricultural land is about 8.3 acres per head for Baram, 7.5 acres per head for Bintulu and 5.9 acres per head for Miri planning units. Assuming that 0.5 to 0.75 acre of land per

TABLE 2.3 LAND TENURE CLASS, PERCENTAGE DISTRIBUTION BY PLANNING UNIT AND FOR THE STUDY AREA

Planning Unit(1)	Mixed Zone		Native Area		Native Customary		Interior Area Land		Reserves	
	Acres	Per cent	Acres	Per cent	Acres	Per cent	Acres	Per cent	Acres	Per cent
Baram	35 000	18.9	150 000	71.1	428 800	52.1	390 200	41.1	311 000	25.3
Bintulu	17 700	9.6	25 000	11.9	233 900	28.4	256 800	27.1	457 600	37.3
Miri	132 450	71.5	35 850	17.0	160 700	19.5	302 000	31.8	459 500	37.4
Study Area(2)	185 150	5	210 850	6	823 400	23	949 000	27	1 228 100	34

Note (1) These are explained in the Interim Report on "Development Strategies" (December 1972)
 (2) Excluding Lambir-Subis Scheme Area.

head of population is required annually, in shifting cultivation areas then an average rotation period (fallow cycle) of around 10 to 12 years would be needed.

2.3.3 Problems Connected With Present Land Tenure System

The problems that have or are likely to arise in connection with the present land tenure system are briefly;

a) The restrictive nature of the land legislation with regard to land transactions between natives and non-natives has as its primary purpose the protection of present and future generations of natives against the consequences of selling their land and thus becoming landless. That this legislation has, to a certain extent, created land shortage among the non-native communities, has already been recognised by the Government, but so far no politically acceptable final solution to these problems has been found. The legislation, moreover, has not fully succeeded in preventing illegal transactions of land from natives to non-natives. Also there appears to be inadequate safeguards to protect the natives from being bought out by other natives. The efforts to modernise agriculture also in areas already under cultivation and to give priority to development within certain of these areas will accentuate the legal problems. To some extent these questions are dealt with in other papers by the Consultants.

b) Customary Rights to a piece of land can be forfeited when a family moves out from one Administrative Division to another. The land on which that family created Rights then becomes the communal property of the longhouse. The loss of land rights is likely to create problems particularly relevant to the would-be migrants from other Divisions to the Study Area, in particular it may be a strong disincentive for whole families or communities to move from their long settled areas.

2.4 NATURAL RESOURCES

The natural resources of the Study Area are important to most of the economic sectors. The weight of the sector product does not, however, necessarily reflect the availability of natural resources and

even then the relative importance might be limited, when employment possibilities and other social considerations should be accounted for.

An obvious illustration of this fact is the impact of the oil resources on the State economy while the local regional economy is not similarly affected.

The agricultural resources among others represent present and future extended job opportunities although the economic output per worker and per dollar invested might be smaller than in other sectors.

2.4.1 Agricultural Resources

The Zonation Plan has tentatively identified a total area of roughly 863 000 acres of land possibly suitable for agricultural development in the Study Area. The distribution of this area according to the land tenure aspect is given in Table 2.4 and in Figure 2.2.

TABLE 2.4 POSSIBLY SUITABLE AGRICULTURAL LAND

Land category ⁽¹⁾	Area in acres
State Land	370 000
Native Customary Land	451 000
Titled Land	42 000
Total	863 000

Note (1) See Appendix VI for the meaning of land categories and land tenure classes.

Much of this land is described in the Zonation Plan as "undulating, generally with slopes exceeding 12 degrees, and under the wet tropical climate of Sarawak, the land is not suitable for large scale arable agriculture. Nevertheless considerable agricultural potential exists mainly in perennial crops, for which the climate is suitable, with some arable cropping taking place on relatively small areas, mainly on non-peat swamps and on intensive small holdings close to urban areas."

Of the State Land roughly 65 000 acres is land which has been already logged of the presently marketable timber and is, therefore, available for settlement as soon as plans can be made ready. The remainder of this

category of land is mainly under virgin hill dipterocarp forest, much of it existing Forest Reserves and Protected Forest areas.

The vast majority of the Native Customary Land and Titled Land lies close to the rivers. This reflects the historical opening up of the country by people living close to the rivers which, until recently, were the only means of communication in the area. This pattern of river-based development is clearly shown in Figure 2.3.

In the Native Customary Land, which at present is dominated by shifting cultivation of hill padi, and in the Titled Land agricultural potentials are existent. Yet some areas are too isolated to represent any important agricultural resource until access roads are constructed.

The present and potential crops that can be considered as being of major importance are oil palm, rubber, pepper and rice. Secondary or support crops and enterprises are tropical fruits and vegetables, some essential oil crops, coffee, pigs, poultry and pond fish culture. Crops which appear promising but still require commercial trials under local conditions are cocoa, tapioca, several spices and essential oils, lowland tea and anatto. Estimates of present day agricultural production and value of produce are given in Table 2.5.

TABLE 2.5 ESTIMATES OF PRESENT AGRICULTURAL AREAS AND YIELDS

Crop	Total area (acres)		Yield pounds per acre	Total production tons
	Producing area	Study Area		
Rice	Hill padi	22 000	1 300 (padi)	12 700
	Wet padi	16 500	1 900 (padi)	14 000
Rubber	High yielding	5 000	20 000 ⁽¹⁾	600
	Low yielding	5 000	15 000 ⁽²⁾	300
Pepper		600	760	4 000
				1 071
Livestock		Total numbers	Exports	Slaughterings
Cattle		1 000	-	50
Pigs	Commercial	10 000	1 500	11 000
	Ulu	12 000	-	4 400
Buffaloes		900	-	150
Poultry		230 000	175 000	113 000

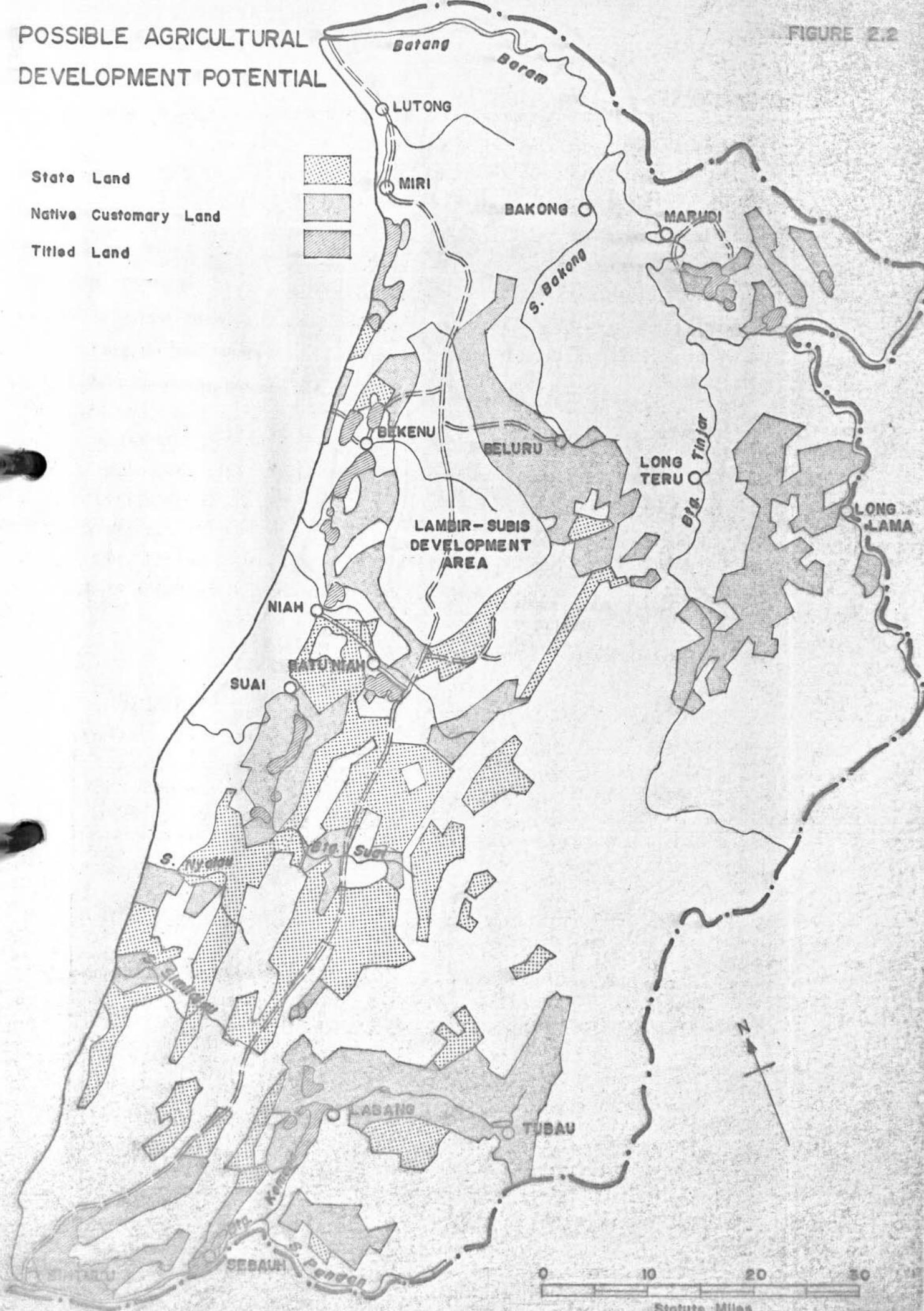
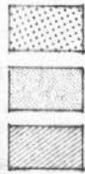
Note (1) Estimate 75 per cent untapped

(2) Estimate 50 per cent untapped

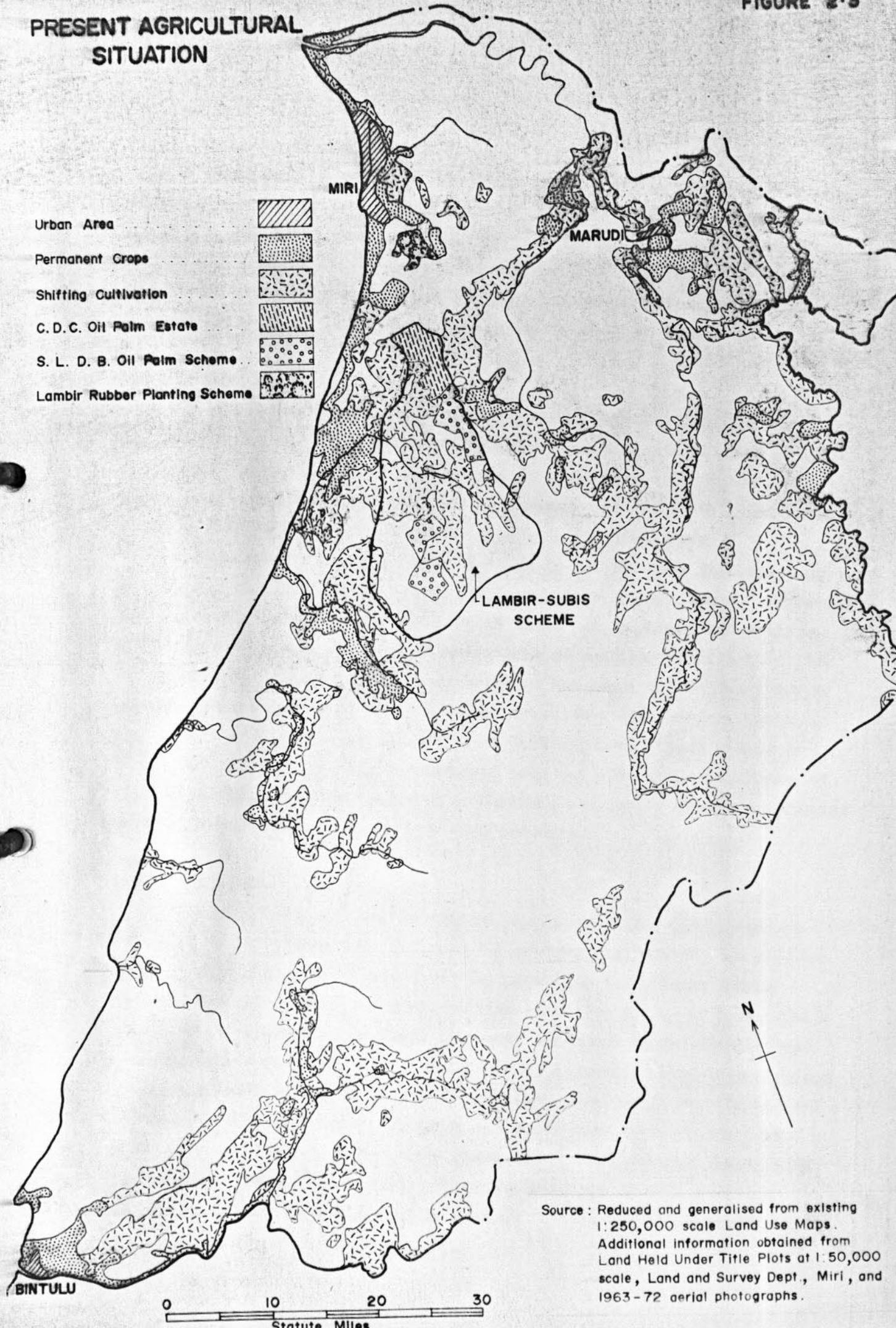
POSSIBLE AGRICULTURAL DEVELOPMENT POTENTIAL

FIGURE 2.2

- State Land
- Native Customary Land
- Titled Land



PRESENT AGRICULTURAL SITUATION



- Urban Area 
- Permanent Crops 
- Shifting Cultivation 
- C. D. C. Oil Palm Estate 
- S. L. D. B. Oil Palm Scheme 
- Lambir Rubber Planting Scheme 

Source : Reduced and generalised from existing 1:250,000 scale Land Use Maps. Additional information obtained from Land Held Under Title Plots at 1:50,000 scale, Land and Survey Dept., Miri, and 1963-72 aerial photographs.

0 10 20 30
Statute Miles

2.4.2 Forest Resources

The forestry potential of the Study Area is still vast despite large areas having already been logged. There are still huge areas, some 1.48 million acres of unexploited swamp and hill forest. For most of the virgin hill forest areas, plans are being made to exploit them such that they will become the permanent base for several large timber industrial complexes. The distribution of these forest categories is shown in Figure 2.4.

2.4.3 Fishery Resources

The freshwater fisheries have considerable possibilities, provided that no adverse environmental effect disturbs the delicate balance of the rivers and their catchment. The culture of freshwater fish species in ponds is a long established practice in Sarawak, and the natural and human potentials in this specific industry should be fully utilised.

"The coastal fishery in north Sarawak is not yet well developed; both markets and fishing techniques are still on rather a small scale." However, the expected fish resources of the South China Sea, although not yet sufficiently explored, "should be sufficient to consider establishing fish and shellfish canning/freezing industries on the coast of the Study Area". Resource inventory should be undertaken as reliable data are not available and present statistics are only of limited importance. "Such industries would partly fulfil an import substitute role (in 1970 about 2 400 tons of fish, worth \$2.7 million, were imported to Sarawak) and partly extend the already existing export market for Sarawak fish products."

2.4.4 Mining Resources

"Excluding oil and gas the mineral resources in the Study Area are not great. As illustrated in Figure 2.5 prospecting licences for certain antimony fields have been issued but the potential for a large mining industry does not appear to exist. Silica sand (for glass) is being mined just north of Bintulu but efforts to create an export market for the sand have apparently been limited. The sand is of a quality (exceptionally high in silica) suitable for sheet-glass" and other glass products, (Geological Survey Annual Report, 1964), although the grain size might be too fine for an ideal glass sand, Japanese tests prove its suitability for making fine grade optical glass (Kho, 1968). The known reserves of this sand are sufficient to warrant a large glass product factory and it is thought that

the present domestic market for glass products would probably make the establishment of a glass-plant a reasonable proposition.

The presence of limestone near Long Lama and the existence of other necessary raw materials for cement production together with cheap natural gas give the resource basis for a cement plant near Kuala Baram.

