

The Tiulon Youth Resettlement Scheme:

A review for agricultural land use optimisation



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**SLUSE field report
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Preface and Acknowledgment

This report is presented to SLUSE in partial fulfilment of the thematic course: 'Interdisciplinary Land Use Natural Resources Management. The team of authors comprises: John Nkansah Darko (a Ghanaian agronomist from KVL), Morten Sverdrup (a Dane economist from KU), Julijus Ambrazevicius (a Lithuanian forester from KVL) and Keosothea Nou (a Cambodian agronomist from KVL).

The fieldwork was undertaken in conjunction with a team of 6 Malaysian students from UNIMAS in October 2001. it was to study the unsuccessful Youth Resettlement Scheme in Tiulon under sub district of Sook, district of Keningau, of the State of Sabah, Malaysia. The rest of the work was undertaken here in Denmark at the campuses and libraries of the Royal Veterinary and Agricultural University, the University of Copenhagen, Roskilde University Center, the Royal Library, and the library of Centre for Development Research.

The authors are grateful to SLUSE for a successful organization of the programme. Special thanks is reserved for our lecturers and supervisors:, Dr. Ole Mertz, PhD student Tina Svan Hansen and Dr. Quentin Gausset for their guidance onto a successful work. Also to our Malaysian counterparts: Sinimis Angelica Suimin, Laurence Engkamat, Jopen Anak Abut, Mimi Sophia Sarbandi, Glen NG Chi Boon, Amelia Lee and our interpreters, Sceilla Simbih and Afandy we say TEREMAKASE for your sound cooperation their interpretations, translations and good company. Our local link man and guide, Gailius we say thank you for being our eyes. To all the settlers in Rancangan Belia Tiulon, we really appreciate your cooperation and warm reception.

Copenhagen, December 2001

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Abstract

Resettlement schemes were a major part of developing rural areas and eradicate poverty in Malaysia. The projects were started in the 60's, and some were established in Sabah by the Ministry of Culture, Youth and sports. A resettlement scheme was established, with young bachelors near Kenningau, in Tiulon. The agricultural activity was cocoa, but because of pest attacks and low prices, the government abandoned the scheme.

The settlers stayed in the area and did not experience a major decrease in living standards, compared to cocoa scheme period. They found other crops, but agricultural activities are now not well organised, and they do not benefit from the advantage of scale production. It is evaluated whether the small-scale farmers should revive the high-risk cocoa production and under which circumstances. Intercropping with cocoa and other types of plants is suggested.

1.0 Introduction

In many parts of the world, state-sponsored land development and settlement schemes have been a prominent feature in rural development. Cramb (1992) asserted this fact and listed as examples, the Netherlands East Indies where Javanese peasants were resettled in the outer island, and in the pre-colonial states in Southeast Asia, where organised pioneer agricultural resettlements have featured prominently. According to the source above, such approach to rural development has emerged with problems which can be grouped under three headings: (1) implementation problems, or failure to achieve physical and economic goals, generally attributed to “inadequate planning and management”; (2) social problems, including reduced health and nutritional status of the settlers, the breakdown of traditional cultures and social structures, the failure to create viable new societies, and the adverse impact on indigenous populations, often leading to conflict between settlers and local inhabitants; (3) environmental problems, including deforestation, soil erosion, weed infestation, declining yields, and poor maintenance or abandonment of lots.

The Malaysian government through the Federal Land Development Authority (FELDA), initiated land settlement schemes for rural development. In these schemes, selected elements of plantation system were used (Chew et. al., 1995). In the Malaysian state of Sabah, similar projects were carried out. The Sabah Land Development Board mostly carried them out, but some was implemented by the Ministry of Culture, Youth and Sport.

The report is organised into seven chapters. Chapter one constitutes the introductory chapter; while in chapter two introduce the study area. In the third chapter, the various methods used for the study are described. Various literature are reviewed on definitions and concepts about issues relevant to the topic of this study in chapter four, while the results are presented and analysed in chapter five. Chapter six contains the discussions of the methods and the findings of the study, and the last chapter deals with the conclusions drawn from the study.

1.1 Background to the study

The Tiulon Youth Settlement Scheme emerged in the 1970s, as a Sabah government initiative for young dynamic families between the age of 18-30 (at least, of primary six education) from all over the state. The aim was to provide land and job for single youths and to reduce rural-urban migration. It was accordingly, placed under the management of the Culture and Youth and Youth and Sports Ministry to establish about 330 acres of cocoa plantations. The scheme involved about 260 families and 1,200 people were given a loan of RM 30,000

inclusive of housing and land development. Each family was required to work on the 10 acres of land given to produce cocoa. Of the 10 acre plots, they were restricted to the use of 2 acres for orchard and rice planting. The cocoa plantation-settlement scheme was divided into 5 blocks, namely Block A, B, C, D and E respectively (SLUSE-M, 2001).

The cocoa cultivation was severely attacked by cocoa moth. This affected the crop yield in 1982 and the scheme was later abandoned in 1987, when the government stopped its assistance to the scheme following the fall of the cocoa market price.

As reported by SLUSE-M (2001), there has been a impact of insecurity amongst the settlers as well as the participating farmers as they could not mortgage or sell their lands, which are still owned by the government, according to SLUSE background information. The titles of their lands are specifically for the cultivation of cocoa, which prevent the development for other land uses. Moreover, the land cannot be sold as long as the debt to the government has not been repaid. Many of the settlers have stayed in the area and survive on smallholder agriculture (some have tried coffee, yam, fruit trees, passion fruit) and off-farm work. Others have returned to their village of origin, but maintain farming activities on their land in the scheme through share-cropping.

Given the background above, the following questions come to mind, that:

1. Are the issues of crop protection problems and price instability the sole attributes to failure of the cocoa scheme in the area?
2. Can the following issues be contributing factors to this failure?
 - Institutional (land tenure, political, social, etc.) and organisational defects
 - The constraints of physical and human environment
 - Inappropriate farming and agronomic practices
 - Lethargic attitude on the part of farmers, to cocoa production as a result of a better alternative (in economic sense) agricultural activity to which they invest their resources

1.2 Objectives

This study was thus undertaken against the background outlined above, with the overall aim to optimise cocoa production and other agricultural land-use forms for the development of the area. The specific aims were;

1. To investigate and evaluate the direct/indirect causes including the physical and human environment, of the unsuccessful cocoa scheme

2. To study the socio-economic impact of the scheme on the resettlement area
3. To identify opportunities via evaluation of the agronomic and economic potential for the various alternatives, for renewal agricultural development in the area
4. To examine and propose an optimum agricultural land use options for the settlers in Tiulon.

2.0 Introduction to the study area

The study area is located in Sook in the district of Keningau. It is in the interior division of Sabah (Figures 1 & 2), about 170 km to the southeast of Kota Kinabalu, the state capital. The district is estimated to cover an area of about 353,282 ha. It consist mostly, of steep mountains ranges separated by intermountain alluvial plains. Agriculture and forestry are the main economic activities in the district.

2.1 Overview of concepts relevant to the study

Conflict over land use is a fact that cannot be over emphasis. The FAO (1993) Guideline for Land-Use Planning acknowledges this fact and attributes it to the issue of limited availability of land compare to the grater demand for it. Such demands include its use for; arable land, forestry, wildlife, tourism and urban development are concerned. This consideration underscores the importance of the need for land use planning, as it involves many stakes of interests. This chapter therefore, takes a look at a review of relevant concepts and theories especially regarding the physical and socio-economic aspects, to serve as a background for the assertion of the various interests. Topics outlined in this chapter includes; the geography of Sabah and the study area (Sook), socio-economic background of the area, development and agricultural policies of Sabah, planning and management of plantation scheme projects, and an overview of plantation crops and environmental suitability.