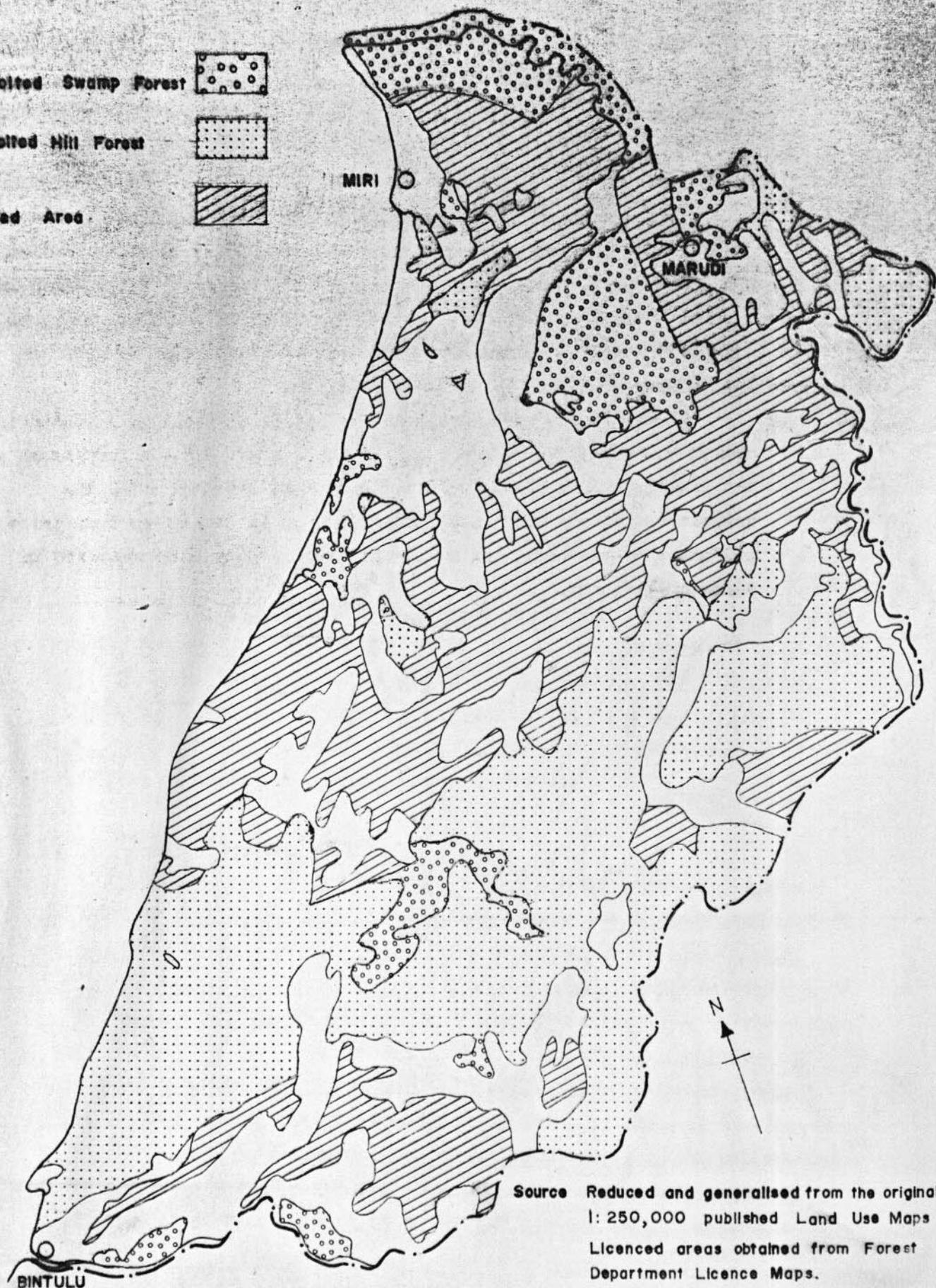
2.4.5 Oil and Gas Resources

"The discovery of new deposits of oil and gas off the north west coast of Sarawak has initiated plans to establish a Liquefied Natural Gas (LNG) plant within the Study Area." Its location, which could have a substantial impact on the physical structure of the Study Area, is apparently still a matter of discussion and negotiation between the State Government and the concession holder.

Though the oil production of the Lutong oilfield is expected to amount to 100 000 barrels per day by the end of 1972 - an expansion of the existing oil refining industry cannot be expected under the present conditions of limited domestic demand. Secondary industries utilising by-products, gas etc. will have a cheap power resource in these by-products.

FORESTRY RESOURCES

- Unexploited Swamp Forest 
- Unexploited Hill Forest 
- Licensed Area 



Source Reduced and generalised from the original 1:250,000 published Land Use Maps
 Licensed areas obtained from Forest Department Licence Maps.



MINERAL RESOURCES

(Excluding Oil and Gas)

FIGURE 2-5

General prospecting licence area:

Antimony



Glass Sand



Exclusive prospecting licence area:

Antimony



Glass Sand mining licence area



Glass Sand occurrence



Unevaluated Coal reserve



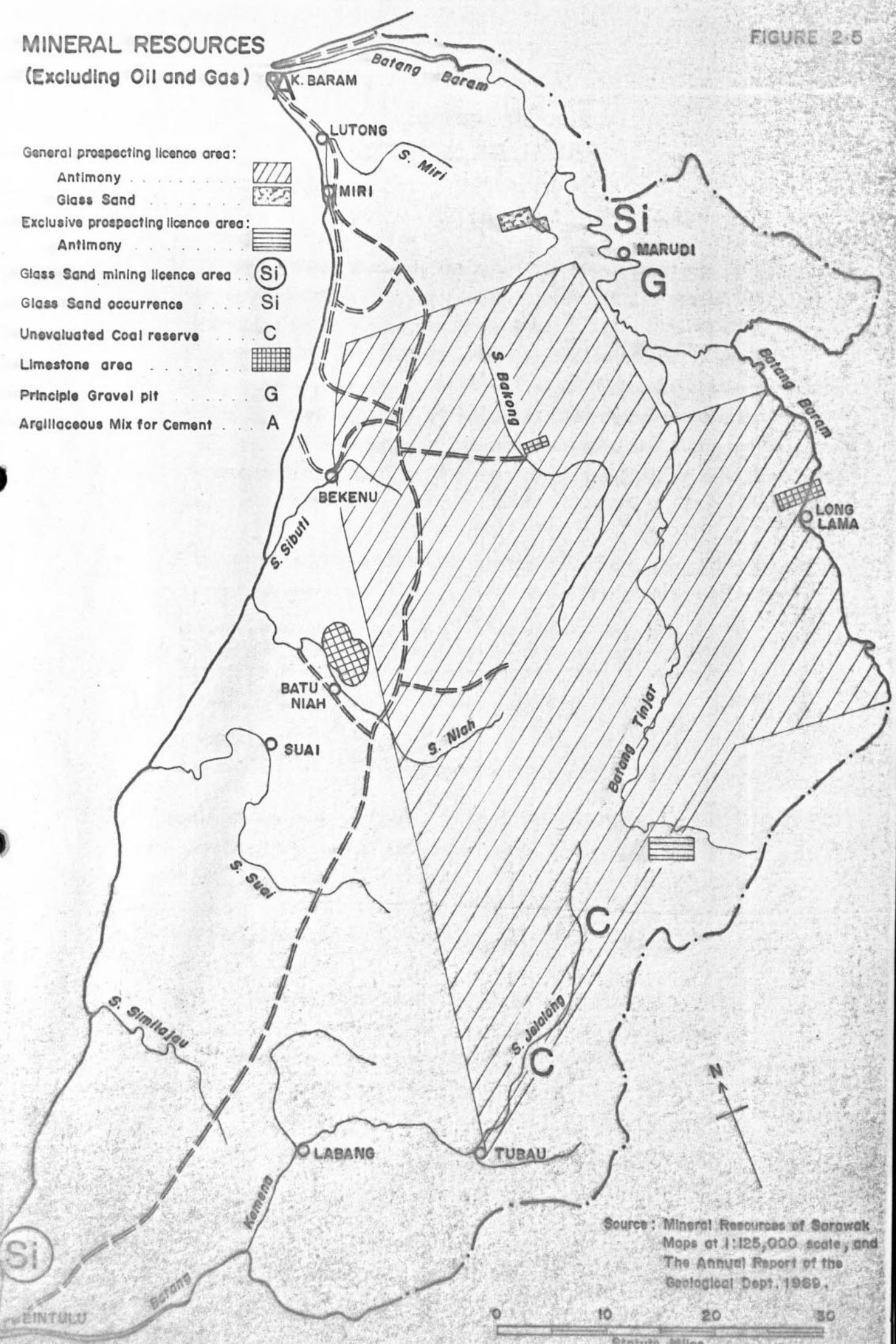
Limestone area



Principle Gravel pit



Argillaceous Mix for Cement



Source: Mineral Resources of Sarawak
Maps at 1:125,000 scale, and
The Annual Report of the
Geological Dept. 1969.

0 10 20 30
Kilometres

CHAPTER 3
POPULATION AND LABOUR

3.1. POPULATION

3.1.1 Composition of Population

In 1970 the Fourth Division had about 140 000 inhabitants or about 14 per cent of Sarawak's total population. About 116 439 people or 83 per cent of this total lived within the Study Area.

The population is composed of several races or community groups. Table 3.1 compares the percentage distribution of different community groups as revealed by the 1960 and 1970 census data. The changes shown are due to factors like the different rates of natural increase, the different original population numbers, and possibly some population movements across Divisional boundaries.

TABLE 3.1 COMMUNITY COMPOSITION - FOURTH DIVISION 1960 AND 1970

	COMMUNITY GROUP						All Communities
	Malay	Melanau	Iban	Land Dayak	Chinese	Others	
1960	12.1	6.5	33.1	0.2	24.9	23.2	100
1970	12.4	5.6	36.9	0.5	24.4	20.2	100

Table 3.2 shows an analysis of the Study Area's 116 439 inhabitants and reveals that the majority of the major communities, with the exception of "others" (which include all the other minority indigenous peoples), are residing inside the Study Area. Thus the Fourth Division population outside the Study Area consists mainly of "other indigenous peoples", in total around 11 000.

Half of the population in the Study Area is living in the Miri planning unit; 46 per cent of this population is concentrated in the Miri-Lutong urban area. The Baram and Bintulu planning units account for 24 per cent and 26 per cent respectively.

TABLE 3.2 COMMUNITY COMPOSITION BY PLANNING UNITS 1970

COMMUNITY GROUP	PLANNING UNIT						Study Area	
	Baram		Bintulu		Miri		Population	Per cent
	Population	Per cent	Population	Per cent	Population	Per cent		
Malay	2 280	8.3	2 214	7.4	12 645	21.3	17 139	14.7
Melaneu	135	0.5	5 185	17.4	2 575	4.4	7 895	6.8
Iban	12 663	46.4	15 485	51.9	13 377	22.6	41 525	35.7
Land Dayak	38	0.1	255	0.8	362	0.6	655	0.5
Chinese	5 216	19.1	5 074	17.0	24 253	40.9	34 543	29.7
Others	6 975	25.6	1 642	5.5	6 065	10.2	14 682	12.6
All Communities	27 307	100	29 855	100	59 277	100	116 439	100

3.1.2 Population Distribution

3.1.2.1 Population Distribution by Community

Concentrations of particular communities are discernable over the Fourth Division (Table 3.2). This locational grouping of different peoples can be traced back to the effects of early settlement policy and the nature of occupation of the population. The Chinese and Malay populations are mainly urban and semi-urban dwellers, the largest concentrations being in Miri and Bintulu towns and smaller numbers in Marudi and other small towns. Melanaus are heavily concentrated in the Bintulu Administrative District, with Bintulu town accounting for 49 per cent of the group. The "Other Indigenous" groups are mainly in Baram District, which accounts for about 70 per cent of the total, the majority of which are outside the Study Area. Specific areas of concentration at the local level are also evident. In the three largest urban centres, Miri, Bintulu and Marudi the percentage of concentration of each community to its total population size in the Fourth Division in 1970 is as follows: Malays 65 per cent, Chinese 70 per cent, Land Dayaks 46 per cent, Melanaus 48 per cent, Ibans 6 per cent and Others 8 per cent.

TABLE 3.3 COMMUNITY DISTRIBUTION (IN PERCENTAGES) BY DISTRICTS, FOURTH DIVISION 1970

District	All Communities	Malay	Melanaus	Iban	Land Dayak	Chinese	Others
Baram	28.3	13.0	1.7	23.4	6.7	15.7	69.9
Bintulu	29.4	14.2	70.6	47.9	47.1	16.4	8.7
Miri	42.3	72.8	27.7	28.7	46.2	67.9	21.4
Fourth Division	100	100	100	100	100	100	100

3.1.2.2 Population Distribution by Sex

An analysis of the sex composition of the population of Sarawak as a whole shows an excess of males over females; the male-female proportion per thousand population was 505 to 495 in 1960 and 504 to 496 in 1970.

In Fourth Division the number of females per thousand population is lower than the State average as shown in Table 3.4, and at the District level the proportion varies.

TABLE 3.4 SEX COMPOSITION PER THOUSAND POPULATION BY DISTRICT, FOURTH DIVISION 1960 AND 1970

District	1960		1970	
	Male	Female	Male	Female
Baram	520	480	525	475
Bintulu	517	483	517	483
Miri	526	474	531	469
Fourth Division	522	478	524	476

These below average District figures for females may be due to the in-migration of males from other Divisions, thus making an excess of 3.2 per cent, 2.6 per cent and 4.4 per cent males in Baram, Bintulu and Miri Districts respectively in 1970. Table 3.5 shows that in the Study Area the male excess is even larger; the equivalent figures being 6.5 per cent, 4.8 per cent and 5.4 per cent for Baram, Bintulu and Miri planning units respectively in 1970.

TABLE 3.5 SEX COMPOSITION PER THOUSAND POPULATION BY PLANNING UNITS IN STUDY AREA, 1970

Planning Unit	Males	Females
Baram	537	463
Bintulu	528	472
Miri	531	469
Study Area	531	469

The male:female ratio among the different communities distributed by District in Fourth Division is even more unbalanced (Table 3.6). For Sarawak as a whole the Melanaus, Ibans and Land Dayaks have an excess of females over males, but at the Fourth Division level which has an average of 524 males per thousand population, the picture is different. Comparing the District and Division figures with that of Sarawak as a whole, the average excess of males over females is between 2.6 per cent and 5 per cent. The conclusion is that migration of males to the Fourth Division may be one of the causes of the unbalanced population sex structure. The particularly large imbalance in the Melanaus in Bintulu District is probably an indication of inter-District migration, possibly in search of work.

TABLE 3.6 MALES PER THOUSAND POPULATION IN DIFFERENT COMMUNITIES
IN THE ADMINISTRATIVE DISTRICTS AND THE FOURTH DIVISION 1970

Community	Baram District	Bintulu District	Miri District	Fourth Division	Sarawak
Malay	545	519	515	519	504
Melanau	889 ⁽¹⁾	486	531	512	476
Iban	521	515	539	523	498
Land Dayak	674	609	594	606	498
Chinese	523	538	533	532	512
Others	523	523	513	521	518
All Communities	525	517	529	524	504

Note (1) Based on a total of 120 males and 15 females.

3.1.2.3 Age Group Distribution

Using the presently available detailed 1970 Census figures Table 3.7 has been compiled to show the population age distribution in the Study Area. Comparing the age group totals with equivalent figures from the 1960 Census shows that there has been very little change.

At the planning unit and sub-unit level comparing the proportion of children under 15 years to the respective total populations shows that in the Baram and Bintulu planning units the proportions are above the average for the whole Study Area, while the proportion in Miri planning unit is below the average for the Study Area. This can possibly be explained by

migration of the working age groups. The relatively high proportion of the 0 to 14 years age group in the Baram and Bintulu planning units could be the result of an out-migration of persons in the 15 to 64 age group to Miri planning unit which would account for the low proportion of the 0 to 14 years age group found there.

TABLE 3.7 AGE DISTRIBUTION PER THOUSAND POPULATION
STUDY AREA 1970 (SEE APPENDIX II.2)

Planning Unit	Age in years		
	0 - 14	15 - 64	65 and over
Baram	457	512	31
Bintulu	449	506	45
Miri	428	535	37
Study Area	441	522	37

3.1.3 Population Characteristics

3.1.3.1 Population Growth

Table 3.8 shows that the growth rate of the population in Fourth Division is higher than that of Sarawak as a whole. Migration inside Sarawak may be the explanation of this and the above average increases in some individual community groups.

TABLE 3.8 ANNUAL RATE OF GROWTH OF POPULATION BY COMMUNITY
IN FOURTH DIVISION AND SARAWAK 1960-1970

District	All Communities	Malay	Melanau	Iban	Land Dayak	Chinese	Others
	Growth rate per cent per annum						
Baram	2.8	3.0	11.2	3.1	14.2	2.4	2.7
Bintulu	3.5	3.5	1.6	3.5	23.5	5.1	3.1
Miri	3.9	4.4	3.2	6.0	5.1	3.5	0.9
Fourth Division	3.4	4.0	2.2	4.0	6.6	3.6	2.4
Sarawak	2.8	3.5	1.8	2.5	3.7	2.5	2.6

In the past estimated growth rates of population by communities in Sarawak have been erratic, probably because the estimates have been based on the number of registered births and deaths. Sometimes, in particular groups, births and deaths are not registered or are registered late. Thus specific annual crude birth and death rates can be incorrect. Table 3.9 shows that all major community groups have different crude birth and death rates, but those of the Malay, Land Dayak and Chinese are probably more representative of the true situation in Sarawak. It does not seem probable that death rates for Iban and "others" is lower than all the rest, on the contrary, there is reason to believe that poor nutrition among some Ibans and other indigenous communities would result in higher death rates.

TABLE 3.9 ESTIMATED CRUDE BIRTH AND DEATH RATES PER THOUSAND PERSONS IN DIFFERENT COMMUNITIES IN SARAWAK AND FOURTH DIVISION 1970

Community Group	Sarawak		Fourth Division	
	Birth rate	Death rate	Birth rate	Death rate
Malay	41.8	7.0	44.6	9.1
Melanau	24.8	6.3	19.7	5.5
Iban	16.9	3.8	19.6	4.1
Land Dayak	42.7	6.0	31.6	-
Chinese	34.3	4.5	36.2	5.1
Others	26.8	3.7	26.0	2.6
All Communities	30.6	4.9	29.0	4.8

Source: Estimates based on registered births and deaths.

Nevertheless, it is clear that there is a difference in the growth rate between communities and the large variations between the native communities suggests that their growth rates are still a long way from being stable. Improvements in their income and general standard of health in time should tend to increase their growth rates which could also be accelerated by a steady decline in the child mortality rates. Infant mortality for Sarawak, as a whole, during the period 1961 to 1970 has dropped by 50 per cent, that is from 60 to 30 per thousand live births. Evidence to show that better medical facilities would tend to increase

growth rates can be drawn from the Land Dayak community of the First Division which is the most economically advanced native group and which registers a higher growth rate than either the Iban or Melanau.