2.2 Sabah

With many people living under the poverty line, the rural development of Sabah was given new directions with the Second Malaysian Plan (1971-75). With agriculture's major role in the rural economy, agricultural development became synonymous with rural development. (Sutton & McMorro) Four broad rural development policy approaches were adopted:

1. large-scale settlement schemes
2. in-situ development
3. Agricultural support services
4. Development of plantation estates

Scale economy was the idea for settlement schemes. Intensify the land use by providing the settlers with technical assistance and give marketing assistance the settlers could grow new and higher valued crops, than they previously could obtain with traditional small scale subsistence farming. Also the possibilities of owning land would prevent farmers from practice shifting cropping, which was a cause of deforestation. (Sutton & McMorro w)

To carry out land reform programmes in Sabah, several authorities played a role. FELDA has established schemes on 181,209 hectares of land in Sabah, but since FELDA is federal, the state government of Sabah carries out its own development programmes through the major state agency like, SLDB, Sabah Land Development Board. Other settlement schemes was carried out by Sabah Forestry Development Authority (SAFODA), Sabah Rubber Fund Board and State Ministry of Culture, Youth and Sports (MCSY). How the balance and priority is between FELDA and the state organisations is a little bit unclear. Mostly rubber and palm oil has been preferred in settlement schemes, but also cocoa is planted in schemes. The schemes were organised in different ways and the degree of centralised control differs.

The results of the impact evaluations of the settlement schemes are very diverse. Some studies found that the reason for the participating in the scheme was to own land and secure employment. The overall conclusion was that the settlers experienced a increase in income, but also a high increase in expenditures. Generally the schemes all over Malaysia are evaluated as being successful. (Niels Fold, 2000)

According to Sutton and McMorro w 1998, the schemes in Sabah did not succeed so well. In 1993 only nine of FELDA's sixty-two schemes had settlers, and here only 1,697 households stayed. Their conclusion was that the schemes had been abandoned because of lack of interest for the rural Sabahan to the settlement scheme approach. In the 1990's social policies of settlement schemes had largely been abandoned.

The Youth and Sports ministry implemented some resettlement schemes. These were established on an experimental basis, and should eradicate poverty and prevent youth of seeking in to the urban areas of Sabah. Among these experimental schemes is Tiulon.

2.2.1 Sabah development policy.

In 1999 the government launched the outlines for the Second Sabah Agricultural Policy (1999-2010). The new development policy of Sabah was formed after the financial crisis the country faces. Sabah government would plan to substitute food import with home production of food crops, and also make the agricultural sector able to compete on export markets. This has to be done due to intensification of agricultural sector. It is an integrated part of the policy to improve the efficiency and productivity of cocoa growth.

The Sabah state still calculate that the objectives of Malaysia plan Vision 2020 will be achieved, but in year 2000 the GDP, was decreasing with 1,3%, which is connected to the general economic crisis in Asia, which started in 1997.

2.3 Geography of Study Area

Sabah has a wide coastal area and is surrounded by the South China Sea and the Palawan Thrust at the northwest, the Celebes Sea at the southeast and the Sulu Sea at the east. Inland, Sabah is bordered by Sarawak to the southwest and Kalimantan (Indonesian Borneo) on its southern part. Sabah covers an area of 73,600 km² at the northern part of Borneo. The complexity of the region's geology is a result of the active tectonism from surrounding areas since Mesozoic era. (about 70 millions years to 220 millions years ago). Parent materials of the soils found in Sabah consists of coralline limestone, beach deposits, and alluvium (recent, subrecent and old); sedimentary rocks (shales, mudstone and sandstone); igneous rocks (intermediate, basic and ultrabasic); and volcanic rocks.

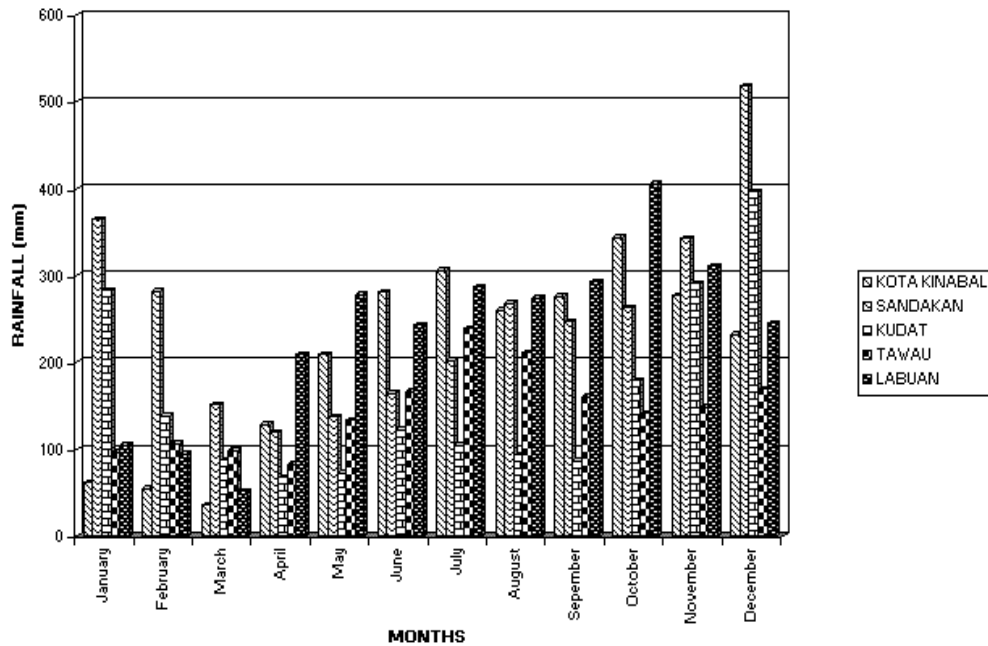
2.3.1 Climate

Sabah experiences a typical equatorial climate, with constant temperature, considerable amount of rain and high humidity. The two prevailing monsoons in Sabah, which characterize the climate in this region, are the Northeast Monsoon and the Southwest Monsoon. Northeast Monsoon predominates the months between November and March, whereas the Southwest Monsoon prevails during the months of May to September. There are also two successive inter-monsoons; April to May and September to October. According to source (<http://www.iczm.sabah.gov.my/>) the average of the monthly mean temperature values from 1990 to 1997 ranged between 26°C and 28°C in all the stations in Sabah. The relative humidity in Sabah is fairly high and constant throughout the year.

2.3.2 Rainfall distribution

Sabah receives a substantial amount of rainfall as recorded at the meteorological stations. This region is greatly influenced by two monsoon seasons. According to that rainfall distribution is not constant through the year. Figure1 shows monthly variations of rainfall in 5 Sabah's metrological stations (1990-1997).

Figure:1 MONTHLY MEAN RAINFALL 1990 - 1997 (mm) FOR KOTA KINABALU, SANDAKAN, KUDAT, TAWAU & LABUAN



Source (<http://www.iczm.sabah.gov.my/>)

The relatively wetter months were between December and January. This coincided with the Northeast Monsoon that usually prevails between November and March. Geographical variability: the same figure shows that most of the stations received a similar and substantial amount of rain, except for Tawau.

2.3.3 Soils

Soil mapping in Malaysia is carried out by Department of Agriculture according to pedological properties. The FAO-UNESCO soil classification system is used in Sabah. There were found 13 soil group, 39 soil units and 102 soil families. Two secondary sources give this information: soils in Peninsular Malaysia belong to six orders: Entisols, Inceptisols, Spodosols, Ultisols, Oxisols and Histosols (1990). Soils of Borneo belong to these orders: Oxisols, Spodosols, Histosols, Alfisols, Entisols. According to this source: the soils in this

particular area, where field trip was conducted belong to Ultisols order Hanne (Christensen and Ole Mertz, 1990).

2.4 Cocoa prices

All producers in open economies depend upon the world price, which determines the their earnings. World prices fluctuate very much, and especially prices for primary commodities. Here selected maximum price fluctuations are shown for following commodities, which are relevant for Tiulon:

Rice: 99,5% Cocoa: 137,2% Palm Oil: 73,0% Rubber: 100,5%

The price fluctuations are based on free market prices from the period 1980 – 1998 (source: UNCTAD: Handbook of statistics 2000, page 52). Then the maximum fluctuation is calculated by dividing the highest price with the lowest. The calculated fluctuations are just indicators, but with 18years they should have some validity.

From here it can be seen that cocoa is the unstable price. This was also mentioned in the interview with Malaysian Cocoa Board. This is over a long period, but it fluctuates very much very fast. From November 2000 to February 2001 the price increased 68,9%, but declined from February to June 2001 with 44,2% (Source: Malaysian Cocoa Monitor Vol. 10, No. 1, June 2001)

Local prices moves in tandem with world prices, so cocoa farmers face a high degree of uncertainty when planning future crops and earnings.