In 1960 the Chinese fertility ratio was 900.6 per thousand married women compared with an average of 755.4 for the whole of Sarawak, while those of indigenous groups except for the Land Dayaks, were below the State average. In the same year the mortality rate of children of indigenous peoples was about seven times higher than that of the Chinese; married Chinese mothers between the age of 25 to 29 years lost only 3.4 per cent of their children compared to 17 to 24 per cent for mothers of indigenous communities within the same age group. It appears reasonable to assume that if the indigenous populations, at present living at or near to subsistence level, improved their living standards and enjoyed the same medical facilities as the Chinese and Malays in the towns, they could reach rates of natural increase approaching that of the urban Chinese and Malay. However, these rising trends could be counteracted by increasing public and political importance being given to family planning for which a general understanding and acceptance seems to be growing as economic and social standards improve.

Assuming no net in-migration and a natural growth rate of 2.7 per cent annually the population by 1990 in the Study Area would be about 200 000. However, large scale settlement of peoples from other Divisions into parts of the Fourth Division in future will accelerate the overall rate of growth of population in the area.

3.1.3.2 Urban/Rural Population Distribution

Table 3.10 shows that the population of the Fourth Division and that of the Study Area is predominantly rural. In compiling the Table the differentiation between urban and rural has been based on a combination of the population size in a settlement, the density of settlement and the function of the settlement. Details of the division are given in Appendix II.

The percentage of rural dwellers varies between the planning units; about four-fifths of the population of the Baram and Bintulu planning units is classified as rural compared to only half in the Miri planning unit which is the most urbanised unit.

TABLE 3.10 DISTRIBUTION OF URBAN AND RURAL POPULATIONS IN THE STUDY AREA AND PLANNING UNITS 1970

Planning Units	Urban		Semi-urban		Rural		Total	
	Population	Percentage	Population	Percentage	Population	Percentage	Total Population	Percentage
Baram	3 910	14.3	596	2.2	22 801	83.5	27 307	100
Bintulu	6 220	20.8	674	2.3	22 961	76.9	29 855	100
Miri	27 021	45.6	2 641	4.4	29 615	50.0	59 277	100
Study Area	37 151	31.9	3 911	3.4	75 377	64.7	116 439	100

Of the total population in the Study Area 41 000 are living in urban and semi-urban areas. Approximately 47.5 per cent of these are Chinese and 26.0 per cent Malays; the balance is made up of other community groups.

There are only three recognisable fully urbanised centres in the Study Area, namely Miri, Bintulu and Marudi; these have a total population of 37 000. In addition, there are six semi-urban settlements with a total population of about 4 000 people giving a total urban and semi-urban population of roughly 41 000. There are over 200 rural settlements.

3.2 LABOUR

3.2.1 Economic Active Age Group

The theoretical supply of labour and its size is determined by the following factors:-

- a) Size of the population;
- b) Age structure of population;
- c) The lower and upper age limits of people that can be considered economically active.

The size of the population in the Study Area is about 116 000. About 60 000 or 52 per cent of this population are in the age group 15 to 64 years, which are the chosen lower and upper age limits. The reasoning behind this choice is that:-

- in Sarawak, as in most countries, a child below 15 years is hardly mature enough to undertake full productive labour task;
- the age of 65 is generally considered suitable for retirement for reasons of health, strength and staying power.

3.2.2 Labour Force

The labour force is defined as that part of the economically active age group that are willing and able to enter the labour market, that is the population within the economically active age group less students, housewives, sick, handicapped and pensioners. Information on the size of these groups is not available. However, if we are assuming a labour participation rate (the proportion of the 15 to 64 age group which is job seeking) of 90 per cent for males and 60 per

cent for females, the present labour force in the Study Area will amount to 45 000. This figure corresponds to, but is not directly comparable with, the number of occupied in the Study Area because the occupation figure obtained through the 1970 Census includes all people above 10 years.

3.2.3 Employment - Unemployment

Employment is here defined as people gainfully occupied, that is the labour force less unemployed. The Labour Force Survey, which was carried through by the Department of Statistics in April/May 1972 gives information only for the larger towns in Sarawak. According to this Survey 7.2 per cent of males and 8.1 per cent of females between 15 and 64 years in Miri were classified as "actively unemployed", that is persons waiting and looking for work. The corresponding figure for "passively unemployed", that is persons wanting work, but not looking for work, were 1.8 per cent for males and 15.1 per cent for females. If these figures are used for the Study Area population, the number of actively and passively unemployed will be 4 600 and 5 000 respectively. The group of passively unemployed will, however, in this report be regarded as a part of the under or low productivity employed, because it is believed that these groups overlap to a large extent. Hence, the number of partly or fully employed persons in the Study Area is estimated at about 40 000 in 1970. This corresponds to an employment rate of 34 per cent, that is number of employed as a percentage of total population.

3.2.4 Under-Employment - Low Productivity Employment

The under-employment or low productivity employment is defined as people who are not working full hours or are employed in activities which give relatively little contribution to the gross regional product. The main group of people in this context are the padi planters. According to the 1970 Census this group constituted 21 155 persons, which is nearly half of the total labour force. Of the padi planters 46 per cent were women, and these females accounted for more than 85 per cent of the total female labour force.

A sample of five census circles selected from the three planning units indicated that out of a total of 1 473 padi planters and padi farm workers, 1 235 or 84 per cent worked for more than three hours per day and the balance three hours or less per day. The information refers to the week

prior to the 1970 Census (August). Of those working for more than three hours per day 41 per cent were females compared to 48 per cent for those working three hours or less per day. So there was not very much difference between males and females in the number of hours worked in padi planting and padi farm occupations. Work in padi farms is seasonal; therefore, during the period after planting and before harvesting, a significant proportion of the padi farm workers are probably under-employed, although they use some of the time for building and maintaining houses, constructing tools etc. which must be reckoned as productive work.

3.2.5 Occupation Structure by Sectors of Production

This analysis of occupation by sectors of production in the Study Area is based on information derived from the 1970 Census. In this census all persons aged 10 years and above were asked whether they were employed during the seven days prior to the enumeration day, and if not currently employed, the last employment during the previous twelve months. Hence, the following figures are not directly comparable with the employment figures presented in the previous sections. However, the figures are believed to represent the main outline of the occupation structure in the Study Area.

The sectors used for the classification of the employment are identical with the sectors shown in the Gross Regional Product Table (Table 5.1). A summary of the employment in the different sectors by planning units is given in Appendix II Tables II.7 and II.8.

3.2.5.1 Primary Sector

The primary sector consists of agriculture, forestry, fishing and mining. This sector is the largest employer of labour in 1970, accounting for more than 28 000 persons or nearly 62 per cent of the total number occupied. Of this 28 000, 90 per cent are in agricultural occupations. Forestry, Fishing and Mining (including oil) together employ 3 135 workers, of which nearly 80 per cent are in forestry, which contributed the largest share in terms of the Gross Regional Product of the Study Area.

At the planning unit level, the primary sector is even more important. In the Miri planning unit, 53 per cent of the total labour

force was engaged in the primary sector compared to 87 per cent and 83 per cent for Baram and Bintulu planning units respectively. The non-primary sector is, therefore, of relatively little importance for Baram and Bintulu planning units. Of those employed in agriculture padi planters and padi farm workers accounted for 89 per cent in the latter two planning units. The majority of the padi planters and padi farm workers are thought to be involved in shifting cultivation of hill padi. Only 75 per cent of the agricultural workers in the Miri planning unit are engaged in padi cultivation.

3.2.5.2 Non-Primary Sectors

The non-primary sector includes all the remaining sectors of the economy except that group of workers whose occupation was not stated. The non-primary occupations accounted for 27 per cent of the total employment. However, non-primary employment is not evenly distributed over the Study Area. The Miri planning unit has about 9 000 or 75 per cent of the rough total of 12 000 employed, while the Bintulu and Baram units account for only 14 per cent and 11 per cent respectively. Economically the Miri planning unit is dominant. This can be seen from Appendix II Table II.8 where it is shown that the unit has 74 per cent of the manufacturing, 62 per cent of the trade, and 70 per cent of the service and miscellaneous groups, as well as over four-fifths of the employment in electricity and water, banking and insurance, public administration and construction, of the whole Study Area. Most of these are concentrated in the Miri-Lutong area.

Some clarification of the occupation statistics of the Study Area in 1970 is necessary when it is observed that in the mining (including oil), banking and insurance sectors very few employed are represented. The Labour Department has given entirely different figures for the same year when mining (including oil) accounted for 659 employed and banking and finance 126 employed for the whole of Fourth Division, as compared to 204 and seven respectively stated by the Census. The figures from the Labour Department would appear to be more realistic and it is likely that all the employed in the Fourth Division are working in the Study Area. Owing to a different system of occupational classification it is likely that some of the miscellaneous group of employed (Appendix II Table II.8) which include clerks and book-keepers, include some employed in the two above mentioned sectors.

3.2.5.3 Occupation Not Stated

Although this group of employed does not constitute any special sector by itself, it must be considered since it constitutes 11.3 per cent of the reported labour force of the Study Area. It is believed that a large proportion of the group are unemployed or under-employed and are probably town dwellers. For instance, a sample survey of five Census Circles shows that half of the people in the group in the Miri bazaar Census Circle worked less than three hours per day.

3.2.5.4 Conclusion

The employment data indicate a predominantly male occupation with well over 90 per cent males in each economic sector. The only sector in which women participated significantly is agriculture, and most of them were in padi planting and padi farm working. Such occupations are attributed to the native communities engaged in padi cultivation. The only other sector in which women participated in significant numbers is in the miscellaneous group, and by the nature of their work it is reasonable to assume that this particular group of female workers are employed largely in urban areas. Not unexpectedly, Miri planning unit has the largest number of female workers, more than 90 per cent of the total females in the miscellaneous group. On the whole, female employed accounted for only 33 per cent of the total employed, nearly 46 000 in the Study Area. The Miri planning unit alone accounted for 78 per cent of all employment in the non-primary sector, although each of the three planning units has about a third of the total primary employment.

THE MALAYSIAN ECONOMY

4.1 THE MALAYSIAN ECONOMY IN GLOBAL PERSPECTIVE

In an Asian context the Malaysian economy must be considered prosperous with a 'national product' of more than US\$375 per capita. (Calculation of the 'gross national product' GNP has been carried out by FAO, ECAFE, the Malaysian Department of Statistics and other agencies. The results, however, do not quite correspond. The Malaysian estimates seem the more modest ones with approximately US\$375 per capita (rate of exchange - \$US/\$Malaysian : 1/3.05) while the revised FAO estimates amount to more than US\$400 per capita in 1970). This figure places the country at an economic level which is extraordinary for non-industrialised nations and makes it on the level with some Mediterranean countries and more prosperous than any African or Asian country apart from Japan, Hong Kong and Singapore.

Malaysia has developed into a relatively prosperous country partly because of both historical and physical reasons. The physical resources and the geographical location of the country permitted early development and an early introduction into the world market as an exporter of agricultural products. The pattern of subsistence farming was modified and supplemented by more effective and economic ways of production. This efficiency and prosperity, however, has not affected equally all groups in the society. Certain groups, particularly the Malays and other indigenous peoples, were left behind in the general development.

The export orientation of Malaysian production is still reflected in the foreign trade of the country. With Japan, Malaysia is the only large country in Asia with a positive trade balance and because the surplus is not out of proportion with the total trade, the country has been able to maintain a stable economy during the last decade. This stability, up to 1970, has been encouraged by the steady growth of the national product, and by rather favourable trends in export prices, leaving the Malaysian national economy with only small changes in nominal prices.

The fact that export trade contributes approximately 50 per cent of the GNP emphasises that the Malaysian economy depends heavily on the terms of foreign trade. This means that the international market prices are crucial for the major export goods such as tin, rubber and timber; these products account for two-thirds of total exports.

A main feature of the Malaysia economy is that its development in the past seems to have taken place within the traditional structures of the production pattern. The growth in the national product per capita is consequently a growth of productivity within the existing trades rather than a structural change. This is due to the agricultural origin of the traditional export products but because increasing productivity cannot be expected forever within these fields, a change in the production structure must be encouraged if economic growth is to be continued.

A comparison of the sector contributions to the GNP within different categories of developing countries is illustrated in Table 4.1.

TABLE 4.1 AVERAGE PERCENTAGE CONTRIBUTIONS OF DIFFERENT SECTORS TO THE GNP

Sector	GNP per capita US dollars		
	350 - 400	200 - 350 ⁽¹⁾	350 - 575 ⁽¹⁾
	Per cent		
Agriculture	32	34	15
Mining	6	2	11
Manufacturing	13	15	16
Construction	4	5	5
Public utilities	2	1	2
Transport	4	6	6
Services	39	37	45
	100	100	100

Note (1) Kuznets "Modern Economic Growth", New York, 1966.

Table 4.1 indicates that the structure of the Malaysian economy is similar to the low-income example. However, a few reservations should be made; the quoted income per capita examples are not very recent, and the agricultural sector in Malaysia cannot be regarded as purely agricultural in this context.

4.2 SARAWAK IN THE MALAYSIAN ECONOMY

Due to its geographical character and its production pattern Malaysia has been characterised as a regionalised economy nation. Sarawak is a typical region in this sense; bounded by the South China Sea, Indonesia and Brunei and with inaccessible borders towards Sabah. These geographical circumstances emphasise the regionalised structure of the State's economy. Only in recent time has the changed political structure tied together the East and West Malaysian economies.

The Sarawakian economy has not yet reached the level of development of West Malaysia; the ratio of population living in urban and rural areas is different from West Malaysia. The proportion of rural people is higher in Sarawak as is shown in Table 4.2. Because the per capita contribution of rural populations to the national product is usually considerably smaller than that of urban populations, a major difference in the GNP per capita is to be expected.

TABLE 4.2 DISTRIBUTION OF URBAN AND RURAL POPULATIONS
IN SARAWAK AND WEST MALAYSIA (1970 CENSUS)

	Sarawak		West Malaysia	
	Thousands	Per cent	Thousands	Per cent
Large towns	150	15	2 530	29
Small towns	54	6	1 152	13
Rural areas	772	79	5 128	58
Total	976	100	8 810	100

The urban/rural ratio is reflected also in the distribution between the different sectors of production as shown in Table 4.3.

It is, however, remarkable that the per capita GRP of Sarawak is so slightly affected by the lower industrialisation and service level compared with West Malaysia. The GRP per capita in 1970 is estimated at \$996 in West Malaysia and \$906 in Sarawak. This equality is due to the importance of the forestry industry which constitutes an influential sector in Sarawak's economy. The contribution to the GRP of the agricultural production per employed person was much less in Sarawak than in West Malaysia. The manufacturing sector in Sarawak is less important than the GRP

GRP figures indicate because a considerable part of the "value-added" (that is production value) is created by the oil refining industry which has a special structure with respect to capital supply and labour demand.

TABLE 4.3 GROSS REGIONAL PRODUCT 1970

	Sarawak		West Malaysia	
	Mn dollars	Per cent	Mn dollars	Per cent
Agriculture, forestry, fishing	349	40	2 607	31
Mining	32	4	556	6
Manufacturing and construction	129	14	1 447	17
Services	374	42	3 900	46
Total	884	100	8 510	100

The apparent balance between the West Malaysia and the Sarawak service-sector contribution is due partly to the extended value-added in the transport sector caused by higher costs in Sarawak. These in turn are the consequence of a less developed communication system in East Malaysia.

The growth in the GRP of Sarawak has developed on lines different from West Malaysia, although the total growth per capita has occurred at almost the same rate. Based on current prices the growth in the Regional Product (1967-1970) was 5.4 per caput in West Malaysia and 6.2 in Sarawak.

The main Sarawak agricultural population still largely depends on traditional cultivation patterns and only a minor growth has been registered in this sector. It has been compensated for, however, by a considerable growth of the output in the forestry sector which since the beginning of the 1960's has played an important part in the East Malaysian economy. In monetary terms it has contributed more than any other industry in 1970 to the earning of foreign exchange, and its share of the Regional Product exceeds 15 per cent compared with 1.8 per cent in West Malaysia. The forestry sector product in Sarawak has increased at an annual growth rate of approximately 17 per cent.

The oil industry takes an important and special position in Sarawak's economy. In 1970, the crude oil production was still of minor importance, less than 20 000 barrels a day; the on-shore exploitation was declining while off-shore production was not yet fully developed. However, during 1973 the output from the Miri off-shore fields is expected to exceed 100 000 barrels a day and the importance of crude oil production on the regional economy will increase greatly.

The present economic influence of the oil industry in the regional economy is mostly due to the established refining industry which has been the dominant Sarawak manufacturing enterprise. In 1970 the value-added by the Lutong refinery accounts for 69 per cent of the sector's contribution to the Sarawak GDP, in addition, it is the largest single employer in East Malaysia apart from Government. But in this context the effect on the local and State economy of the refinery is less than indicated by the amount of value-added, because a greater part of this accrues to foreign capital and to expatriate staff, who consume only part of their incomes in the State. Yet the oil industry and accordingly the mining sector has been the fastest expanding sector of all with an annual growth rate of more than 100 per cent during the period 1967 to 1970.