2.5 Planning and management Land use and Plantation Schemes

Land use can be defined as a series of activities undertaken to produce one or more goods or services. This definition provides a basis for precise and quantitative economic and environmental impact analysis and permits precise distinction between land uses if required (FAO, 1998). To optimize any Land use option, Egger & Marjeres, 1992 opines the importance of the influences by various factors such as, the types of social regulations and environmental characteristics, as well as the choice of technology and techniques which shape the production system (Egger & Marjeres, 1992). Quiet apart from these considerations, the government and private sectors with their vast knowledge, expertise and financial capabilities are instrumental for the success of land development in rural areas. Another consideration for

the sustainability of land use scheme is the influence by people's participation, skills, knowledge, market fluctuation, land tenure, financial planning and accessibility. It is therefore imperative that land use optimization planning takes into accounts the stakes of the various contributing factors is made.

Contrary to this, Cramb (1992) attributed the growing popularity of land development and settlement schemes to the fact that such schemes serve mostly, the interest of the initiators who include; politicians, bureaucrats, donor agencies and businessmen. Thus for a example, governmental response to the problem of land development and settlement schemes has scarcely been to question their suitability as an approach to rural development. Such responses have rather been often, attempts to rectify the problems through what the source described as, "better planning and management", and have mostly created job avenues for other groups such as social workers and technical expertise rather than the rural settlers.

According to Cramb, if such schemes are to achieve their ostensible aim of giving rise to viable social and economic communities, they must encourage participation and entrepreneurship by individuals and groups. De Kononck and McTaggart (1987), also see this as been incompatible with the actual aims of the government agents responsible for promoting these schemes. Rather, such agents see the most successful settler communities as those in which the entrepreneurial freedom of action of the settlers has been sharply curtailed, a situation the source describes as settlement projects, which are more centrally, directed work camps. Curry and Wiess (2000) and also Logical Framework Approach outline a series of stages in project planning process which among which the need to identify stakeholders interest has been emphasized.

3.0 Methodology

To full fill our objectives we needed to use a broad set of methods that could give us the overview of the situation. And an interdisciplinary approach was therefore necessary. This demand was met by the composition of the group: comprising 7 disciplines and 5 nationalities, students coming from Denmark universities (KVL; KU) and Malaysia (UNIMAS), representing 9 ethnicities and almost as much backgrounds.

To reach our objectives both social and natural sciences methods were used. These methods were organised and used in a strategic FAO framework described by Davidson (1992) as the parallel approach to land evaluation projects. In this approach, both aspects of qualitative and

quantitative assertions of land and land use relationships, and economic and social analysis proceed concurrently. The alternative is the two-stage approach in which; an economic and social analysis may have followed on from a qualitative land classification. It must be pointed out that the quantitative aspect of the land and land use assertion in this study was relatively, limited by inadequacy of time and equipment.

Objectives were formulated from given background information (SLUSE-M, 2001) and this led to the identification of the needed information. This step revealed the need for substantial socio-economic and background information. Some secondary data were therefore reviewed, basically on relevant topics in connection with our objectives. Thus, general ideas about the subject under study were gathered that led to the formulation insightful questions in line with what is prescribed by Cooper, 1984; Yin (2nd Ed.).

The main methods used for the socio-economic information were semi-structured interview and questionnaire. The questionnaire was used to gather quantitative as well as qualitative data on the socio-economic situation of the scheme in a form that makes statistical analysis easier. The semi-structured interview was to allow for deeper probing about the issues under study, and thus it was designed to have mostly, open-ended questions. Both groups from Malaysia and Denmark agreed the designed of the semi-structured interview and questionnaire on. They were modified after the pre-testing, which showed some weaknesses. From the existing households of 156 (as opposed the 260 households and 1200 population, 47 households were sampled for the questionnaire and the interviews administrations, from the formulae and the calculations base on Luck et. al. (1987), as follows;

$$S = \frac{S_o}{1 + S_o/N}$$

Formula $S_o = \frac{(Z)(Z) \times pq}{(e)(e)}$

$$S_o = \text{XXXXXX}$$

$$S = \text{sample size}$$

$$N = \text{population (households)}$$

$$p = \text{population ratio 0.5}$$

$$q = (1-p) \text{ or } 0.5$$

$$e = 0.1$$

$$Z = \text{level of significance } 1.625$$

With,

$$\text{So } = \frac{(1.625)(1.625) \times (0.5)(0.5)}{(0.1)(0.1)}$$

$$= 66$$

Thus in this study where $N = 156$

$$S = \frac{66}{1 + (66/156)}$$

= 46.38 Thus, approximated value of 47 households were selected.

Selection of the households was done randomly using cluster or block sampling design and the random digits table. In this study, the approach also involved some aspects of both probability and non-probability categories of sampling designs. The choice of the cluster approach was facilitated by the block or batch settlement nature of the scheme as described in the introductory chapter. Thus the formula was applied to each block and the sum of the outcomes culminated into the total sampled size as shown in the table below. This approach was to minimize possible error due to representatively.

Table: Sample frame

Block	No. of selected households
A	11
B	11
C	11
D	11
E	4
Total	47

In each household, the head of the household was considered for the answering of the questionnaire and for the interviewed. The questionnaires were distributed among settlers during the interviews and gathered after few days.

Two interpreters were hired by SLUSE for the group. Thus, the questionnaires and semi-structured interview guides were translated into Malay, after which the response was translated back to English. The Malaysian counterparts most of whom could speak the local language facilitated the translation process. It must be pointed out the use of interpreters must have influenced of a great deal, the response and for that matter the results. This is inferred from the some inconsistencies detected in the responses during the analysis of the results, especially, in the declaration of the household incomes and the perception of the respondents on socio-economic issues. This also posed the problem of some difficulties in keying in and analyzing the results. More in relation to validity, it was assumed that settlers would be able to estimate their income and expenditure as their selection to participate in the scheme was based on at least, primary six level of education. Also, the inconsistency detected reflected some inaccuracies in the questions formulated. Nevertheless, the effect as a result of these, on the validity of the results is however minimized by the use of different methods in soliciting mostly information on a particular issue and sometimes cross checks by the Malaysian counterparts.

Data collected from the use of the questionnaire and interview guides were analyzed using the SPSS (Statistical Package for the Social Sciences, Version 10.0). Further analysis using Descriptive Statistical approach involving means, percentages, frequencies, etc., were carried out and presented in the next chapter.

Other source of information was key informants interviews. This included: an ex-official of the settlement scheme who is back to post recently, after 10 years absence; a guide for the field observation and transect activities who is one of the early settlers in the scheme; and personnel from some organizations related to the scheme including- the District Officer (Sook office), Department of Agriculture, Ministry of Culture, Youth and Sports, and the Land and Survey Department.

Participant observation and non-formal interviews were carried during such activities including attending; the local Catholic Church services and meeting afterwards, community work, invitations to individual settlers dinners, farewell party, visiting local market and community meetings.

To reach our objectives that touch physical characteristics of the resettlement scheme, the following methods were used: transect, field observation and walk, collections of local flora, local insect, appraisal of local fauna, traps for pests of cocoa, GPS points were taken. From this, the types of land use and form (to a very minimum extent), soil as well as the existing and current activities undertaken in the scheme area were determined.

The transect was cut along 60° through 2 sections. Along the transects were established sampling points at 1km intervals where: 10 x 10m plots were demarcated within which the above ground biomass was determined through - identification and counting of different vegetation, and measurements of DBH and tree heights above 10m; within this plot was then located by random choice, a 1 x 1m quadrant for the ground litter biomass determination. This was done through the collection of ground litter (leaves, twigs, seedlings). The ground litter so collected was air dried later at the base camp for further lab analysis. There were also the activities of soil sampling from; 0 - 15, 15 - 30, and 30 - 50cm depths for auger description and pit profile by manual excavation for pit soil description. Further analysis were undertaken in the lab to determine - texture, structure, water content, density and porosity, pH, cation exchange capacity (CEC), base saturation and nutrient contents of the various soils sampled. The soil had been checked during transect and walk according to changes of covering vegetation in case to find different types of soil. In consideration to findings of transect it was decided to dig 4 pit profiles.