Sarawak has, in common with West Malaysia, a strongly trade oriented economy, in which export products contribute about 50 per cent of the total GDP. An overwhelming proportion of the exported goods from Sarawak are primary products. This means that the foreign trade and thereby the GDP is particularly affected by changes in the market trends for these goods. This effect is emphasised in Malaysia where both rubber and pepper production are determinant in the total world supply. This could be a favourable position if the country was in a position to control the international market - but as this is not the case, the position could very well be the contrary because even minor changes in the international trends will have a serious impact on the local economy. Similar problems apply to the timber trade although the more diversified market reduces the effects to a certain extent. No problems of this kind are expected for oil products.

5.1 ECONOMIC STRUCTURE

This part of the report aims at giving a description in monetary terms of the relative importance of the various sectors of production. Production in this respect means all kind of economic activities or gainful occupations, such as growing of crops, production of goods, construction of works and structures and performance of services, for example doctors and public administrators. Production can be expressed in physical units, for example tons and cubic metres, or in monetary terms, which expressed the value of production.

Most products have to pass through several stages of production before reaching the final product stage ready for consumption. Each stage of production adds to the value of the product; hence the concept value-added, which includes:-

- the value of labour put into production (measured as salaries, wages or estimated value of final products for sale and/or personal consumption);
- interest on capital applied for production;
- land rent; and
- net profits.

The total value-added produced in one year within a certain land area is called the National (for a whole country) or Regional (for a part of a country) Product. As the value of production is distributed among the factors of production, this value is at the same time also the income of the persons who in one or another capacity (wage earner, capital owner etc.) have participated. The National Product, therefore, might as well be called the National Income. In economic language usually the terms GNP or GRP are used for Gross National or Regional Product.

The GRPs for Sarawak as well as for the Study Area are presented in Table 5.1. Lack of data has confined the calculation to 1970 and has prevented the extension of the analysis to a more dynamic sector comparison. Product values are estimates, some of which are more reliable than others. Checks on sources have been carried through whenever possible, but gaps in certain fields of statistics have naturally prevented a complete analysis.

To obtain value-added (VA) from the product value, certain calculations

TABLE 5.1 TOTAL GROSS REGIONAL PRODUCT (1970)

Sector	Sarawak		Study Area		Study Area as a percentage of total Sarawak
	Mn dollars	Per cent	Mn dollars	Per cent	Per cent
Agriculture	180	20.4	17.470	8.9	9.7
Forestry	148	16.7	62.000	31.5	41.9
Fishing	21	2.4	2.405	1.2	11.5
Mining including oil	32	3.6	30.680	15.6	95.9
Mining excluding oil	2	-	0.440	-	22.0
Manufacturing including refinery	81	9.2	32.170	16.3	39.7
Manufacturing excluding refinery	56	-	6.955	-	12.4
Construction	48	5.4	1.925	1.0	4.0
Electricity plus water	11	1.2	4.235	2.1	38.5
Transport	52	5.9	7.165	3.6	13.8
Trade	116	13.1	14.560	7.4	12.6
Banking plus insurance	9	1.0	2.790	1.4	31.0
Ownership of dwelling	45	5.1	8.100	4.1	18.0
Public administration	50	5.7	3.570	1.8	7.1
Services	91	10.3	10.095	5.1	11.1
Gross domestic product at factor cost	884	100.0	197.165	100.0	22.3
Gross domestic product at factor cost excluding oil	829	-	141.710	-	17.1

(reductions) have been carried through in the different industries. Most of the reduction factors are based on West Malaysian experiences, but where it has been possible, these have been checked and changed in accordance with specific local conditions. The methods used by the Department of Statistics to work out its GNP estimates have in this way only been corrected in cases where obvious inconsistencies existed.

Table 5.1 shows the GRP of the Study Area to be approximately 20 per cent of the whole of Sarawak. Even when oil is excluded and the percentage drops to 17, it is larger than the share of population living in the Study Area, namely 12 per cent. This suggests that the per capita Regional Product is higher in the Study Area than in the rest of Sarawak. When including oil production the per capita GRP in the Study Area is about \$1 700 or roughly twice the per capita GRP in the rest of Sarawak; excluding oil production the per capita GRP is around \$1 200 which would be 1.6 times that of the rest of Sarawak. In Appendix III explanations are given on the preparation of the Table, as well as details supporting the estimates.

5.2 FINANCIAL ASPECTS

5.2.1 Introduction

Allocation of real resources, that is land, labour, production machinery, structures etc., to various activities and projects within the country or region under consideration is a primary task in all development. Allocation of capital or money resources, that is financing, is a means of organising the allocation of real resources and as such it plays its own part in development considerations.

Capital for development of a certain region can come from inside or from outside this region. Capital coming from inside, that is provided by persons, companies or finance institutes living or located in the area, may often be administered by people who have a special knowledge of local conditions; this knowledge can be an advantage in selecting those projects, which they want to finance and which will prove viable under local conditions.

The economic viability of a certain project, that is its ability to pay and repay the invested capital and to pay for all other factors of production (land manpower of any kind), will primarily depend on local conditions for the project, possibly supplemented by necessary inputs from outside. So, even if it is possible to attract financing from outside, it is important to study possible sources of regional supply of financing.

The financing can originate both in the public and in the private, or commercial, sector of the economy. Both sectors have a heavy impact on the local economy and only by co-ordinating the resources of both of them in some kind of a general financial policy could an optimal utilisation of these resources be secured. This calls for a centralised and deliberate control of the money supply, primarily exerted via the public finances, and if necessary with supplementary guiding of private capital movements.

For these reasons an attempt has been made in this report to analyse public and private finances. This has been difficult and the results problematic because regional figures do not usually appear in statistical publications or in private annual reports etc. Furthermore, financial matters are often considered as commercial and political secrets which are only reluctantly disclosed. Nevertheless with the help of all public authorities comprehensive estimates of public revenues and expenses within the Study Area have been made. Probably more questionable information on capital movements in the private sector has also been collected.

5.2.2 Public Finances in the State

The information on public finances in this paper is limited to accounts of the revenues received and the expenditures paid by the different authorities, thus describing the flow of money from the society to the public sector and back again. Consequently all Federal and State Departments, Statutory Bodies and Local Governments, active in the Study Area, have been scrutinised as far as their economic activities are concerned. Only the Police and the Armed Forces have been excepted.

The main explanations and trends are given below, while the detailed information is given the Appendices IV and V.

5.2.2.1 Revenue

The Federal Constitution describes the sources of revenue assigned to the State and the various grants receivable from the Federal Government, Appendix (IV) refers to the collection of revenue by various agencies. The revenue collected by the different agencies either goes to the Federal Consolidated Revenue Account, State Consolidated Revenue Account, Statutory Bodies Account, or Local Government

Treasury. Appendix V gives the amount collected for 1970 within the Study Area.

5.2.2.2 Expenditure

The expenditure of the various bodies is categorised into two main groups: Ordinary Expenditure which includes Recurrent, Non-Recurrent and Special Expenditure; and Development Expenditure. The amount of Expenditure by each body is shown in Appendix V.

5.2.2.3 Administrative Organisation

The Federal and State administrative organisations are designed primarily for executive reasons but they are also applied to the financial functions.

a) Federal Departments: the operations of these Departments are financed out of the authorised sum allocated to them through the expenditure budget of the Federal Government. Each department has its own vote book containing departmental allocations and its spending is mainly based on those allocations though supplementary sums are sometimes available.

b) State Departments: the expenditure is shown in the Sarawak estimates of revenue and expenditure and their ordinary expenditure is financed out of Sarawak consolidated revenue account, while the development expenditure is covered by the State and Federal Account. These Departments also have vote books and their spending should be within the amount authorised but they could have supplementary sums allocated to them.

c) Local Governments: these are financially autonomous, and their operations are financed out of the revenue collected within their area of jurisdiction. If they undertake State or Federal Department functions, they would be allocated grants, or be reimbursed the cost of the work done. They have their own treasury, and every year they have to submit annual revenue and expenditure estimates to the Ministry of Local Government. Only after the approval from this Ministry, can they collect or spend money. The local Governments can apply to the Ministry to cover unexpected deficit, but in this case projects are usually accomplished under requisition.

d) Statutory Bodies: they finance their operation out of their own revenue and sometimes from loans and grants from State or Federal Government, or from foreign agencies through arrangement made by the Federal Government. However, their operation is mainly founded on commercial

principles, thus initial grants or loans would normally act as their revolving funds.

5.2.3 Public Finance in the Study Area

The involvement of the public sector in the Study Area is shortly described as follows.

Considering the years 1969 and 1970 as shown in Table 5.2 there were surpluses of revenue over expenditure in both years. In 1969, the surplus was \$7.7 mn while in 1970, it was \$6.8 mn (a decline of approximately \$900 000). In 1969 the revenue was two per cent larger than the 1970 revenue but the expenditure in 1970 was the greater by one per cent. The revenue/expenditure ratio shows a slight fall from 1.30 : 1 in 1969 to 1.26 : 1 in 1970.

TABLE 5.2 COMPARISON OF REVENUE AND EXPENDITURE

	Revenue		Expenditure		
	Total	Change	Total	Change	Per cent of revenue
	Thousand dollars				
1969	33 166		25 468		76.7
1970	32 514	-652	25 705	+237	79.0

TABLE 5.3 COMPARISON OF TOTAL EXPENDITURE AND DEVELOPMENT EXPENDITURE

	Total expenditure	Development expenditure	Per cent of total expenditure
	Thousand dollars		
1969	25 468	11 200	44.9
1970	25 705	10 111	39.3

Table 5.3 indicates that the expenditure on development declined in 1970 yet the total expenditure increased, this increase must, therefore, have occurred in ordinary expenditure within the Study Area.

The development expenditure amount of 1970 declined by 9.8 per cent (around \$1.1 mn) while the ordinary expenditure increased by 9.2 per cent. Considering the distribution of the changes in development expenditure between the different administrative sections, the Federal Departments show 25 per cent growth and Statutory Bodies two per cent growth, while the State Departments show a fall of 17 per cent and Local Government a fall of 20 per cent compared to 1969.

A comparison of revenue and development expenditure is given in Table 5.4.

TABLE 5.4 COMPARISON OF REVENUE AND DEVELOPMENT EXPENDITURE

	Revenue	Development expenditure	Per cent of revenue
	Thousand dollars		
1969	33 166	11 200	33.7
1970	32 514	10 111	31.0

As shown in Table 5.4 the total revenue from the Study Area has declined at the same time the relative importance of the development expenditure is also declining.

5.2.3.1 Revenue and Expenditure of Various Organisations in the Study Area, a Comparison of the Years 1969 and 1970

a) Federal Government: the revenue shows a growth of 5.5 per cent and expenditure a growth of 14.2 per cent. There was a surplus of \$5 518 000 in 1969 and a slightly lower one of \$5 224 000 in 1970.

b) State Government: the revenue shows a decline of 8 per cent and expenditure, 4.5 per cent. However, for both 1969 and 1970, there were surpluses of \$3 731 000 and \$2 937 000 respectively.

c) Local Government: the revenue shows a growth of 19 per cent while the expenditure declined by 11.9 per cent. In 1969 there was a deficit of \$122 000, but in 1970 there is a surplus of \$153 000.

d) Statutory Bodies: the revenues of these bodies show a decline of 2.6 per cent while their expenditure increased by 1.1 per cent. However, in both 1969 and 1970, there was a deficit of \$1 429 000 and \$1 505 000 respectively; the expenditures were for development purposes.

5.2.3.2 Discussion

The accounts of public revenue and expenditure, reveal a considerable net absorption of money by the public sector in the Study Area. Apparently this has been the accepted policy because a clear tendency to operate with surpluses on all budgets has been recorded during a number of years. These surpluses amount to an annual total of approximately 20 per cent of the total balance of all public budgets.

This policy, however, has recently been reconsidered on State level and a new attitude is emerging, which among other things is manifested by the Chief Minister in his Budget Speech on 6th March, 1972 to the Council Negri. The speech runs: "... with the increasing tempo in development and the need to provide services to the people in the State, it is most likely that we will continue to have deficit budgets during the next two or three years, assuming that our sources of revenue cannot be further expanded.", and: "... it is a false budgetary policy to restrict expenditures either development or recurrent in order to leave and possibly increase the surpluses we have been accumulating at the expense of restricting the kind of services demanded by the people." This indicates a more progressive way of using public finances as an instrument for accelerating economic development.

5.2.4 Private Finances

The private sector might be considered from two angles as far as their finances are concerned: institutional finance and private or personal finance.

The latter is most difficult to evaluate because knowledge of these capital movements is not readily available. The main export trades are probably the most important private finances. Even a minor percentage of the total export sales revenue will, if placed abroad or outside the Study Area, constitute an important considerable outflow of capital.

The institutional part of the private sector is concerned with banking, long term loans and insurance. The banking and the financing sector are the most organised and it has been possible to obtain an overall picture of the capital movements in these sectors. For example,

it is known that while the commercial banks and financing corporations had deposits amounting to approximately \$50 mn their total granted loans, advances and overdrafts were only around \$12 mn. This 4:1 ratio between deposits and loans has not changed over the time, and there is still a net balance of capital outstanding of about \$40 mn in the Study Area.

This emphasises the present trend of Sarawak as a net capital exporter. According to Bank Negara Malaysia, total deposits with the private sector banking institutions at the end of 1970 were \$219 mn and the loans etc. \$116 mn, the same figures for mid-1972 were \$259 mn and \$143 mn respectively. This shows a constant net outstanding, which despite the slight ratio change, demonstrates the role of Sarawak in the capital market.

The insurance enterprises in Sarawak are all agents for outside companies, and the capital inflow of these enterprises is consequently mainly invested outside the State.

Investments in real estate and other private developments, apart from the Sarawak Shell Berhad, are mainly from local capital sources. There is no indication that major foreign enterprises are operating in this field in the Study Area. Thus it appears that the private sector is also absorbing purchasing power by acting as net capital exporter from the Study Area. The considerations as to the desirability of this tendency must be the same as the ones for the public sector.

There are many ways to change the ratio between public expenditures and revenues and private local investments and savings, but a balancing or even a policy of over expenditure of the public budgets would be an obvious remedy in a new development policy. But investments in oil, gas and their processing are not considered relevant in this context because these specific foreign investments do not affect the local capital market.

APPENDICES

TABLE I.1 LAND USE CATEGORIES (AGES) FOR PLANNING UNITS

Planning Unit	Planning Sub-unit	Forest Land		Agricultural Land					Urban settlements	Non-agricultural and unproductive lands	Total
		Hill Forest	Swamp Forest	Shifting Cultivation	Wet padi	Grassland and other secondary growth	Permanent crops and horticultural lands				
BARAN	Bakong	125 310	230 641	48 482	5 558	100	4 478	78	1 853	416 500	
	Karudi	52 893	133 392	32 733	226	29 182	13 822	620	4 632	267 500	
	Long Lama	457 611	27 637	101 904	926	39 680	926		2 316	631 000	
	Sub-total	635 814	391 670	183 119	6 710	68 962	19 226	698	8 801	1 315 000	
BINTULU	Bintulu	211 767	3 452	21 616	3 396	17 447	8 338	3 397	13 587	283 000	
	Kemena	427 741	71 488	177 560	195	11 117	5 941	2 533	11 425	708 000	
	Sub-total	639 508	74 940	199 176	3 591	28 564	14 279	5 930	25 012	991 000	
MIRI	Miri North	73 300	108 080	15 286	1 390	19 454	10 190	5 349	3 451	236 500	
	Sibuti	136 910	22 951	86 790	2 933	13 125	4 941	2 732	618	271 000	
	Miah-Suai	596 302	102 712	10 807	156	20 072	8 029	844	78	739 000	
	Sub-total	806 512	233 743	112 883	4 479	52 651	23 160	8 925	4 147	1 246 500	
GRAND TOTAL		2 081 834	700 353	495 178	164 957	56 665	53 513			3 552 500	

Hill Forest includes

Hill forest
Kerangas forest
Riverain forest
Beach forest

Swamp Forest includes

fixed swamp forest
Alan
Swamp (Paya)

Permanent crops include

Rubber
Pepper
Coconut
Sago
Oil palm

Source

All figures obtained by planimeter measurement from the published 1:250 000 scale land use maps (1966).