Some of the equipment used in these exercises included - GPS, measuring tape, tagging, soil auger, plastic bags and containers, spade, labels, nylon strings, camera, soil ponder, pH meter and NPK test kits. References to topographic, geological and soil maps of Sabah also supported the activities. It must be pointed out due to limited time for the submission, the report does not include findings of the details laboratory analysis. Hence, most of the assertions made in the report are based on analysis of the physical appraisals.

The main activities undertaken for the determination of the existing fauna and floral were herbarium and collection. These were done manually, within the transect plots, with the insect collection been supplemented by pest traps especially, insects traps during the nights for the identification of existing pest, especially of the cocoa moth. References were also made to literature review and classification manuals to facilitate the various identification exercises. Field observation was carried through transect and other activities: going for interviews,

driving around. Location of the households and the demarcations for the field surveys were carried out under the guidance of key informants.

Some of the equipment used in these exercises included - GPS, measuring tape, tagging, soil auger, plastic bags and containers, spade, labels, nylon strings, camera, soil ponder, pH meter and NPK test kits. It must be pointed here that, the compass and the binocular developed faults on the field and this explains why not enough could be recorded on certain features, land forms for example.

It was realised that, findings from the field observations and transect activities could have been boosted by the inclusion of aerial photographs or satellite images of the area. Also the last 0.5 km of the transect was rain off, and on many occasions there was poor coverage of the GPS due to cloud and vegetation cover. The clinometers could not functioned and so certain reading like tree heights had to be estimate from an initial measurement of one through climbing. Also time could not permit us to have consulted enough to include GPS readings in the report.

Results from the study

4.0 Physical features as revealed by the study

The physical features recorded during the transect activities (see Appendix 5) and field observations include the topography, geology and water bodies, vegetation and some fauna, land use forms, and boundaries.

Topographically, the area of resettlement scheme can be described as being generally flat, with isolated undulations and swaps. The exact slopes and positions of the undulations and swaps could not be measured due to failure of the clinometers to work and most of the times, poor coverage of the GPS due to shading from existing vegetation and cloudiness of the sky.

Three streams were found in the area: Benouva, Masaroi, tributary of Masaroi.

Four pit profiles were dug, according to the noticed different types of soil during the transect. As circumstances went bad and we couldn't get any data from lab about fertility, suitability, taxonometry. From few data available (pictures, descriptions of profiles (Appendix 2)) and with assistance of pr. Hans Christian Bruun Hansen, we can say about soils following:

Profile number 1 is particular (see picture 3). Shallow: horizon C starts in the depth of 32cm. Water table at 32-35 cm depth. Material below horizon C is very hard, not possible to penetrate through for water; there are no roots in it. Ph at this profile is rather low: 4,39-5,77. According to the document we were exposed and our findings show that this type of soil is suitable for cocoa, but suit for other agricultural activities (pasture or crops with shallow roots: pine apple, yam). From the background information (Appendix 4) is known that there was a pasture in this particular area. It was found covered by thick ferns and bushes.

Profile number 2,3,4 (see pictures 4,5,6) are rather similar: soils are well aerated; ph varies - 4,71-5,31; they have some clay – water capacity is not bad; some roots were found deep (profiles 2 and 3 have roots at depth of 70cm, profile number 4 has roots in depth of 1m): soils are quite deep, according to that we think that these soils are moderate to moderate-fertile. According to findings and Kalpagne, 1979 - they suit cocoa and rubber and fruit trees.

4.1 State of plantation

Plantation was planned to have 5 blocks (A, B, C, D, E). As we found out only blocks A, B, C,D were developed. Block E was started, but wasn't developed till end. (Appendix 5)

Some boundaries between blocks are quite abandoned: they are covered with thick vegetation and we wouldn't be able to find them without help of guide.

From informal sources appeared: that plants were hybrids, that hybrids are more attacked by moth. Cover ('Leguminosae' family) crops were planted. They infected cocoa trees with fungi diseases. We were told that it was possible to harvest 800kg of fruits a month.

At the moment cocoa trees are not maintained. It was obvious that pruning was done long time ago; branches are too dense; trees are too high (about 10m). Some trees were pruned, but also insufficiently. We didn't use any method to find the age of cocoa trees, but is possible to conclude: trees were planted when the scheme was started in 1974. That means the trees are at least 20 years old. The plot areas usually are not clean from vegetation; some cocoa trees are covered with lianas, there were wild trees up till 12m high.

It was possible to see that fungi diseases and pests (insect and rodents) still damage cocoa fruits (see picture 1) According to farmers cocoa moth attacked fruits since the beginning. The cocoa moth was not caught, but the abandoned cocoa trees were affected by pest (larvae in the pod) and the black pod disease; the settlers were inadequately informed on identification of cocoa moth as the insect they caught for us was actually a beneficial insect (Order Neuroptera). Rodents that attack cocoa fruits are from *Rattus* sp.; the ones were caught – 'Tupaia glis' (see picture 2).

This secondary forest had thick undergrowths dominated by the weed *Odorata chomolina*. The *dominant land use forms* as revealed along the transect lines were: ex-cocoa scheme at the moment intercropped with rubber trees. Rubber trees were planted after some cocoa trees were cut down. The quantity of planted rubber trees varies from farmer to farmer: some have cut all cocoa trees, some intercropped them with cocoa, others stopped to maintain the cocoa trees, in one plot even rubber trees weren't maintained. These who planted rubber used such scheme: 4m in the row and 3.5m between rows. We were told that farmers started to plant rubber trees few years after cocoa moth attack (1984). That varies from farmer to farmer.

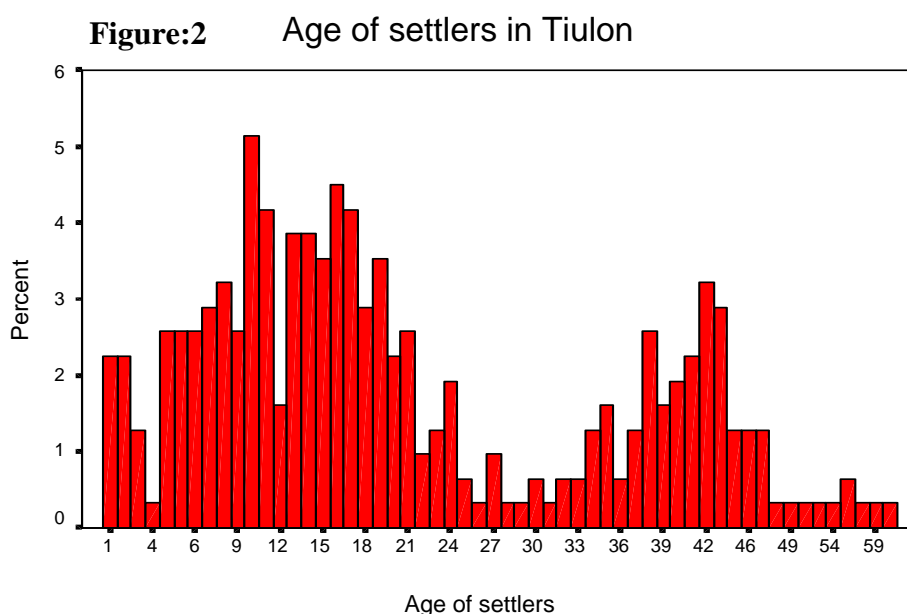
Food crop cultivation mainly, taro which was locally identified as yam, upland and to a lesser extent, wet paddy, and some fruit tree crops. The yam and upland cultivations were mainly "encroached" undertaken on shifting cultivation basis, on the 8-acre fields, which was earmarked for the cocoa cultivation. The wet paddy cultivation was limited to the isolated swampy portions while the fruit tree crops were mainly found together with some vegetables, in the home gardens.

4.2 Demographic description of Tiulon.

The Tiulon scheme was originally planned for 260 households, but now only 156 remained. The settlers mostly came from outside Kenningau district but with in division. This part was 61,4%. 25% came from within Kenningau district. 62,2% joined the cocoa scheme even though they owned land at the place from which they emigrated. They have mostly stayed in the Tiulon scheme for 16 years and more. The reason for join the scheme was all most only to join the cocoa scheme 93,2%. The settlers were originally bachelors, but most of the bachelors was now married and had children. The age of the settlers, which started as emigrating bachelors to Tiulon is now from 34 years to 62. 34.2% are in the age of 41 to 43 years old.