TABLE I.3 LAND USE CATEGORIES AS A PERCENTAGE OF TOTAL PLANNING UNIT AND SUB-UNIT AREA

Planning unit	Planning sub-unit	Forest Land		Agricultural Land				Urban settlements, non-agricultural and unproductive lands	Total Per cent
		Hill forest	Swamp forest	Shifting cultivation	Wet padi, grassland and other secondary growth	Permanent crops and horticultural lands			
BARAM	Bakong	30.1	55.4	11.6	1.3	1.1	0.5	100	
	Marudi	19.8	49.9	12.2	11.0	5.2	1.9	100	
	Long Lama	72.5	4.4	16.2	6.4	0.1	0.4	100	
	Sub-total	48.3	29.8	13.9	5.8	1.5	0.7	100	
BINTULU	Bintulu/Simlanjan	74.8	1.2	7.6	7.4	3.0	6.0	100	
	Kemena	60.4	10.1	25.1	1.6	0.8	2.0	100	
	Sub-total	64.5	7.6	20.1	3.2	1.5	3.1	100	
	Miri North	31.0	45.7	6.5	8.8	4.3	3.7	100	
MIRI	Sibuati	50.5	8.5	32.0	5.9	1.8	1.3	100	
	Niah-Suai	80.7	13.9	1.5	2.7	1.1	0.1	100	
	Sub-total	64.7	18.7	9.1	4.6	1.9	1.0	100	
STUDY AREA		58.6	19.7	13.9	4.7	1.6	1.5	100	

TABLE I.4 LAND TENURE CLASSES (ACRES) FOR PLANNING UNITS

Planning Unit	Planning Sub-unit	Total Study Area Land possibly		Mixed Zone Land possibly		Native Area Land possibly		Native Customary Land possibly		Interior Area (3) Land possibly		Reserves Land possibly	
		Suitable	Unsuitable	Suitable	Unsuitable	Suitable	Unsuitable	Suitable	Unsuitable	Suitable	Unsuitable	Suitable	Unsuitable
BARAW	Bakong	71 000	339 500	1 000	6 500	-	71 500	68 000	60 300	8 000	127 700	-	73 500
	Karudi	29 500	238 000	5 000	18 500	-	77 000	24 000	45 000	-	58 500	500	39 000
	Long Lama	95 000	536 000	2 000	2 000	-	1 500	90 000	141 500	3 000	193 000	-	198 000
	Sub-total	201 500	1 113 500	8 000	27 000	-	150 000	182 000	246 800	11 000	379 200	500	310 500
BANTULU	Bantulu	90 500	192 500	7 500	1 000	-	1 500	28 500	4 600	6 000	29 800	48 500	155 600
	Kemena	188 500	519 500	6 700	2 500	11 000	12 500	119 300	81 500	24 000	197 000	27 500	226 000
	Sub-total	279 000	712 000	14 200	3 500	11 000	14 000	147 800	86 100	30 000	226 800	76 000	381 600
MIRI	Miri North	15 500	221 000 (1)	7 950	61 000 (1)	850	1 000	6 700	14 000	-	18 000	-	127 000
	Situtti	49 000	(222 000) (2)	-	12 000	4 500	16 500	37 000	1 000	7 500	24 500	-	3 000
	Niah-Swai	317 500	430 500	32 000	19 500	1 500	11 500	83 500	18 500	116 000	136 000	84 500	245 000
	Sub-total	382 000	873 500	39 950	92 500	6 850	29 000	127 200	33 500	123 500	178 500	84 500	375 000
Grand total	Total	862 500	2 690 000	62 150	123 000	17 850	193 000	457 000	366 400	164 500	784 500	161 000	1 067 100
	Grand total	3 552 500	185 150	210 850	823 400	949 000	1 228 100						

Note (1) Includes 12 000 acres - Urban Land.
 (2) Includes 165 000 acres not assessed in Lambir-Sutbis Development Area.
 (3) Includes small areas Forest Reserves under Logging licence.

Source: Zonation Plan Map and existing 1:50 000 and 1:1.5 m Land Tenure maps, Land and Survey Department, Miri.

TABLE 1.5 LAND TENURE CLASS AND LAND WITH POSSIBLE AGRICULTURAL POTENTIAL AS A PERCENTAGE OF TOTAL PLANNING UNIT AND SUB-UNIT IN THE STUDY AREA

Planning Unit	Planning Sub-unit	Total Study Area		Mixed Zone		Native Area		Native Customary		Interior Area		Reserves	
		Possibly suitable	Unsuitable										
BARAM	Bakong	18.4	81.6	0.2	1.6	-	17.2	16.3	14.5	1.9	30.7	-	17.6
	Marudi	11.0	89.0	1.8	6.9	-	28.8	9.0	16.8	-	21.9	0.2	14.6
	Long Lama	15.1	84.9	0.3	0.3	-	0.2	14.3	22.4	0.5	30.6	-	31.4
	Sub-total	15.3	84.7	0.6	2.1	-	11.4	13.9	18.8	0.8	28.8	-	23.6
BAYAN	Bintulu	32.0	68.0	2.7	0.4	-	0.5	10.1	1.6	2.1	10.5	17.1	55.0
	Kemena	26.6	73.4	0.9	0.4	1.6	1.8	16.8	11.5	3.4	27.8	3.9	31.9
	Sub-total	28.1	71.9	1.4	0.4	1.1	1.4	14.9	8.7	3.0	22.9	7.7	38.5
MIRI	Miri North	6.6	93.4	3.4	25.8	0.4	0.4	2.8	5.9	-	7.6	-	53.7
	Sibu (1)	46.3	-	-	11.3	4.3	15.6	34.9	0.9	7.1	23.1	-	2.8
	Niah-Suai	42.5	57.5	4.3	2.6	0.2	1.5	11.2	2.5	15.5	18.2	11.3	32.7
	Sub-total	30.5	-	3.2	7.4	0.6	2.3	10.1	2.7	9.9	14.2	6.7	29.7
	Total (2)	24.2	-	1.8	3.5	0.5	5.4	12.8	10.3	4.6	22.0	4.5	30.0

Note (1) Excludes the Lambir-Subis Development Area and its extension.

(2) Total does not add up to 100 per cent because of the exclusion of Lambir-Subis Development Area.

TABLE I.6 LAND POSSIBLY SUITABLE FOR AGRICULTURAL DEVELOPMENT WITHIN LAND TENURE CLASSES IN THE STUDY AREA

Planning Unit	Planning Sub-unit	Mixed Zone	Native Area	Native Customary	Interior Area	Reserves
		Per cent suitable				
BARAM	Bakong	13.3	-	53.0	5.9	-
	Marudi	21.3	-	34.8	-	1.3
	Long Lama	50.0	-	38.9	1.5	-
	Sub-total	22.9	-	42.4	2.8	0.2
BINTULU	Bintulu	88.2	-	86.1	16.8	23.8
	Kemena	72.8	46.8	59.4	10.9	10.8
	Sub-total	80.2	44.0	63.2	11.7	16.6
	Miri North	11.5	45.9	32.4	-	-
	Sibuti	-	21.4	97.4	23.4	-
	Niah-Suai	62.1	11.5	81.9	46.0	25.6
	Sub-total	30.2	19.1	79.1	40.9	18.4

TABLE II.1 TOTAL POPULATION BY PLANNING UNITS AND SUB-UNITS, 1970 CENSUS

Planning Unit	Planning Sub-unit	Population	Per cent of total Study Area population
BARAM	Bakong	6 103	5.3
	Marudi	10 605	9.1
	Long Lama	10 599	9.1
	Sub-total	27 307	23.5
BINTULU	Bintulu/Similejan	15 536	12.3
	Kemena	14 319	13.3
	Sub-total	29 855	25.6
MIRI	Miri North	36 909	31.7
	Sibuti	10 748	9.2
	Niah-Suai	11 620	10.0
	Sub-total	59 277	50.9
	Study Area	116 439	100

TABLE II.2 AGE DISTRIBUTION PER THOUSAND POPULATION IN THE STUDY AREA, 1970 CENSUS

Planning Unit	Planning Sub-unit	Years		
		0 - 14	15 - 64	65 and over
BARAM	Bakong	452	522	26
	Marudi	471	499	30
	Long Lama	446	520	34
	Sub-total	457	512	31
BINTULU	Bintulu/Similajau	453	499	48
	Kemena	445	513	42
	Sub-total	449	506	45
	Miri North	424	541	35
MIRI	Sibuti	437	520	43
	Niah-Suai	436	531	33
	Sub-total	428	535	37
	Study Area	441	522	37

TABLE II.3 DISTRIBUTION OF URBAN AND RURAL POPULATIONS BY PLANNING UNITS, 1970 CENSUS

Planning Unit	Planning Sub-unit	Urban	Semi-urban	Rural	Total
BARAM	Bakong	-	-	6 103	6 103
	Marudi	3 910	-	6 695	10 605
	Long Lama	-	596	10 003	10 599
	Sub-total	3 910	596	22 801	27 307
BINTULU	Bintulu/Similajau	6 220	-	8 099	14 319
	Kemena	-	674	14 862	15 536
	Sub-total	6 220	674	22 961	29 855
	Miri North	27 021	-	9 888	36 909
	Sibuti	-	671	10 077	10 748
	Niah-Suai	-	1 970	9 650	11 620
	Sub-total	27 021	2 641	29 615	59 277
	Study Area	37 151	3 911	75 377	116 439

TABLE II.4 PERCENTAGE DISTRIBUTION OF URBAN AND RURAL POPULATIONS BY PLANNING UNITS, 1970 CENSUS

Planning Unit	Planning Sub-unit	Urban	Semi-urban	Rural	Total percentage
BARAM	Bakong	-	-	100	100
	Merudi	36.9	-	63.1	100
	Long Lama	-	5.6	94.4	100
	Sub-total	14.3	2.2	83.5	100
BINTULU	Bintulu/Similajau	43.4	-	56.6	100
	Kemena	-	4.3	95.7	100
	Sub-total	20.8	2.3	76.9	100
	Miri North	73.2	-	26.8	100
MIRI	Sibuti	-	6.2	93.8	100
	Niah-Suai	-	17.0	83.0	100
	Sub-total	45.6	4.4	50.0	100
Study Area	31.9	3.4	64.7	100	

TABLE II.5 TOTAL POPULATION AND RATE OF CHANGE IN SELECTED CENTRES

Settlement classification	Population		Per cent change 1960-1970	Annual rate of change 1960-1970 Per cent
	1960	1970		
Urban areas				
Miri-Lutung	16 222	27 021	66.6	5.2
Bintulu	5 307	6 220	17.2	1.6
Marudi	2 663	3 910	46.8	3.9
Semi-urban areas				
Long Lama	496	596	20.2	1.8
Bekenu	737	671	-9.0	-0.9
Niah	576	925	60.6	4.8
Batu Niah	568	1 045	84.0	6.3
Kampung Tengku Abdul Rahman	new town	NA	-	-
Sebauh	867	674	-22.3	-2.1

TABLE II.6 DISTRIBUTION OF VARIOUS SIZES OF RURAL SETTLEMENTS IN THE STUDY AREA, 1970 CENSUS

Planning Unit	Planning Sub-unit	Rural settlements			Total
		More than 500 persons	250-499 persons	Less than 249 persons	
BARAM	Bakong	-	8	22	30
	Marudi	1	6	23	30
	Long Lama	3	7	24	34
	Sub-total	4	21	69	94
BINTULU	Bintulu	-	-	5	5
	Kemena	1	3	17	21
	Sub-total	1	3	22	26
	Miri North	7	2	6	15
MIRI	Sibuti	4	13	11	28
	Niah-Suai	1	10	31	42
	Sub-total	12	25	48	85
Study Area		17	49	139	205

TABLE II.7 OCCUPATION DISTRIBUTION BY SECTORS - STUDY AREA (1970 CENSUS)

Occupation sector	Planning Units										Study Area					
	Baran				Binuhlu			Miri								
	Male	Female	Total	Per cent	Male	Female	Total	Per cent	Male	Female	Total	Per cent	Male	Female	Total	Per cent
Agricultural occupations	4 458	3 858	8 316	70.6	4 249	3 785	8 034	66.0	5 183	3 664	8 847	40.4	13 890	11 307	25 197	54.9
Forestry	697	5	702	6.0	616	8	624	5.1	1 139	6	1 145	5.2	2 452	19	2 471	5.4
Fishery	56	16	72	0.6	133	3	136	1.1	251	1	252	1.2	440	20	460	1.0
Mining (including oil)	62	9	71	0.6	9	-	9	0.1	124	-	124	0.6	195	9	204	0.5
Trade	228	87	315	2.7	293	78	371	3.1	903	216	1 119	5.1	1 424	381	1 805	3.9
Electricity and water	4	-	4	-	3	-	3	-	28	2	30	0.1	35	2	37	0.1
Banking and insurance	1	-	1	0.1	-	-	-	-	6	-	6	-	7	-	7	-
Transport	146	-	146	1.2	179	2	181	1.5	1 140	38	1 178	5.4	1 465	40	1 505	3.3
Public administration	61	2	63	0.5	72	1	73	0.6	608	5	613	2.8	741	8	749	1.6
Construction	53	3	56	0.5	68	5	73	0.6	590	25	615	2.8	711	33	744	1.6
Services	224	123	347	2.9	227	103	330	2.7	883	560	1 443	6.6	1 334	786	2 120	4.6
Manufacturing	232	13	245	2.1	406	24	430	3.5	1 860	96	1 956	8.9	2 498	133	2 631	5.8
Miscellaneous	130	12	142	1.2	107	14	121	1.0	763	306	1 069	4.9	1 000	332	1 332	2.9
Labourers not classified elsewhere	89	2	91	0.8	179	-	179	1.5	1 062	67	1 129	5.1	1 330	69	1 399	3.1
All sectors	6 441	4 130	10 571	-	6 541	4 023	10 564	-	14 540	4 986	19 526	-	27 522	13 139	40 661	-
Occupation not stated	714	482	1 196	10.2	996	616	1 612	13.2	1 327	1 066	2 393	10.9	3 037	2 184	5 201	11.3
Total	7 155	4 612	11 767	100.0	7 537	4 639	12 176	100.0	15 867	6 052	21 919	100.0	30 559	15 303	45 862	100.0

TABLE II.8 PERCENTAGE SHARE OF EMPLOYMENT BY SECTORS AND PLANNING UNITS IN THE STUDY AREA, 1970 CENSUS

Employment sector	Baram	Bintulu	Miri
Agricultural occupations	33.0	31.9	35.1
Forestry	28.4	25.3	46.3
Fishery	15.6	29.6	54.8
Trade	17.5	20.5	62.0
Mining (including oil)	34.8	4.4	60.8
Electricity and water	10.8	8.1	81.1
Banking and insurance	14.3	-	85.7
Transport	9.7	12.0	78.3
Public administration	8.4	9.7	81.9
Construction	7.5	9.8	82.7
Services	16.4	15.6	68.0
Manufacturing	9.3	16.3	74.4
Miscellaneous	10.7	9.1	80.2
Labourers not classified elsewhere	6.5	12.8	80.7
Occupation not stated	23.0	31.0	46.0
Total employment	25.6	26.6	47.8

TABLE II.9 PERCENTAGE OF MALES OCCUPIED IN EACH EMPLOYMENT SECTOR IN THE PLANNING UNITS AND STUDY AREA, 1970 CENSUS

Employment sector	Baram	Bintulu	Miri	Study Area
Agricultural occupations	53.6	52.9	58.6	55.1
Forestry	99.3	98.7	99.5	99.2
Fishery	77.8	97.8	99.6	95.6
Trade	72.4	79.0	80.7	78.9
Mining (including oil)	7.3	100	100	95.6
Electricity and water	100	100	93.3	94.6
Banking and insurance	100	-	100	100
Transport	100	98.9	96.8	97.3
Public administration	96.8	98.6	99.2	98.9
Construction	94.6	93.2	95.9	95.6
Services	64.6	68.8	61.2	62.9
Manufacturing	94.7	94.4	95.1	94.9
Miscellaneous	91.5	88.4	71.4	75.1
Labourers not classified elsewhere	97.8	100	94.1	95.1
Occupation not stated	59.7	61.8	55.5	58.4
Total employment	60.8	61.9	72.4	66.6

APPENDIX III

ECONOMIC CONTRIBUTION TO GROSS NATIONAL PRODUCT (GNP) BY SECTORS

III.1 GENERAL

In studying the economic status of Malaysia and Sarawak, the concepts of Gross National Product (GNP) and Gross Regional Product (GRP) have been used. These concepts as well as Gross Domestic Product (GDP) are in general use in economic and social planning and have been used in the Second Malaysia Plan; they, therefore, need no further explanation here.

The estimates of GDP and GRP are usually calculated for each sector using all data available. Often the information from different statistical sources do not agree, and total census figures must commonly be compared with sample surveys. The present GRP estimate for the Study Area is based on production statistics, trade statistics, land use assumptions, and surveys on use of labour and raw materials. Although the figures presented have the appearance of a rather high degree of specification and accuracy, the uncertainty involved in their compilation must be realised. Though it is equal for both Sarawak and the Study Area. The product estimates of certain sectors might be overvalued; for instance, agriculture and forestry may include certain values for local processing and marketing, especially on products for export.

Beside these minor sources of error there are more obvious ones in the trade and mining sectors. The trade sector is calculated on the basis of certain overhead margins or additions to the buying price of the products sold. These uncertain margins are multiplied by estimated factors for import, export and local production; the margins for both retail and wholesale trade are based on local experience and can vary from place to place.

The mining sector and its associated industries are completely dominated by the size of the local oil production enterprise within which the prices for crude oil (imported and exported) and refined oil together with the costs of materials used are all subject to uncertainty. They may not necessarily reflect economic costs and price levels because to some extent they are based on internal calculation and account units.

The calculations made by the Consultants were compared with unpublished calculations made by the Department of Statistics in Kuala Lumpur. The differences found were insignificant, therefore, those of the Department

of Statistics have been used in this report. In the following tables a rounding-off of sector figures into mm dollars has not been done because of the relatively small number of sectors in the Study Area.

The primary production character of Sarawak facilitates a break-down of GDP between export production and production for domestic use. The balance of trade for 1970 has been calculated as follows:-

	Receipt	Payment
	in thousand dollars	
Sarawak		
Merchandise		
exports f.o.b.	671 300	
import c.i.f.		659 600
Non factor services	68 700	89 400
Factor income payments	9 000	23 000
Total	749 000	772 000
Fourth Division		
Merchandise		
export f.o.b.	426 900	
import c.i.f.		301 500
Non factor services	6 000	15 000
Factor income payments	1 000	3 000
Total	433 900	319 500

To obtain a realistic picture of the Sarawak and Study Area external trade the final trade data needs to be adjusted for the contribution of re-exports. A considerable part of this re-export consists of oil product because these make up an overwhelming part of the foreign trade, it is necessary to separate the re-export trade from the crude oil trade. The latter might not have the impact on the local economy that the monetary size of the trade indicates.