Children dominate the population of Tiulon, which has the share of 67.4% of the population. It has to be noticed that questionnaires asked for the number of children in the household, but some of these may not be present in the scheme, since they are studying in high schools or working outside the scheme.

The design of the scheme can be seen on age structure of the Tiulon population. Two peaks appear, which clearly shows that the population consists of two generations (See fig.2). This could be an indicator of the settlement schemes potentials, since the new generation is the basis of a new workforce, which could run the settlement scheme after the originally settlers have retired.



The average household have a high fertility, with 56,2% of the households being 7 persons or more, and 67.4% of the population being son or daughter. The households divert from one person to 16 persons.

From informal interviews with governmental persons in the area, we learned that the population of Tiulon was very well educated. They could read, and some, the household heads, could make themselves understandable in English. From questionnaire we found that 19.3% had none education, but this have to be set in context with 11,6% of population being under 5 years. People on 5 and 6 years could be the rest. 77% had high school or only secondary school.

It was confirmed that 43,5 % of the population was students, and was in process of getting education. This could also be a indicator of the cocoa schemes potentials, since educated people have better possibilities to learn how grow technical difficult, but higher valued crops. But it is also a possibility that the educated young people would seek to get a higher degree or a diploma, and leave the scheme for good. In Sabah there is a high rural-urban migration, and this could especially occur with well-educated people.

4.3 Economic activities of Tiulon.

The major occupation, which is not student, is self employment, which occupies 25,4%. Employed in other place is 10,5% of the population. This means that only 35,9% of the population in Tiulon, is working to feed the remaining 64,1%. Remember that 67,4% of population were children, so some children is working to get money to household. Also 4,8% were housewives, and could be working on the farm and earn some informal income, when selling fruits and other small farms. 6,6% had for the last 12 months been paid workers in factories. Out of Schemes work is usually in Sook and Kenningau 30,7%. This could also include students, and they have to go to Kenningau for high school. Only 51,1% had Tiulon as their work place, and only 33,4% were farmers so some must have paid work within Tiulon scheme.

4.3.1 On-farm activities

The remains of the cocoa scheme dominate the types of crops planted, since 51,7% of the respondents still have cocoa on the farm. The most popular crop, which is planted by the settlers them selves, was rubber trees. 29,3% planted this. Paddy also is popular, with 10,3%

It was observed, during transect, that it was very common to grow rubber trees among cocoa trees.

It was found that 84,6% of the crops planted was permanent and that 67,3% of the crops was between 5 and 10 acres. The settlers of Tiulon still grow most of the land with permanent crops and rubber trees.

Cash crops are planted and the crop with highest frequency is pineapple, 30,6%, and tapioca 28,6%. We found that cash crops only was grown on 3 acres and less, for 75,6% of the informants. **From here it can be noticed that the settlers did not respond cocoa or rubber as a cash crop. Information on what they earn from this type of agricultural activity is missing in the questionnaire! This vital part is forgotten in the design of the questionnaire.**

Another source of income was selling of farm produce. It is excess production from food crops. Here 48% sold were fruits and 29% were vegetables. It was mostly sold on the market in Sook.

Also most of the crops are permanent. Organic fertilizers were used with 85,5% of respondents. So even though the government abandoned the scheme, they can effort to by fertilizers themselves.

4.3.2 The household economy.

In the answers given by the respondents according to the economical questions, it is obvious that some confusion about monthly and yearly answers. From answers in questionnaire on income of household, it was shown that, the dominating source was income from monthly paid income. Each of the replying household had an average income of 4464,63RM a year. Earnings from crops were much smaller; this was 553,13RM a year in the household, which replied this question. Earnings from paid income differed from 300RM a year to 12000RM a year, so according to this there should be a very unequal distribution of income in the settlement scheme. The average income of respondents was 5017,75RM a year.

Also expenditures showed a very high degree of variance. Food expenditures differed from 3450RM a year, to 100RM a year. This high degree of variance could again be the result of confusing monthly and yearly expenditures. The average expenditure on food was 701RM a

year per household. The total expenses differed from 255RM to 8808RM. The average expenditures were 2712,1RM a month.

Again a major important part was missing in the design of the questionnaire. The expenditures of fertilizers and pesticides were not integrated into the questions about household expenses.

According to the information's in the questionnaires the households should be able to save 2305,65RM a year.

4.3.3 Problems with household economy

Example of corrections of one respondent's questionnaire, using realistic assumptions:

The household uses 150RM a year on food, but it is given that he buys 40 kg of rice, 6 kg of vegetables, 2 kg of chicken and 8 kg of fish. It is 56 kg of food each month or 672 kg of food each year. So the price is then according to his information:

$150\text{RM}/672\text{kg} = 0,22\text{RM/Kg}$. This does not look realistic, so if we calculate that the informant ment the monthly expenditure instead of yearly it makes more sense:

$(12*150\text{RM})/672\text{Kg} = 2,68\text{RM/Kg}$.

Another case is according to the answers in questionnaires is the dominating source of income that should be from monthly paid employment, which in average was 8 to 10 times higher than sale of agricultural activity. This cannot coexist with answer that

70,8% of the employed part of the population was self-employed. A major source of failures in the household economies is that the average calculations is based on answers given, but a lot informants did not give a answer on certain subjects. Some did not answer at all. This could be for the reason that they did not knew or they did not earn anything on selling from crops.

4.4 Settlers perceptions and our observation of the cocoa scheme.

The settlers were interviewed about the conditions in the scheme now compared to the period during the cocoa scheme.

4.4.1 Infrastructure conditions

In general the settlers had the opinion that conditions were worse now, than during the scheme. 52,2% meant that the water supply now was worse, and 62.3% felt that the power supply was worse. It seemed that there were no water supply in most areas. Households rely on rainwater, streams and gravity fed. If differs between household, and water filters are popular among settlers.

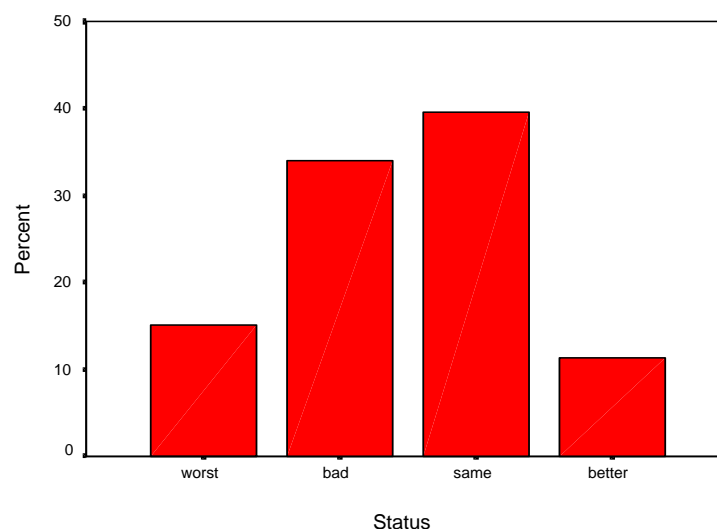
During the cocoa scheme the settlement area was supplied by main generators, which stopped in 1986. Now few settlers have their own generator. Electricity lines are abandoned. That fits with settler's perception that power supply is worse.

The conditions of roads were found in poor condition, but the settlers meant that the conditions were the same now as during the cocoa scheme. Also the settlers evaluated drainage and sanitation, schools, health facilities, recreational facilities, community hall, place of worship to have the same condition now as during the scheme.