Sarawak - Study Area	Imports	Exports
	in thousand dollars	
Products		
crude oil	276 200	202 500
refined	16 000	124 200
	292 200	326 700
Hereof direct re-export		169 900
Other re-exported products mainly from Kuching and Sibu ports		6 000

It can be assumed that a major part of imports (75 per cent) of fertilisers, insecticides/herbicides and wood preservatives were used for export crops; they are, therefore, included in the value of the exports.

The import part of total exports could, therefore, be estimated as follows:-

Sarawak	Thousand dollars
Crude plus other oil direct re-exports	169 900
Refined oil exports (contents of imported crude)	122 300
Other re-exports	6 000
Imported agricultural exports imports	9 600
Total import part of exports	<u>307 800</u>

Domestically produced exports of goods and non factor services would then be:-

<u>Sarawak</u>	in thousand dollars	
Total exports		749 000
<u>less</u> non-retained imports		<u>307 800</u>
Domestically produced exports		<u>441 200</u>
 <u>Study Area</u>		
Total exports		433 900
<u>less</u> non-retained imports		
oil product	277 300	
agriculture and forestry	<u>1 800</u>	<u>279 100</u>
Domestically produced exports		<u>154 800</u>

III.2 AGRICULTURE

The calculation of the agricultural contribution to the GRP is based on two kinds of information: the trade and stock statistics, and the estimated average yields. The trade statistics are unreliable because the internal trade is not registered. This means that whenever Sibü or Kuching merchants buy rubber or pepper, for example, for export, these goods are not registered as exports from the Study Area but only from the export port (Kuching or Sibü). Consequently it is necessary to supplement the trade statistics with estimates of total production based on average yields and acreages in production.

The estimates for the GRP for the agricultural sector is divided into the contribution made to the total value-added by the main products.

III.2.1 Rubber

The estimated area of low yielding rubber was 15 000 acres with an average yield of 300 pounds per acre. Of this acreage it was estimated that only one-third was actually tapped.

Mature high yielding rubber was estimated to cover 20 000 acres and have a potential average yield of about 600 pounds per acre. Of this acreage it was estimated that 25 per cent was tapped. The total

production was thus approximately 2 000 tons.

In addition, the production value of planting and replanting was calculated. This amount has, in accordance with West Malaysian experience, been reduced by 25 per cent to arrive at the net value-added.

	Thousand dollars
Rubber f.o.b. value	2 275 ⁽¹⁾
<u>less</u> duties (5 per cent export duty + 2 per cent cess on f.o.b. price)	155
	2 090
<u>less</u> agents fee and grading 5 per cent	105
	1 985
<u>less</u> transport to export agents (average transport distance 50 miles at \$0.30 per ton miles)	30
VA (considering collectors and smoke house's product as part of agriculture)	1 955
<u>plus</u> value of planting and replanting (West Malaysia reduction factor = $\frac{VA}{\text{Value of planting}} = 0.75$)	525
Total VA rubber	2 480

Note (1) Of this \$2 275 000 estimate of total f.o.b. value of rubber production only \$850 000 worth was exported via ports in Fourth Division.

	dollars
Miri	- 200 000
Marudi	- 650 000
Bintulu	- -

III.2.2 Pepper

The area bearing pepper in the Study Area was estimated at 600 acres and the production from these amounted to 1 070 tons black and white pepper based on the assumption that the average yield was 100 piculs or 5.95 tons of berries per acre. The total berry production was assumed to be processed into 60 per cent black and 40 per cent white pepper. The total f.o.b. value was \$2 506 000 based on an average f.o.b. price of \$2 340 per ton (for black/white pepper). The calculation of VA is:-

	Thousand dollars
Pepper f.o.b. value	2 505 ⁽¹⁾
<u>less</u> duties	
(8.5 per cent based on Customs tariff App H and I)	215
	<u>2 290</u>
<u>less</u> export agents fee including some processing	135
	<u>2 155</u>
less transport and collecting (average transport 15 miles at \$0.15 per ton miles) plus other inputs	275
Total VA pepper	<u>1 880</u>

Note (1) Of the estimated f.o.b. value of the pepper production \$330 000 were exported through ports in Fourth Division.

	dollars
Miri -	313 000
Marudi -	17 000
Bintulu -	-

III.2.3 Rice

The production value of rice is based on estimates of acreages of hill and wet padi in the area in 1970. Areas bearing hill padi were estimated at 22 000 acres while areas with wet padi amounted to 16 500. Assumed average yields were 1 300 pounds per acre and 1 900 pounds per acre for hill and wet padi respectively (based on sample cuttings done by the Economics Branch of the Agricultural Department in Kuching). The total production calculated was approximately 26 700 tons. The total value was approximately \$8 074 000 based on an average price for both hill and wet padi of \$18 per picul or \$302 per ton. The VA calculation is simple.

	Thousand dollars
Rice production value	8 075
<u>less</u> input and marketing estimated at 8 per cent	645
Total VA rice	<u>7 430</u>

III.2.4 Coconut

The areas with commercial coconuts in 1970 was estimated at 2 000 acres, of these around 500 acres were not bearing. With a calculated coconut-yield of 0.5 tons per acre, the estimated production was 750 tons. The value was \$260 000 at an average price of \$20.50 per picul or \$345 per ton.

Transport costs were estimated on the average distance from production site to trade centre. As a major part of this transport is handled on trucks and large vessels a ton/mile price of \$0.15 has been considered reasonable. This goes for pepper as well, while rubber transport (launch fares) have been calculated on a \$0.30 ton/mile base.

	Thousand dollars
Coconut production value	260
<u>less</u> input and marketing (8 per cent)	20
<u>less</u> transport and collecting (average transport 15 miles at \$0.15 per ton mile) + other inputs	25
	<hr/> 215
<u>plus</u> VA of planting and replanting	85
<u>VA</u>	<hr/>
Value of planting	<hr/>
Total VA coconut	<hr/> <hr/> 300

III.2.5 Palm oil

The production of palm oil has not yet commenced and the entire VA figure in this industry is, therefore, based on the planting activities.

The VA of preparing the land and of planting oil palms is based on registered local costs, then slightly reduced in accordance with West Malaysian experiences.

	Thousand dollars
Palm oil production value	-
VA of planting (1 800 acres)	
<u>VA</u>	<hr/>
Value of planting	<hr/> 540
Total VA palm oil	<hr/> <hr/> 540

III.2.6 Sago

The calculation of the VA in sago production is limited to the sago included in the manufacturing of sago flour.

The local production and consumption of sago is considered negligible. Most sago consumers in the Fourth Division reside outside the Study Area.

Thousand dollars

Sago production included in manufacturing	
<u>less</u> towing	35
Total VA sago	<u>35</u>

Local sago consumption is assessed as negligible.

III.2.7 Animal production

The assessment of the value of livestock and poultry is made complicated by the fact that estimates of, for example, poultry production and numbers is difficult, because almost all agricultural households and many urban families have their own subsistence production of these animals. Consequently the production value must be calculated partly as an assumption of the subsistence production and partly based on the registered slaughterings and estimated stock increases.

The total animal production estimate amounts to \$6.7 mn of which a substantial part is considered as reared and consumed in subsistence economy households.

Products to the value of \$2.6 mn - have been calculated as being reared under such circumstances that miscellaneous non-sector input has been included in the value of the animals.

Livestock and poultry production = slaughtered	
plus stock increase	
Cattle	110
Buffaloes	380
Pigs - commercial	3 745
ulu	615
Poultry	755
Eggs	1 090
	<hr/>
Total production market value	6 695
<u>less</u> trade margin assessed at 25 per cent	1 675
	<hr/>
Produces value	5 020
<u>less</u> miscellaneous inputs assessed at 20 per cent of	
2 600	640
	<hr/>
Total VA	4 380
	<hr/>

III.2.8 Other Agricultural Products

Products not specified above include; subsistence farming/other than padi and livestock, the growing of vegetables as cash crops and the income from the collection of illipe nuts.

The value of the illipe nut production can be taken as the entire exports recorded because no nuts are processed locally but the problems concerning the outlet port complicates the calculations.

Other products from the agricultural sector are estimated on market reports and consumption surveys. The VA is calculated as follows:-

	Thousand dollars
Other agriculture production	
illipe nuts	100
miscellaneous	<u>400</u>
<u>less</u> miscellaneous input and trading margin	500
(15 per cent)	<u>75</u>
Total VA	<u>425</u>

III.3 FORESTRY

The forestry industry, the most important in the Study Area and in Sarawak, is estimated to contribute almost 35 per cent of the GRP, but because of inconsistencies between different statistical sources, a certain reservation as to the accuracy of the figures should be observed.

The calculated VA in the forestry sector was limited to the logging industry while further processing was treated under the manufacturing industries. The value of production was estimated for locally processed timber and for export logs; only 10 to 15 per cent is processed locally while the rest was exported. The transport costs for the export logs were calculated on the basis of estimated standard costs for rafting, towing etc. Deductions were made from the production value of input costs of tractors, machinery, fuel and construction, which are not of forestry origin. The VA calculations are:-

Forestry	Thousand dollars
Market value of log input in sawn timber	4 000
<u>less</u> transport to sawmills	275
	<hr/> 3 725
f.o.b. value of logs exported	84 000
	<hr/> 87 725
<u>less</u> input, fuel, machinery etc.	6 900
<u>less</u> 10 per cent to wholesalers and export agents	8 885
<u>less</u> transport to shipside	5 600
<u>less</u> royalties, duties etc.	4 450
	<hr/> 62 000

III.4 FISHERY

III.4.1 Fresh Water

The VA of the fresh water fish production is based on the estimated number and size of fish ponds in the Study Area and estimates of the number of rural population employed in full or part-time river fishery.

The estimated total number of ponds was 1 292 covering 110.5 acres. With an average output of 2 000 katis per acre per year and a price of \$2.00 per kati, the value of production was estimated at \$440 000. The value of river fishery was estimated at \$160 000.

The VA of pond-construction was calculated using several cost analyses for specific ponds in Sarawak.

	Thousand dollars
Fish production total value	600
<u>less</u> trade margin (15 per cent of 440 000)	<u>65</u>
Produce value	535
<u>plus</u> construction of ponds (estimated at \$5 000 per acre - \$1 000 per acre materials)	<u>55</u>
Total VA (fresh water fish)	<u>590</u>

III.4.2 Sea

The production value of the sea fishery was based on the reports for fish landed in Miri and Bintulu (the figures are not considered reliable, but are the only ones available), and the sales-price information (which is extremely detailed and thus considerably facilitates the calculation).

Inputs have been estimated at 30 per cent of production value following to investigations of the raw materials used including nets, fuel etc. The VA calculations are:-

	Thousand dollars
Sea fishery production market value	2 960
<u>less</u> marketing (15 per cent)	<u>440</u>
Production value	2 520
<u>less</u> inputs petrol, gear	<u>705</u>
Total VA sea fishery	<u>1 815</u>

III.5 MINING

III.5.1 Glass Sand

The value of production of glass sand in 1970 has been estimated at \$30 000. However, since the mining-licence was issued in 1969 no regular production has taken place and only a minor part of the production has

actually been traded. The VA is estimated as follows:-

	Thousand dollars
Glass sand production	30
<u>less</u> input and royalties	<u>10</u>
Total VA glass sand	<u>20</u>

III.5.2 Quarry

The production of stone from quarries in the Study Area has been a major input in the local road construction work. The value of the production has been calculated based on information on output from the quarries and the ton-price accepted by PWD for local road material. The production input is mainly fuel and machinery for the quarry equipment.

	Thousand dollars
Quarries production	465
<u>less</u> input (10 per cent)	<u>45</u>
Total VA quarries	<u>420</u>

III.5.3 Oil

The evaluation of the economic role of oil production in the Study Area is split between the mining sector and the manufacturing sector. Consequently only the exploration part of the oil-industry is treated here while the refining industry is considered under manufacturing industries.

The production value of oil exploitation was based on official production and trade statistics. It is well known that costs and prices within the oil trade are settled as internal accounting units, thus the value quoted does not necessarily reflect real economic values. However, this was the only information available, and the VA estimates have been calculated accordingly.

The input/output ratio in the oil exploitation process is hard to estimate, but an overwhelming part of the input is imported, hence a deduction of 20 per cent from production value has been made. This corresponds to experiences in other oil producing countries but might be a slight under-estimation here because the off-shore drilling is normally considered to be more costly in both exploration

and exploitation phases than corresponding on-shore operations. The VA calculations are:-

	Thousand dollars
Oil production value	37 800
<u>less</u> input (20 per cent)	<u>7 560</u>
Oil VA	<u>30 240</u>
Total VA mining (glass sand, quarrying and oil)	<u>30 680</u>

III.6 MANUFACTURING

The analysis of the manufacturing sector is mainly based on 1968 and 1969 information from the Statistical Department's survey of manufacturing industries though complementary information has been obtained, which has made a 1970 estimate possible.

In 1970 in the Study Area, there were 58 manufacturing establishments with more than five workers, and 236 with less than five workers. Although the registration of industries may be incomplete it has been the sole basis for the calculated production figures in the manufacturing industries. This amounts to a total of \$188 860 000. The total input amounts to \$156 690 000, being a net output value of \$32 170 000 which is considered equal to the VA. Of this the petro-chemical industry accounts for 78 per cent and the wood manufacturing for almost 12 per cent. Details of output and labour for the specific industries is shown in Table III.1.

III.7 CONSTRUCTION

The calculations of the production value of the building and construction sector was based on the Construction Survey 1970 carried out by the Department of Statistics in Kuching. The value-added in this sector consists partly of the value of work done by principal contractors and partly of that work done by sub-contractors. Because this operates both ways, that is parts of the works of principal contracts are carried out by sub-contractors, a certain risk of double-counting exists. In 1970, 52 enterprises were registered in the construction industries, but the present VA estimates are based on the output of only 37 firms because the remainder did not carry out any contract work in 1970.

The VA is calculated on the assumption that all raw materials are created outside the construction sector and that these would be either

imported or accounted for in other sub-sectors. Of the total production in the construction sector only 18 per cent was carried out for the public sector, while the remaining 82 per cent was private contracted work. PWD work has been treated under the public sectors. The impact of construction work for the oil industry is not clear; it seems, however, as if most of the extensive construction work in connection with drilling operations is done outside Sarawak. The VA calculations are:-

Construction	Thousand dollars
Value of work done	4 255
<u>less</u> materials consumed and other inputs	<u>2 330</u>
Total VA of production	<u>1 925</u>

III.8 PUBLIC UTILITIES

The production of electricity and drinking water was carried out by both the public and the private sector in the Study Area. The Public Works Department is responsible for both construction and operation of drinking water facilities, while electricity is produced by the para-state-organisation Sarawak Electricity Supply Corporation. At the same time, Sarawak Shell Berhad (SSB) has constructed its own water and electricity supplies to certain parts of Miri, and these double distribution net works have, to some extent, prevented an optimal utilisation of the public plants.

Gas is supplied to Miri District Council (MDC) by SSB at a reasonably low cost because no other use than local consumption could be found for this by-product of the oil industry.

The values of production of water and power from the public plants have been evaluated at their accounted cost price, while the SSB production for public use has been accounted at the price which SSB sells to MDC. Input calculations were based on SESCO figures and a general 15 per cent reduction of the production value.

TABLE III.1 MANUFACTURING INDUSTRIES

Manufacturing industries	Number of establishments	Value of output		Value of materials consumed and work done by others	Net value of output = VA		Unpaid workers (1)		Paid workers		Salaries, wages, bonuses, etc.
		Thousand dollars	Per cent		Full-time	Part-time	Full-time	Part-time	Thousand dollars		
										Thousand dollars	
Food	136	2 714	2.5	1 902	812	82	2	207	-	327	
Clothing and footwear	47	708	1.2	330	378	47	-	47	-	85	
Wood	18	8 221	11.5	4 542	3 679	-	-	908	1	2 129	
Furniture and fixtures	18	540	0.8	297	243	22	-	63	-	146	
Rubber	3	68	-	43	25	2	-	3	-	10	
Petro-chemical	1	172 378	78.3	147 170	25 209	-	-	648	-	5 247	
Non-metallic minerals except petroleum	4	172	0.2	96	76	2	2	33	-	38	
Metal products	7	277	0.3	173	104	2	-	47	-	58	
Transport equipment	17	1 878	2.6	1 043	835	9	-	226	-	578	
Others	43	1 903	2.5	1 908	806	41	-	136	3	313	
Total	294	188 860	100.0	156 694	32 166	207	4	2 318	4	8 931	

Note (1) Proprietors, members of proprietors household etc.

VA calculations were:-

Electricity + water + gas	Thousand dollars
SESCO units sold at value	1 205
<u>less</u> input (fuel etc.)	<u>160</u>
SESCO VA	1 045
Shell electricity production for Lutong (refining + household) + gas delivery Miri	3 100
PWD water production value	105
<u>less</u> input (15 per cent)	<u>15</u>
PWD water VA	<u>90</u>
Total VA	<u>4 235</u>

III.9 TRANSPORT AND COMMUNICATION

Only the river/sea and the land modes of transport are considered here. Regional air traffic is not considered relevant in this connection.

While the VA has been calculated for all river traffic the sea-traffic has had to be largely omitted because statistics on the subject are extremely unreliable. However, this is not particularly serious because a major part of the inter-regional sea trade is carried out by non-Study Area enterprises. The information on river and road-transport is also unreliable but the VA has been calculated using sample surveys of the total trade and the calculated operating costs.

The calculations were divided into timber transport and other transport because information on the heavy log traffic can be obtained with greater accuracy; the sources and outflow of timber are known and the quantities recorded by both the Forestry and Statistical Departments.