4.4.2 Socio Economic conditions

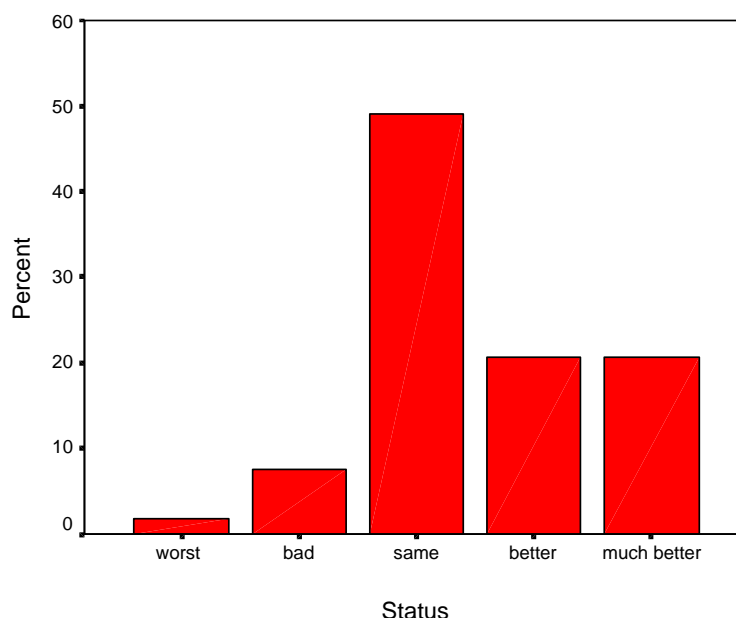
The settlers are divided into two groups on each 50%, when present economic condition is compared to the cocoa scheme period. One of the two groups has a negative attitude towards the economic condition, where as the other (See fig.3) think the economic condition is the same or even better. Even more positive are their perception of the present income compared to cocoa scheme period. 60.4% meant that their income was the same, better or even much better.

Figure: 3 Present economic condition comparing present and during scheme



They are quiet positive to the expectations in 1-2 years time. 41.6% think the economic condition is going to be better or much better in 1-2 years (See fig.4).

Figure: 4 Expectation of settlers in 1-2 years time



The settlers did feel that the cocoa scheme had improved their socio economic status, 67,9%, but it is uncertain if the respondents mean from before they joined the scheme, or from during the cocoa scheme till now. The respondents are divided into two groups on 50% each when they are asked if the cocoa scheme has reduced the poverty level in this village.

4.4.3 Related organisations to scheme

The results of this study reveals as a confirmation of the allegation by SLUES- M, 2001, the attack by the cocoa moth and cocoa price fall as the causes to failure of the scheme. In this, 90% of the settler respondents were of this view and the issue of the devastation nature of the moth attack was also confirmed by the officials of MCI. The later source however added that the attack by the cocoa moth of which outbreak originated from neighbouring Indonesia was a countrywide case and not an isolated case in the scheme area, likewise the issue of price fluctuation not limited to cocoa production only but a prominent characteristic of any agricultural production determined by market forces. Further probe during the semi-structured interviews with the settler respondents also revealed that, the effect of the moth attack was facilitated by the fact that some of their colleges did not strictly, adhere to the chemical crop protection measures prescribed by experts and of which 81% of them made use of as the main

means of protecting their crops against pests. The headman of Tiulon in an informal interview however, was of the view that, settlers using pesticides (*Embush, and Extingeratus*) faced skin irritations and some problems with the lungs. as a result of this health problems, they stop using the pesticides. The settlers (56.6%) were also of the view that, government stop given assistance to the scheme because of the attack by the pest rather than the price fall of which only 5.7% of blamed the government's decision on.

4.4.4 The settler's willingness to revive cocoa scheme

When asked if they are willing to continue the cocoa scheme or it should be replaced, the answers are divided into two groups. 49.1% want to revive the cocoa scheme and 50,9% do not. If the project should be revived, 88,6% revealed that the settlers should be involved during the planning.

When the settlers are directly asked if they are willing to plant cocoa at a larger scale in the future 67,9% replied yes, but on condition of government support. this can be assessed to mean that, their own accord, majority of them would not like to cultivate cocoa.

4.4.5 Land title

One of the reasons for the settlers to participate in the cocoa scheme was to obtain land title. When they are asked: Cocoa scheme allows me to obtain land title, 84,9% agrees or strongly agree. Also according to the questionnaire, the settlers still meant that the land belonged to the cocoa scheme. But from 1998 all of the settlers obtained their land title, but they did not know. This reveals a situation on settler's uncertainty about their status in the scheme.

4.4.6 Attitude towards government

More than half, 60,4%, of the respondents did not feel that the implementation and management of the project reached the expected level. Even though 75,5% of the villagers felt they were well informed and given fullest support to join the project, so here could be a contradiction in the answers from the respondents. But on the other hand they felt that government officers maintained good relations with the villagers. This answer was inspite of 43,4% felt that the government officers did not concern about the project development.

Household interview suggested that the settlers were rather dependent of the scheme 58.5% did not find the allocation of seedling satisfactory, and also they meant that government officers should be the main motivates for the planters.

4.5 Alternative enterprise analysis of common crops in Tiulon

A settler combines inputs/resources, sometimes referred to as production factors to produce rubber, fruit crops, taro, coffee, pineapple, rice, corn and most settlers still have cocoa trees in the farm. The settler may have a fixed amount of land, but vary the amount of fertiliser used. The purpose of this analysis is for the settler to determine which crop will likely prove the most profitable to farm. According to the data available from settlers of Tiulon we use common methods for financial comparison of enterprises in farm business management are by gross margins and cash flow analysis (See appendix 3).

Basically a gross margin for an enterprise is the gross income less the variable costs that are unique to that enterprise. We also exclude fixed costs from cash flow analysis according to information available. These calculations of enterprise analysis of common crops in Tiulon based on only small amount of settlers and depended on their memory. We must admit that we got little information from settlers. In additional we cannot find any agronomy official, extension worker or NGO staff to prove this data. Anyway this analysis is one of the important tools for decision making before farming any crop.

Gross margin analysis of Cocoa for Year 7 only (See appendix for detail)

Land size: 8 acres

Gross income: -Cocoa bean 3000 kg x 0.5MR per kg = 1500 MR	
Input (Variable costs)	
-Fertilizer	490 MR
-Pesticide	180 MR
Total variable costs	676 MR
Gross margin	824MR
Gross margin of cocoa per acre per year is 103 RM	
Gross margin of cocoa per ha per year is 213 RM	

Note: Settler used family labors to carry out work for land preparation, watering, weed control, pest control, loosen soil, harvesting and using on farm price during the scheme.

As prices are very fluctuate, the cocoa settlers were not directly affected with world prices, because of terms in the agreement treaty. From here it was said that: "The settler shall accept the purchase price by the said marketing agency." This price was typically lower than local market prices, and this was a cost to join the scheme.

Gross margin analysis of Cocoa for Year 7 only from Malaysian Cocoa Board

Land size: 2 acres

Gross income: -Cocoa bean	2000 kg x 2 MR per kg	= 4000 MR
Input (Variable costs)		
-Fertilizer	600 MR	
-Pesticide	280 MR	
-Harvesting	400 MR	
Total variable costs		1280 MR
Gross margin		2720MR
Gross margin of cocoa per acre per year is 1360 RM		
Gross margin of cocoa per ha per year is 2810 RM		

Note: Requiring hardworking farmers to do land preparation, watering, weed control, pest control, loosen soil, harvesting and using on farm price during the scheme. Using local market price.

Gross margin analysis of rubber for Year 7 only

Land size: 4.5 acres

Gross income: -Unsmoked rubber	450 kg x 0.9 MR per kg	= 405 MR
Input (Variable costs)		
-Fertilizer	0 MR	
-Pesticide	0 MR	
Total variable costs		0 MR
Gross margin		405MR
Gross margin of rubber per acre per year is 90 RM		
Gross margin of rubber per ha per year is 186 RM		

Note: No labor intensification, family labors used to carry out land preparation and growing, weed control, harvesting with using on farm price.

Gross margin analysis of coffee for Year 7 only

Land size: 5 acres

Gross income: -Cocoa bean	780 kg x 6 MR per kg	= 4680 MR
Input (Variable costs)		
-Fertilizer	1000 MR	
-Pesticide	500 MR	

-Transportation 65 MR	
Total variable costs	1565 MR
Gross margin	3115MR
Gross margin of coffee per acre per year is 623 RM	
Gross margin of coffee per ha per year is 1287 RM	

Gross margin analysis of Durian for Year 7 only

Land size: 1 acre

Gross income: -Durian fruit	2100 kg x 4 MR per kg = 8400 MR
Input (Variable costs)	
-Fertilizer	62 MR
-Pesticide	180 MR
Total variable costs	242 MR
Gross margin	8158MR
Gross margin of durian per acre per year is 8158 RM	
Gross margin of durian per ha per year is 16854 RM	

Note: Requiring hardworking, fertile soil which water source and family labors used to do land preparation, watering, weed control, pest control, loosen soil, harvesting and using on farm price.

Gross margin analysis of Tamarind for Year 7 only

Land size: 1 acre

Gross income: -Tamarind fruit	2400 kg x 0.8 MR per kg = 1920 MR
Input (Variable costs)	
-Fertilizer	62 MR
-Pesticide	180 MR
Total variable costs	242 MR
Gross margin	1678MR
Gross margin of tamarind per acre per year is 1678 RM	
Gross margin of tamarind per ha per year is 3467 RM	

Gross Margin Analysis for Yam Production

Land size: 1 acre (Fertile soil)

	Unit	Amount	Unit	Total	Amount	Unit	Total
			price			price	
Output							
Yam (grade A)	Kg	900	2	1800	800	2	1600
Yam (grade B)	Kg	680	1	680	700	1	700
Yam (grade C)	Kg	450	0,4	180	400	0,4	160
Total output				2660	2460		
Costs (variable costs)							
Yam seedling		3300	0,3	990	3300	0,3	990
Fertilizer	Bag	1	60	60			0
Pesticide	Battle	1	30	30	3	25	75
Herbicide	Battle	1	25	25			0
Total variable costs				1105	1065		
Gross Margin per 6months per acre				1555	1395		

Gross margin of Yam (taro) per acre year is 1555 MR

and other farm is 1395 MR

Gross margin of Yam (taro) per ha year is 3213 MR

and other farm is 2882 MR

Summery of gross margin analysis of common crops in Tiulon

Crop	Gross margin per ha per year	Informant
-Durion	16 854 MR	Settler
-Tamarind	3 467 MR	Settler
-Taro/yam (Theobroma cacao)	3 048 MR	Settler
-Cocoa	2 810 MR	Malaysian Cocoa Board
-Coffee	1 287 MR	Settler
-Cocoa	213 MR	Settler
-Rubber	186 MR	Settler

From the above summery shows positive gross margins. Durian production is the highest gross margin is 16854 MR per ha per year with rubber production is the lowest gross margin

is 186MR per ha per year. Durian crop requires fertile soil, watering, good pest control and labour intensification, and settlers grow rubber like extensive crop.

Tamarind is the second highest gross margin is about in average 3467 MR per ha per year and yam (taro) is average 3048 MR per ha per year and coffee is 1287 MR per ha per year.

We also found out very different gross margins of cocoa between settlers' respondents and Malaysian Cocoa Board informants. The gross margin of cocoa by settlers was only 213 MR per ha per year and the gross margin of cocoa by Malaysian Cocoa Board informant was 2810 MR per ha per year. According to these data, this difference from yields and price of cocoa. We also suspect that some data got from settlers were not so inaccurate because most of settlers abandoned cocoa.

5.0 Discussion

The chapter discusses the socio-economic impact of the scheme on the settlers in the first section, while the second section evaluates the causes of the failure of the scheme as alleged and confirmed by the results of the study. The last section discusses the potential agricultural land use activities of the scheme area and at the end, an evaluation and a proposal of the optimal activities will be made.

5.1 Socio-economic impact of the scheme

When discussing and evaluating the socio-economic impact of the settlement scheme, it has to be put in the context with some success criteria's. Can the cocoa scheme said to be a success, even though the government abandoned it, and despite of lack of governmental resources, most of the settlers still maintained to obtain a life. But according to household questionnaire the present per capita income scheme in Tiulon is 37RM a month. This is almost 10 times below the official Malaysian poverty line on 350RM. If this seemed to be the case, the settlers of Tiulon could be addressed as hard-core poor. This result is mainly affected of the confusions with the questionnaire. The settlers of Tiulon are not hardcore poor, when you look at educational level, food consumption and asset owner ship. One quarter owned a radio, one-fifth owned electric stove and one eight owned TV. Another indicator that they are not hardcore poor is the estimated monthly sales of cash crops. Here 49.1% responded that they earned between 100RM and 300RM a month. From the questionnaires it has been very hard to assess the income. Also it is important to remember that the farms produce much of their own food, so they do not need to spend money on this.

It is argued in the background information from SLUSE, that the settlement scheme was regarded as a failure. Results from household interview revealed, that 60.4% experienced the same or even better income than during the scheme. So the fact that the scheme was abandoned, did not have a great effect on income. Other answers on the economic situation was quiet relaxed in the impact of the abandoned scheme. So from the villagers the scheme did not have any socio economical significant impact. Also only half of the respondents felt that the scheme had reduced the poverty level. Only water supplies and electricity supplies were significant better during the scheme.

The present socioeconomic situation is based upon the structures of the old cocoa scheme, were some organizations still work very well. The school, health clinic, church and similar institutions were established in the scheme. They still function, so it is obvious the access to

these facilities is the same as during the cocoa scheme. Also the fact that the settlers stayed in the scheme, even though they owned land at the place from which they emigrated, suggests some sort of successful impact from the physical establishment of the scheme.

Since the socioeconomic situation in Tiulon is quiet good compared to the cocoa scheme period it is the reason for more than half of the settler do not want to revive the cocoa scheme.

Evaluation of the causes of the failure of the cocoa scheme:

5.2 Direct causes

The attack by the cocoa moth and the issue of price fall as causes to failure of the scheme alleged and confirmed by SLUES - M (2001) and the results of this study respectively can be asserted to be the immediate or direct causes. This assertion may be based on the fact that the drastic reduction in cocoa yields following the devastation of the plantations by the moth attack, and coupled the coincidence of reduction in prices of cocoa, meant that there was little or reduced financial resources to undertake any rehabilitation. Thus, the scheme collapsed followed the discontinue production of the main agricultural land use for which the land was earmarked by the scheme initiators.

Although this study did not assessed the relative effects of the cocoa moth attack in the scheme area compared others, relating the argument above to the facts that cocoa production is still on going in Malaysia and most probably, in areas where the moth attack equally occurred, and the argument of price fluctuation being characteristic of all forms determined by market forces, raises the question of the interest of the participants in the scheme, and another one of the terms of land tenure in the scheme versus the entrepreneurial ability of the settler participants. The issue of the interest of the settler participants also brings to the fore, the questioning of the initial planning and the project implementation and management in the scheme. These issues are considered in relation to the views of Crambs (1992) and Curry and Wiess (2000), and agreed terms of participation as mentioned in chapter of this report, as the indirect or root reasons why the scheme failed are examined in the next section.

5.3 Indirect causes

From the arguments considered in the previous section, the root causes of the failure of the cocoa scheme can be attributed to; poor initial planning, implementation and management of the scheme as a project, and the strict regime of the terms of agreement between the government and the settler. The bases for these assertions are evaluated as follows;

The issue of poor initial planning of the scheme is assessed from the fact of inadequate involvement of the settler group in the planning process of the scheme. This is revealed by the

criteria used for the selection as outlined the background to the scheme (see appendix 4) and agreement between the government and settler, and to a larger extent, by the mode and criteria for asserting the distribution of the cost and benefits. In the later case, the settler was selected mainly on the basis of physic and willingness to stay permanently in return for a daily allowance and free food and accommodation for the first four year, and in expectation land title. Basically from both sources, the settler was to stay and act out the instructions of the government in return for benefits pre-determined by the later. This contradicts LFA (Logical Framework Approach) suggestion to determined main interest of each stakeholder through stakeholder mapping in the context focusing. Without knowing the main interest of the, it follows that the project's viability would not evaluated from the point of view of the settler as key participant of the project as suggested by Curry and Wiess (2000). The status of the settler as enshrined in those project document, can also be described in the words of Cramb, 1992, as working in a more like centrally directed work camp. Thus under the situation of the unknown interest of the settler, in the event of devastation of cocoa plantation, what would he lose and why should he border his thought on rehabilitation, if cocoa is not but land is, according to Cramb, his ostensible aim for participating in the scheme?

Another aspect of the initial planning process which is questionable is the that of project identification, specifically, the assertion of the scale of investment and the main economic and financial resources required to have ensured successful completion of the project It was observed during the transect activities and was explained by the local guide that, the uncompleted allotment and operation of the block E segment was as a result of shortage of fund as the RM 16 million could cater for that. This might no not have any direct or indirect link to failure but a revelation of a situation of poor planning process of the project.