Communication is dealt with in accordance with methods usually applied to the public administration sector. The product value of communication is difficult to evaluate but the salaries and wages paid to communication personnel within the Study Area have been used as a calculation basis. According to West Malaysian experiences the ratio between wages and total VA is 1:1.65 and this ratio has been applied in the calculations.

Transport and communication		thousand dollars
<u>Transport</u>		
launch and tug operations	4 215	
land transport - timber	675	
other	1 200	
		<hr/>
Transport VA		6 090
<u>Communication</u>		
Telegram and postal service salaries and wages paid		650
Ratio of VA to wages 1:1.65		
Communication VA		1 075
		<hr/>
Total sector VA		7 165
		<hr/>

III.10 TRADE

There is usually considerable uncertainty in the calculation of the VA in the trade sector, because the different statistical sources are either not comparable or are non-existent and trade in the Study Area is no exception. However, the present calculations of trade VA were carried out in accordance with the methods prescribed by the West Malaysian Economic Planning Unit (EPU) using information obtained from foreign trade statistics, custom duties and interviews with informed persons on trade margins. Often the quality of the information was not good and the figures should be considered with reservation.

The VA calculations were split into foreign and domestic trade. The foreign trade is easily evaluated from the external trade statistics. There are, however, still problems concerning the transshipment ports through which considerable quantities of import goods are brought via ports outside the Study Area; these movements of goods are not locally recorded and estimates have had to be made. A further division in the VA calculations was made to separate the wholesale and wholesale-retail trades because trade margins vary considerably between the two kinds of trade. The margins have been assessed partly on EPU estimates and partly on local surveys but the figures used were themselves averaged estimates because the variations even within specific trade lines are substantial.

The domestic trade was estimated on the basis of the production within all primary sectors of the economy and by reducing the total product figures by the estimated self-consumption. The quantities of traded goods were estimated but re-trading through several links of middlemen has not been evaluated.

The problems concerning the specific chinese-launch-trade is difficult to assess because trade margins might cover both trade, transport and financing aspects of "launch-economy".

Trade	Thousand dollars
<u>Import - export, wholesale</u>	
Exports excluding oil products	96 000
<u>less export duties</u>	<u>4 450</u>
	91 650
Assessing trade margin at 7 per cent (0.07 x 91 650)	6 415
Imports excluding oil products	<u>58 000</u>
Assessing trade margin at 5 per cent (0.05 x 58 000)	2 900
<u>less inputs assessed at 25 per cent</u>	<u>2 330</u>
	<u>570</u>
Total foreign trade VA	6 985
<u>Import-retail</u>	
Retail on imports assessed trade margin at 10 per cent (58 000 + 2 900) 0.10	<u>6 090</u>
<u>Wholesale and retail of marketed domestic products</u>	
Agricultural product - crops	7 765
livestock	<u>4 300</u>
Total product	12 065
Assuming 70 per cent self-consumption the traded agricultural product is	3 620
fishery product is	2 705
Assuming 25 per cent self-consumption the trade value is	2 025
Manufacturing:	
Value of manufacturing production (excluding oil-refining)	16 480
<u>less exports</u>	6 400
Value of manufactured product for domestic market	<u>10 080</u>
Total domestic marketed production	15 725
Assessed domestic product trade margin 20 per cent mark-up on domestic products (15 725 x 0.20)	3 145
mark-up on total domestic trade (3 145 + 6 090)	9 235
<u>less input (general costs) assessed at 18 per cent</u>	<u>1 600</u>
Domestic trade VA	7 575
Foreign trade VA	<u>6 985</u>
Total trade VA	<u>14 560</u>

III.11 BANKING AND INSURANCE

Only rough calculation of the VA in the financial sector can be undertaken because data are usually not accessible, and the method of calculation must vary with the sources available. The VA could perhaps be estimated as the sum of wages and other income generated in the sector, but to calculate this would require detailed information and the knowledge of the VA on the wage-plus-service-ratio in the sector. Because these are difficult to obtain another method has been used.

The basis for this VA estimate was the interest margins in the financial sector. This information was collected from relevant companies in the sector regarding outstanding loans, advances, investments and deposits. It was then adjusted after comparison with the existing interest structure to obtain a final VA figure.

Because the total deposits in all the financial institutions studied greatly exceeded the loans and overdrafts an alternative investment calculation at alternative interests was applied.

Banking and insurance	Thousand dollars
Banking, assessed VA based on the calculated interest marginals	2 640
Insurance, assess VA based on amounts of property insured (x 0.001)	150
Total VA banking and insurance	<u>2 790</u>

III.12 OWNERSHIP OF DWELLING

Local data were not available for the calculation of the value of ownerships of dwellings. For reason the VA of this sector has been estimated on the basis of the Sarawak-calculations carried out by the Department of Statistics in Kuala Lumpur.

To obtain an estimate for the Study Area the Sarawak figure has been related to:-

- a) the population; and
- b) the GDP of all other sectors than the mentioned, whereby an estimate has been arrived at.

Ownership of Dwelling ("O of D")

VA of ownership of dwelling is estimated on the basis of the estimates for Sarawak as a whole (1970 = \$45 mn).

The Study Area (SA) estimates are:-

The ratio total population in Study Area to total population in Sarawak ($\frac{115}{975} = 0.12$) modified by the ratio (GDP - "O of D" of SA)

(GDP - "O of D" of Sarawak) ($\frac{190}{839} = 0.23$)

That is total VA of "O of D" = \$8 100.

III.13 PUBLIC ADMINISTRATION

The calculation of the VA of the public administration sector is based on the amount of personal emoluments paid to civil servants and other public employees in the Study Area.

From this calculation civil servants employed with Education, Health Departments and Post and Telecommunication have been excluded as they are elsewhere accounted for.

The assessed VA on the wage-ratio was adopted from the EPU estimates on West Malaysian VA ratios.

Public administration	Thousand dollars
Total personal emoluments in Fourth Division excluding Education, Health and Post and Telecommunication	2 925
Assessed ratio VA to personal emoluments 1.22, VA in public administration $1.22 \times 2 925$	<u>3 570</u>

III.14 OTHER SERVICES

The ratios between VA and wages and/or expenses in this sector are based on EPU estimates. The information has been obtained locally and can be considered reliable as far as Education, Health and Welfare is concerned.

For the private service sectors the figures are less reliable because some figures are calculated from the number of shops and persons employed, while others are arrived at by sample surveys.

Services

Thousand dollars

<u>Education</u> public expenses excluding investments	1 050
Private expenses excluding investments	2 245
	<hr/>
	3 295
Ratio : expenses : VA estimated at 1:1.1 VA	
= 3 295 x 1.1	3 625
<u>Health and Welfare</u>	
Health public expenses excluding investment and materials	1 210
Welfare	015
	<hr/>
Ratio expenses : VA estimated at 1:1.2 VA	
= 1 225 x 1.2	1 470
Health, private: doctors and dentists VA	100
<u>Other services</u>	
Religious, recreational business etc.	1 500
Personal (barbers, restaurants, entertainment etc.)	3 400
	<hr/>
Total VA services	10 095
	<hr/>

IV.1 TYPES OF REVENUES COLLECTED BY FEDERALDEPARTMENTS

IV.1.1 INLAND REVENUE

1.1.1 Corporation Profits Tax

1.1.2 Business Profits Tax

1.1.3 Salaries Tax

IV.1.2 ROYAL CUSTOMS AND EXCISE

1.2.1 Export duties on rubber, pepper and others.

1.2.2 Import duties on spirits and wines, textiles and apparels, tobaccos and cigarettes, liquors, sugar and others.

1.2.3 Other Charges such as:

a) Overtime charges.

b) Storage rent and transshipment fees.

c) Compounding fee.

d) Fines and forfeiture.

e) Sales of customs farms.

f) Sales of customs tariff book.

g) Certificate of landing fee.

h) Sales of confiscated goods.

i) Port clearance fee.

j) Miscellaneous fee.

1.2.4 Excise duties.

1.2.5 Export duties on timber, and forest produce.

1.2.6 Import duties on petroleum products and excise duties on petroleum products.

1.2.7 Warehouse license fees.

IV.1.3 MARINE

1.3.1 Earnings of government launch.

1.3.2 Earnings from landing craft.

1.3.3 Earnings of stone carriers.

1.3.4 Miscellaneous fees.

1.3.5 License fees.

1.3.6 Wharf rent.

1.3.7 Stamp fees.

1.3.8 Contribution from buoys and lights seconded staff.

IV.1.4 TELECOMMUNICATION

- 1.4.1 Telephone trunk calls.
- 1.4.2 Telephone rental.
- 1.4.3 Telegram charges.
- 1.4.4 Telegraphic address.
- 1.4.5 Radio licences.
- 1.4.6 Maintenance charges of exchange sets and also repairs.
- 1.4.7 Telex services to private persons.
- 1.4.8 Licences on telex services operated by firms such as Malaysia Airline System, Shell, Tractor Malaysia etc.

IV.1.5 POSTAL SERVICES

- 1.5.1 Stamp sales.
- 1.5.2 Commission on services rendered to employees provident fund, social welfare lottery, toto etc.
- 1.5.3 Commission on other services.
- 1.5.4 Charges on private letter services.
- 1.5.5 Post Office Savings Bank operation.

IV.1.6 MEDICAL AND HEALTH

- 1.6.1 Fees and Sales of Medicine:
 - a) Hospital charges.
 - b) Dental charges.
 - c) Miscellaneous charges.
 - d) Out patient departmental charges.

IV.1.7 IMMIGRATION

- 1.7.1 Malaysia passports and other travelling documents fees.
- 1.7.2 Landing permits.

IV.1.8 LABOUR

- 1.8.1 Employment permits.

IV.1.9 EDUCATION

- 1.9.1 Fees from government schools.

IV.1.10 CIVIL AVIATION

- 1.10.1 Airport fee.
- 1.10.2 Landing fee.
- 1.10.3 Night parking fee.
- 1.10.4 Rent charges.

IV.1.11 JUDICIAL

1.11.1 Court fines and forfeitures.

1.11.2 Court fees.

The following is a quotation from the Constitution of Malaysia:

IV.2 TENTH SCHEDULE GRANTS AND SOURCES OF REVENUE ASSIGNED TO STATES

IV.2.1 PART I : CAPITATION GRANT

1.(1) The Capitation Grant payable to each State in respect of a financial year shall be at the following rates:

- (a) for the first 50 000 persons at the rate of \$15 per person;
- (b) for the next 200 000 persons at a rate of \$10 per person;
- (c) for the remainder at the rate of \$4 per person

and shall be based on the population of the State as determined at the last census taken before the beginning of the preceding financial year.

IV.2.2 PART II : STATE ROAD GRANT

2. The State Road Grant payable to each of the States of Malaya in respect of a financial year shall be calculated by multiplying -

- (a) the average cost to a State of maintaining a mile of State Road, including the cost of repairing and maintaining any bridges, viaducts or culverts forming part thereof or connected therewith, at the minimum standard determined for State roads in those States by the Federal Government after consultation with the National Finance Council; by
- (b) so much of the mileage of State roads in that State as qualifies for grant.

3. For the purposes of Section 2 the mileage of State Roads in a State shall be taken to be that mileage as on the thirty-first day of December of the basis year, and the average mentioned in paragraph (a) of that section shall be taken to be the average throughout the States of Malaya in the basis year.

4. A length of state road if it is actually maintained by the Public Work Department of the State at or above the minimum standard mentioned in section 2 (a) and a length of any road within the limit of a local authority if such road is certified by the Public Work Department of the State as coming within the qualifying standard and maintained at or above the minimum standard as mentioned in section 2 (a) qualify for grant; except that any length not qualifying for grant in the preceding financial year qualifies for grant only if the Federal Government has agreed to its qualifying.

5. In this part of this Schedule -

- (a) "State Road" means any public road other than a Federal road to which the public has access;
- (b) "basis year" means the financial year beginning two years earlier than the financial year in respect of which the grant is made.

6.(1) The State road grant payable to Sabah or Sarawak Shell, in each of the years 1964 and 1965, be payable at the rate of \$4 500 a mile in respect of a mileage in Sabah of 1,151 miles and in Sarawak of such amount as may be agreed between the Federal and State Governments.

(2) Thereafter section 2 to 5 shall apply to the State road grant so payable with the following modifications:

- (a) the average cost and minimum standard mentioned in section 2 (a) shall be respectively the average in the State and the minimum standard determined for State roads in the State; and
- (b) any length of road maintained by a local authority at the expense of the State shall be treated as maintained by the Public Work Department of the State.

IV.2.3 PART III: SOURCES OF REVENUE ASSIGNED TO STATES

- (1) Revenue from toddy shops.
- (2) Revenue from lands, mines and forests.
- (3) Revenue from licences other than those connected with mechanically propelled vehicles, electrical installations and registration of businesses.
- (4) Entertainments duty.
- (5) Fees in courts other than Federal Courts.
- (6) Fees and receipts in respect of specific Services rendered by Departments of State Governments.
- (7) Revenue of town boards, town Councils, rural boards, local councils and similar local authorities other than -
 - (a) municipalities established under Municipal Ordinance;
 - (b) those town boards, town Councils, rural boards, local councils and similar local authorities which have power under written law to retain their revenues and control the spending thereof.
- (8) Receipts in respect of water supplies, including water rates.
- (9) Rents on State property.

- (10) Interest on State balances.
- (11) Receipts from land Sales and sales of State property.
- (12) Fines and Forfeitures in courts other than Federal Courts.
- (13) Zahat, Fitrah and Bait-ul-Mal and similar Muslim revenue.
- (14) Treasure trove.

IV.2.4 PART IV : SPECIAL GRANTS TO BORNEO STATES

1.(1) In the case of Sarawak a grant of \$5 800,000 in each year.

(2) In the case of Sarawak, a grant of which the amount in 1964 and each of the four following years shall be respectively \$3.5 mn, \$7 mn, \$11.5 mn, \$16 mn, and \$12 mn, and in later years shall be fixed on a review under Article 112D of the Federal Constitution.

2.(1) In the case of Sabah, a grant of an amount equal in each year to two-fifths of the amount by which the net revenue derived by the Federation from Sabah exceeds the net revenue which would have been so derived in the year 1963 if -

- (a) the Malaysia Act had been in operation in that year as in the year 1964; and
- (b) the net revenue for the year 1963 were calculated without regard to any alteration of any tax a fee made on or after Malaysia Day; ("net revenue" meaning for this purpose the revenue which accrues to the Federation, less the amounts received by the State in respect of assignments of that revenue).

3. In either case, for any year before 1974 and, if at the beginning of 1974 the Legislature of the State has power to make laws with respect to the carriage of passengers and goods by land or to mechanically propelled road vehicles, then during the continuance of that power, a grant equal to the cost to the State in the year of the State road transport department.

IV.2.5 PART V : ADDITIONAL SOURCES OF REVENUE ASSIGNED TO BORNEO STATES

(1) Import duty and excise duty on petroleum products.

(2) Export duty on timber and other forest product.

(3) So long as the royalty levied by the State on any mineral chargeable with export duty other than tin (but including mineral oils) does not amount to 10 per cent ad valorem calculated as for export duty, export duty on that mineral on such part of the export duty as makes the total of royalty and duty on exported mineral up to 10 per cent ad valorem so calculated.

(4) In the case of Sabah, so long as medicine and health remains an item in the Concument List and expenses in respect of that item are borne by the State, 30 per cent of all customs revenue other than that in respect of the duties mentioned in Section 1, 2 and 3.

(5) For any year before 1974 and, if at the beginning of 1974 the Legislature of the State has power to make laws with respect to the carriage of passengers and goods by land or with respect to mechanically propelled road vehicles or licenses connected with those vehicles, then during the continuance of that power, fees from such licenses.

(6) For any year before 1974, and if at the beginning of 1974 the Legislature of the State has power to make laws with respect to the registration of mechanically propelled vehicles, then during the continuance of that power, fees from the registration of such vehicles.

(7) State sales taxes.

(8) Fees and dues from ports and harbours other than Federal ports and harbours.

IV.3 TYPES OF REVENUE COLLECTED BY STATE DEPARTMENTS

IV.3.1 PUBLIC WORKS

3.1.1 Bus services.

3.1.2 Ferry services (discontinued).

3.1.3 Public Works Department (PWD).

3.1.4 Water sales.

3.1.5 Gas sales.

3.1.6 On Cost PWD Stores.

3.1.7 Maintenance of service quarters compound.

IV.3.2 LAND AND SURVEY

3.2.1 Preparation fees:

a) Prospecting.

b) Miscellaneous fees.

3.2.2 Rents and Royalties:

a) Land Rents.

b) Mining royalties.

c) Mining rents.

d) Rent on government property.

3.2.3 Annual fees and Service Fees:

a) Map Sales and Survey and Miscellaneous fees.

3.2.4 Land Sales:

a) Premia.

3.2.5 Others:

a) Sales of published maps to government.

b) Sales of published maps to public.

c) Stamp duty.

IV.3.3 AGRICULTURE

3.3.1 Veterinary inspection fees.

3.3.2 Sale of produce.

3.3.3 Miscellaneous.

IV.3.4 FORESTRY

3.4.1 Royalties, premia and other fees.

3.4.2 Timber cess Fund.

IV.3.5 TREASURY

3.5.1 Trades Licensing.

3.5.2 Entertainment Duty.

IV.3.6 MOTOR LICENSING OFFICE

3.6.1 Drivers Licenses.

3.6.2 Automobile Licenses.

IV.3.7 RESIDENTS AND DISTRICT OFFICE

3.7.1 Arms and Ammunition.

3.7.2 Unclaimed deposits.

3.7.3 Commission on deposits.

3.7.4 Commission on remittances.

3.7.5 Native Court fees.

3.7.6 Rest House.

3.7.7 Pawn Farms.

3.7.8 Produce dealers.

3.7.9 Pilgrim Passes.

3.7.10 Native Court (Fines and Forfeitures).

3.7.11 Landing Permit (Ships or Launches).

3.7.12 Registration of births and deaths.

3.7.13 Estate duty.

3.7.14 Lotteries.

3.7.15 Business Registration.

IV.4 SOURCES OF REVENUE OF LOCAL GOVERNMENT

IV.4.1 Road I - General revenue

a) Rates:

- General purposes
- Education
- Road maintenance
- Street lighting
- Scavenging

- Fire fighting
 - Water (stand-pipes)
 - Arroars of rate (for 1965 and early years only)
 - Interest
- b) Market dues
 - c) Slaughter fees
 - d) Weights and measures enforcement
 - e) Pounds charges
 - f) Clinic charges
 - g) Rest house charges
 - h) Library fees
 - i) Income from sports ground
 - j) Rent from staff quarters
 - k) Recovery of staff medical charges
 - l) Sale of water

IV.4.2 Head II - Licences

- a) Vehicles (Other than motor)
- b) Hawkers
- c) Liquor
- d) Entertainment
- e) Shops
- f) Dogs
- g) Storage of Petroleum
- h) Other licensing Provisions

IV.4.3 Head III - Miscellaneous

- a) Provision of Council Services
- b) Sale of Property
- c) Rent from Buildings and Grounds
- d) Hire Fees for Plant and Equipment
- e) Buildings Plans Fees
- f) Costs from Court Proceedings
- g) Other Miscellaneous Revenue

IV.4.4 Head IV - Statutory grants/revenue from government

- a) Payment in lieu of rates:
 - General purposes
 - Education
 - Road maintenance
 - Street lighting
 - Scavenging
 - Fire fighting
- b) Transfer of revenue:
 - Arms licences
 - Rubber dealers
- c) Equalisation grant:
 - General grant
 - Rate-deficiency grant
- d) Education grants-in-aid (recurrent):
 - Recurrent grant to council schools
 - Recurrent grant to other aided schools
 - Part refund of boarding subsidy
 - Part refund of council teacher' superannuation payments
- e) Services to Government:
 - 50 per cent contribution towards general election expenses
 - 50 per cent contribution towards by-election expenses
 - Reimbursement by motor licensing authority
 - Maintenance of grounds
- f) Capital grant to council schools
- g) Other capital grants:
 - Library Books (50 per cent)
 - Library Building Extension (50 per cent)
 - Maternity and Child Health Clinic, Miri Town (50 per cent) (Revote)
- h) Loans towards Capital Expenditure:
 - Educational Purposes
 - Non-Educational Projects

IV.4.5 Head V - Transfer from reserves

- a) Transfer from reserve fund
- b) Transfer from renewals fund
- c) Transfer from pensions account
- d) Transfer from other reserve account

IV.5 SOURCES OF REVENUE FOR STATUTORY BODIES

- 5.1 Sarawak Economic Development Corporation (SEDC)
 - Loan Repayment and interest receivables.
- 5.2 Majlis Amanah Ra'ayat (MARA)
 - Loan Repayment and interest receivables.
- 5.3 Sarawak Electric Supply Corporation (SESCO)
 - Sales of Electricity.
 - Capital Contributions Transfers.
 - Other incomes such as licenses, installation, rents etc.

PUBLIC FINANCE IN THE STUDY AREA

V.1 REVENUE COLLECTION

Several Government Departments and Ministries either State or Federal, Local Government, and Statutory Bodies collect some forms of revenue which either, goes to the State or Federal Treasury or to their own accounts. All figures refer to the Study Area only.

Table V.1.1 AMOUNT OF REVENUE COLLECTED BY FEDERAL DEPARTMENTS

Department	Year	
	1969 \$	1970 \$
Inland Revenue	6 593 642	6 194 920
Customs and Excise	5 455 262	6 238 128
Labour	390	430
Postal Services	298 388	328 666
Education	297 115	308 891
Telecommunications	675 000	794 000
Medical	69 120	78 518
Marine	96 939	101 390
Immigration	81 525	89 372
Ministry of Commerce and Industry	119 071	181 709
Judicial	36 126	47 179
Civil Aviation (Estimated)	174 600	194 000
Total Revenue	13 897 178	14 557 203

Table V.1.2 AMOUNT OF REVENUE COLLECTED BY STATE DEPARTMENTS

Department	Year	
	1969	1970
	\$	\$
Treasury	5 346 636	4 222 870
Land and Survey	1 013 790	1 029 081
Forestry	9 487 900	9 129 233
Agriculture	5 571	8 014
Public Works	470 840	469 975
Motor Licensing Office	477 035	512 550
Total Revenue	<u>16 801 772</u>	<u>15 371 723</u>

Table V.1.3 AMOUNT OF REVENUE COLLECTED BY LOCAL GOVERNMENT

District Councils	Year	
	1969	1970
	\$	\$
Miri	1 584 575	1 689 575
Subis	342 347	458 444
Baram	939 869	1 008 305
Bintulu	702 269	802 450
	<u>3 569 060</u>	<u>3 958 774</u>

Table V.1.4 AMOUNT OF REVENUE COLLECTED BY STATUTORY BODIES

Statutory Bodies	Year	
	1969	1970
	\$	\$
Sarawak Economic Development Corporation	148 734	19 418
Sarawak Electric Supply Corporation	1 459 755	1 474 430
Majlis Amanah Ra'ayat	16 340	19 126
	<u>1 624 829</u>	<u>1 582 974</u>

V.2 DISTRIBUTION OF REVENUE

V.2.1 Contribution to Federal Government:

The revenue collected by the Federal Departments does not totally go to the Federal Consolidated Revenue Account. Some of these departments also collect revenue for the State Government. So the revenue collection by the Federal Department and State Department has to be adjusted in order to see how much goes to the Federal Government.

	1969	1970
	\$	\$
Revenue collected by Federal Department	13 897 178	14 557 203
<u>Less:</u> Amount accrued to State Government	1 583 157	1 645 132
Amount to Federal Government	12 314 021	12 912 071
Add: Amount collected by State Departments	96 185	181 709
Total Amount of Revenue accrued to Federal Government	12 410 206	13 093 780

V.2.2 Contribution to State Government:

The State Department not only collects revenue for the State Government but also for the Federal Government. Some Federal Departments also collect revenue for the State. Revenue accrued to the State Government is shown by the following adjustment:

	1969	1970
	\$	\$
Revenue collected by State Departments	16 801 772	15 371 728
<u>Less:</u> Amount accrued to Federal Government	96 185	181 709
Amount to State Government	16 705 587	15 190 019
<u>Add:</u> Amount collected by Federal Departments	1 583 157	1 645 132
Total Amount to State Governments	18 288 744	16 835 151

V.2.3 Revenue accruing to Local Government Treasury:

The Local Councils are collecting some revenues, which go to their own treasury, from their own districts. Besides, the grants from State and Federal Government are also their sources of revenue. These grants are actually expenditures of the Federal and State Departments which require the Local Councils to perform certain functions. In this way, adjustment has also to be made to the revenues of Local Councils.

	1969	1970
	\$	\$
Total Revenues of Local Councils	3 569 060	3 958 774
Less: Grants For:	2 726 755	2 956 667
1) Ordinary Expenditure	2 570 848	2 804 838
2) Development Expenditure	155 907	151 829
Actual Real Revenue of Councils	842 305	1 002 107

V.2.4 Revenue to Statutory Authorities:

Their revenues are derived from their commercial activities.

	1969	1970
	\$	\$
Total Revenue	1 624 829	1 582 974

V.3 EXPENDITURE:

The expenditure paid by Federal and State Departments is financed out of the Federal and State Consolidated Revenue Account, for Local Government out of the revenues it receives, and for the Statutory Bodies out of their revolving funds, loans or grants from State or Federal Government. Expenditure here includes the Ordinary, which embraces recurrent, non-recurrent, and special, and development expenditures.

Table V.3.1 FEDERAL DEPARTMENTS EXPENDITURE IN \$

Department	1969			1970		
	Ordinary	Development	Total	Ordinary	Development	Total
Labour	27 358	-	27 358	42 193	-	42 193
Telecommunications	522 000	490 000	1 012 000	650 000	920 000	1 570 000
Fishery	7 712	31 716	39 428	6 779	31 762	38 541
Postal	141 802	-	141 802	149 090	-	149 090
Marine	172 247	-	172 247	158 861	-	158 861
Medical	956 545	176 412	1 132 957	1 062 388	148 405	1 210 793
Malaysian Information Services	109 943	2 534	112 477	124 924	-	124 924
Inland Revenue	53 500	-	53 500	64 500	-	64 500
Ministry of Commerce and Industry	137 242	-	137 242	202 248	-	202 248
Education	2 979 920	384 524	3 364 444	3 294 960	262 655	3 557 615
Civil Aviation	234 000	63 000	297 000	260 000	70 000	330 000
Customs and Excise	248 915	-	248 915	269 817	-	269 817
Immigration	39 975	-	39 975	45 070	-	45 070
Judicial	40 715	-	40 715	38 910	-	38 910
Co-operative Development	72 333	-	72 333	67 284	-	67 284
	<u>5 744 207</u>	<u>1 148 186</u>	<u>6 892 393</u>	<u>6 437 024</u>	<u>1 432 822</u>	<u>7 869 846</u>

Table V.3.2 STATE DEPARTMENTS EXPENDITURE IN \$

	1969			1970		
	Ordinary	Development	Total	Ordinary	Development	Total
Agriculture	495 992	1 143 092	1 639 084	499 546	651 585 ⁽¹⁾	1 151 131
Treasury	33 834	-	33 834	34 161	-	34 161
Public Works	4 066 660	6 361 738	10 428 398	4 351 538	5 538 862	9 890 400
Welfare	57 309	-	57 309	45 142	-	45 142
Land and Survey	713 937	64 509	778 446	751 378	75 276	826 654
Residents and Development Office	374 235	176 848	551 083	411 959	135 785	547 744
Forestry	253 843	23 495	277 338	503 001	9 392	512 393
Ministry of Local Government	604 535	-	604 535	713 611	-	713 611
Drainage and Irrigation	46 662	116 313	162 975	55 762	98 514	154 276
Land Transport	13 884	-	13 884	13 990	-	13 990
Motor Licensing	10 570	-	10 570	8 705	-	8 705
	<u>6 671 461</u>	<u>7 885 995</u>	<u>14 557 456</u>	<u>7 388 793</u>	<u>6 509 414</u>	<u>13 898 207</u>

NOTE:- (1) Does not include Subsidy on Fertiliser.

Table V.3.3 LOCAL GOVERNMENTS EXPENDITURE IN \$

	1969			1970		
	Ordinary	Development	Total	Ordinary	Development	Total
Miri District	1 494 187	112 051	1 606 238	1 549 092	126 393	1 675 485
Baram District	856 238	110 353	966 591	892 901	65 786	958 687
Subis District	311 020	80 233	391 253	340 390	63 952	404 342
Bintulu District	686 776	39 950	726 726	722 604	44 631	767 235
	<u>3 348 221</u>	<u>342 587</u>	<u>3 690 808</u>	<u>3 504 987</u>	<u>300 762</u>	<u>3 805 749</u>
<u>Less: 1) Ministry of Local</u>						
Government Contribution	465 487	33 306	498 793	560 652	34 643	595 295
2) Education Department						
Grants	2 105 361	122 601	2 227 962	2 244 186	117 186	2 361 372
	<u>2 570 848</u>	<u>155 907</u>	<u>2 726 755</u>	<u>2 804 838</u>	<u>151 829</u>	<u>2 956 667</u>
Real Expenditure of Local Councils	<u>777 373</u>	<u>186 680</u>	<u>964 053</u>	<u>700 149</u>	<u>148 933</u>	<u>849 082</u>

Table V.3.4 STATUTORY BODIES EXPENDITURE IN DOLLARS

	1969			1970		
	Ordinary	Development	Total	Ordinary	Development	Total
Sarawak Economic Development Corporation	26 852	739 741	766 593	27 657	774 846	802 503
Sarawak Electric Supply Corporation	1 025 255	1 060 430	2 085 685	1 018 237	1 202 560	2 220 797
Mejlis Amanah Ra'ayat	<u>22 200</u>	<u>179 200</u>	<u>201 400</u>	<u>22 200</u>	<u>42 800</u>	<u>65 000</u>
	<u>1 074 307</u>	<u>1 979 371</u>	<u>3 053 678</u>	<u>1 068 094</u>	<u>2 020 206</u>	<u>3 088 300</u>

V.4. COMPARISON OF REVENUE AND EXPENDITURE IN STUDY AREA⁽¹⁾

Table V.4.1 Federal Government

	<u>1969</u> \$	<u>1970</u> \$	Growth per cent
Revenue	12 410 206	13 093 780	5.5
Expenditure	6 892 393	7 869 846	14.18
Surplus/(Deficit)	5 517 813	5 223 934	-

NOTE:- (1) Figures do not include Expenditure on Armed Forces, Police, Prisons, Civil Defence.

Table V.4.2 State Government

	<u>1969</u> \$	<u>1970</u> \$	Growth per cent
Revenue	18 288 744	16 835 151	-18.7
Expenditure	14 557 456	13 898 207	-14.53
Surplus/(Deficit)	3 731 288	2 936 944	

Table V.4.3 Local Government

	<u>1969</u> \$	<u>1970</u> \$	Growth per cent
Revenue	842 305	1 002 107	18.97
Expenditure	964 053	849 082	-11.93
Surplus/(Deficit)	(121 748)	153 025	

Table V.4.4 Statutory Bodies

	<u>1969</u> \$	<u>1970</u> \$	Growth per cent
Revenue	1 624 829	1 582 974	- 2.58
Expenditure	3 053 678	3 088 300	1.13
Surplus/(Deficit)	(1 428 849)	(1 505 326)	

Table V.4.5 SUMMARY

	<u>1969</u> \$	<u>1970</u> \$	Growth per cent
Revenue from Study Area	33 166 084	32 514 012	- 2
Expenditure in Study Area	25 467 580	25 705 435	.93
	<u>7 698 504</u>	<u>6 808 577</u>	

Table V.4.5.1 Summary of Ordinary Expenditure

Institutions	<u>1969</u> \$	<u>1970</u> \$	Growth per cent
Federal Department	5 744 207	6 437 024	12.06
State Department	6 671 461	7 388 793	10.75
Local Government	777 373	700 149	- 9.94
Statutory Bodies	1 074 307	1 068 094	- .58
	<u>14 267 348</u>	<u>15 594 060</u>	

Table V.4.5.2 Summary of Development Expenditure

Institutions	<u>1969</u> \$	<u>1970</u> \$	Growth per cent
Federal Departments	1 148 186	1 432 822	24.79
State Departments	7 885 995	6 509 414	-17.46
Local Government	186 680	148 933	-20.22
Statutory Bodies	1 979 371	2 020 206	2.06
<u>TOTAL:</u>	<u>11 200 232</u>	<u>10 111 375</u>	

GLOSSARY

The Meaning Given to Land Categories in the
Miri Bintulu Study Reports

FOREST RESERVES

Permanent forest gazetted as reserves. They are under the control of the Forest Department and will normally be productive forests, destined to be the principal permanent sources of the country's supplies of timber and other forest produce.

PROTECTED FORESTS

Permanent forests under the control of the Forest Department but in which wide rights are permitted to the people of Sarawak to take forest produce for their own domestic use.

COMMUNAL FORESTS

Permanent forests under the control of the local Administration and set aside to provide the domestic needs of a settled community.

CURRENTLY LICENCED**EXPLOITABLE FORESTS**

Forests, other than those included under Reserves, Protected and Communal Forests for which current exploitation licences have been issued.

CURRENTLY LICENCED**REMNANT FORESTS**

Forests, other than those included under Reserves, Protected and Communal Forests in which licenced exploitation has been completed.

MIXED ZONE LAND

Land within an area demarcated by Government in which people of all races in Sarawak can obtain land under title.

NATIVE AREA LAND

Land within an area demarcated by Government in which only natives of Sarawak can obtain land under title or native customary rights established legally.

NATIVE CUSTOMARY LAND

Land, on which before the promulgation of the Land Code in 1954, rights of usage had been established under native law and custom. In fact there is no accurate record of the boundaries of such land. For planning purposes this category is taken to be represented by the areas shown as "area of Shifting Cultivation" in the Government of Sarawak map Series T735 Scale 1:50,000 and based on aerial photography of 1963-64.

TITLED LAND

Land held under title in either of the categories Mixed Zone or Native Area Land.

INTERIOR AREA LAND

Land not included under any of the previous categories. It belongs to the State.

STATE LAND

Land over which the State legally holds complete control; including Forest Reserves, Protected Forest, Currently Licenced Forests, and parts not held under title within Mixed Zone, Native Area, and Interior Area Land.

UNENCUMBERED STATE LAND

State Land which has not yet been committed to a permanent use; in effect this category consists of Currently Licenced Forests, and parts not held under title within Mixed Zone, Native Area and Interior Area Land.

DIPTEROCARP HILL FORESTS
OR
HILL FORESTS

Those forest areas which are on mountainous, hilly, undulating or flat land which is not peat swamp, estuarine or alluvial swamp.

SWAMP FOREST OR PEAT
SWAMP FORESTS

Those forests which are growing on peat, estuarine or alluvial swamps.

APPENDIX VII

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