More on the technical side, which have both attributes of the planning process and implantation pitfalls of the scheme, are the questions of; investigating the choice of technology, pest forecasting measures and the issue of control and monitoring the enforcement of crop protection prescriptions. Poor performances in these directions are perceived from the facts of the occurrence of the cocoa moth attack outbreak the respondents complains of the inadherance on the part of some of their colleagues to, and inadequate training in crop protection prescriptions (Curry and Wiess, 2000); Hill and Waller, 1990).

Finally, the issue of the rigidity of the terms of agreement between the government and the settler an indirect cause of the failure of the cocoa scheme is assessed in the light of what De Koninck and McTaggart described as curtailment of the entrepreneurial freedom of the settlers. For example, it can be argued that, the issue of restricting the settler to cultivate cocoa via mono-cropping on 8 acre (3.9ha) plot whilst housing and cultivation of other fruit

and food crops is restricted to 2 acre (0.97ha) out of the total 10 acre (4.8ha) plot per settler, could not allow the settler to have diversify his farming activities to have taken the advantages of intercropping cocoa with other fruit tree and food crops especially, the early stages prior to canopy close of the cocoa, to have optimise returns to the use of his labour and the land. If the settler had had that opportunity, he would have been better off financially, to have taken better pre-cautionary measures to have limited the impact of the cocoa moth attack or, to have been able to rehabilitated the plantation after incidence.

The arguments given above suggest enough room to relate the facts that, poor initial planning and later, implementation and management of the scheme, as well as the rigid terms of agreement between the government and the settlers, are human induced factors that pre-disposed as indirect factors, the scheme to the more environmentally controlled pest outbreak of the moth and market determined price fall of cocoa which led to the unsuccessful scheme.

5.4 Potential agricultural activities in the area

This is evaluated in terms of dominant agricultural land use form of the people, the physical and human resources, the institutional constrain thereof to agricultural production and the economic incentives to the dominant crops in the area.

As revealed by the results of the study, the dominant agricultural land use form in the scheme area included secondary forest with thick undergrowth and rubber plantations with the exception being the fringes of the boundaries between blocks C and D where the dominant vegetation was fern and the soil being shallow by the formation of a hard pan below the C horizon. The soil in the areas under secondary forest and rubber plantation areas were also judged to be dominantly, deep, well-drained clayey loam. Although detailed could not be completed to establish the nutrient status, the luxuriant nature of the existing vegetation coupled with physical attributes of deep, well drained and clayey loam promises good support for most plantation crops. The existing edaphically conditions are supported by a fairly stable climatic condition in terms of temperature and rainfall, which happen to be the most limiting factor for plantation crops. Little wonder the existing rubber plantation and in the portions where remnant of cocoa was found, were looking good even in the face of poor maintenance in terms weed control. Thus rubber, cocoa, coffee, durian, and oil palm among others can be judged to have high production potential as major plantation crops in the area. These assertions are made on the basis of the general soil and climatic condition requirements for these plantation crops Malaysia as described by Kalpage (1979). Another basis for this assertion is the relative positive net returns to investment in the production of the crops in the area revealed in the results analysis of this report. In the case of cocoa, majority of the settler

respondents (67%) expressed their willingness to expand their cultivation of cocoa on condition that government will offer support. The respondents in this category supported their decision by the fact of having the requisite skills as a result of the training they had, for cocoa production. The average age of about 43 years of the respondents also gives an indication of the youthfulness of the labour force for production. For the food crops, yam and paddy rice as were found can also do well in the area.

In this issue of economic return to investment, it must be emphasized that, although positive gross margin were recorded for the crops mentioned, none of them except durian (RM1404 per ha per month) could give enough returns on per acre per month basis using an average of 0.97 ha, which is above RM 350 per month as the minimum wage to be above the poverty level in Malaysia. This will be taken into consideration in the recommendation of the optimum agricultural production for the scheme area. However, the low returns as found might be blame on low productivity as a result of the existing low technology of shifting cultivation for soil fertility restoration for food production, and the poor maintenance cultural practice in the rubber plantation for example. The situation in the rubber plantation can be as a result of the uncertainty on the part of the settlers, of the legality of the rubber cultivation, given the conditionality of cultivating solely, cocoa as was found in the agreement document. The marginal area of infertile and shallow soil can be considered for the cultivation of shallow root crops such as pineapple and some vegetables. These areas can also be developed into pasture fields. This together with the 180-acre (73 ha) land originally demarcated for grazing (appendix...) will promote the integration animal especially ruminant, production in the area.

5.5 Optimal agricultural production for the area

Base on the discussion on the agricultural production potential, the following combinations of activities are recommended for optimal agricultural land use in the scheme area:

- An intercrop of cocoa with durian as plantation farms for the households with secondary forest on their plots whiles those with rubber plantations can maintain them
- Yam production as annual cash crops
- Paddy cultivation and other fruit crops for household consumption and
- Development of the grazing field into a communal pasture.

The basis for the recommendations above are given as follows:

In the case of the cocoa-durian intercrop plantation, cocoa is suggested irrespective of the low net economic returns, for the fact that the environmental conditions in terms of soil and climate and potential labour force favour its cultivation. It must be pointed out that the price

fluctuation factor is still a threat to cocoa production, especially, if one considers the risk aversion nature of small producers. It is more for the question of risk aversion that intercropping is recommended, especially, with durian. Durian is suggested on the merit of its high gross margin as reveal by this report (results section). Yusoff and Denamany (see appendix...) base the recommendation on the canopy compatibility in the combination of the two crops. It is also to take the advantages of higher productivity of land use on the basis of Land Equivalent Ratio as opined by Yussof and Denamany.

On risk reduction basis literature on Integrated Pest Management recommends intercropping compared to monocropping as a means of reducing effect of pest outbreak (Yusoff and Denamany, OECD, 1995)

Yam production as an annual cash crop is considered on the basis of it being a traditional practice among the settlers especially, the women, and for that matter, use can be made of the existing knowledge. The settler farmers will also have the advantage of benefiting from production enhancing package programme in promoting yam production, as announced by the local Department of Agriculture in Sook.

The recommendation of the cultivation of paddy rice and other fruit crops such as tamburin, jackfruit, mangoes and others found in the area, is to ensure the balance between cash crop and food for household consumption. In much the same way, through the establishment of the pasture area, the integration of animal production in the existing practice of dominant crop production will be enhanced and this will avail to advantages of mixedfarming to the settlers. These advantages include the provision of alternative income source and the use of the manure from the animals to improve soil fertility, especially, in the home-gardens. It will also improve household nutrition by boosting the regular supply of meat.

These recommendations are however made subject to the following conditions that:-

1. There is the clarification on the status of the scheme area in terms of an autonomous traditional village or as a “cocoa resettlement scheme”. This is necessary as a means to solve the institutional problem of ownership of the village and to explain the current land tenure status in the scheme area to the settlers. This is suggested base on the desire of the settlers to be autonomous and their uncertainty about the land title they have and thus to clarify what agricultural enterprise they can now undertake. This can be organised through a forum to be participated by all stakeholders to review the status of the scheme.
2. There is role clarification for the related organisations of the scheme and for the community functional groups namely, JKKK, and the various religious bodies. This will

promote communality especially where there is the need to share resources on communal basis.

3. There is the provision and strengthening of the market institutions and infrastructure of the area. In this, the road network needs to be improved and a market place provided to facilitate the marketing of the increased production envisaged to be accrued from the recommendations above.

6.0 Conclusions and recommendations

From the study we can conclude following:

The direct cause of failure of the cocoa scheme was the pest attack. Also the low prices had a negative influence towards the scheme. The indirect causes were found to be poor initial planning, implementation and management of the scheme.

The socio economic impact of the cocoa scheme did not show to have a significant effect on settler's income. The fact that the scheme was established with local infrastructure and land ownership had a great effect on their possibilities to raise their living standards, compared to living out side the scheme as landless.

Judging from physical and human environment, the area has high potential for cocoa, durian, tamarind, paddy, yam and coffee.

The recommendation for optimal agricultural land use option is found to be cocoa intercropped with durian.

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Picture 1:
Damaged cocoa



Picture 1:
Treshrew



Picture 3: Profile 1



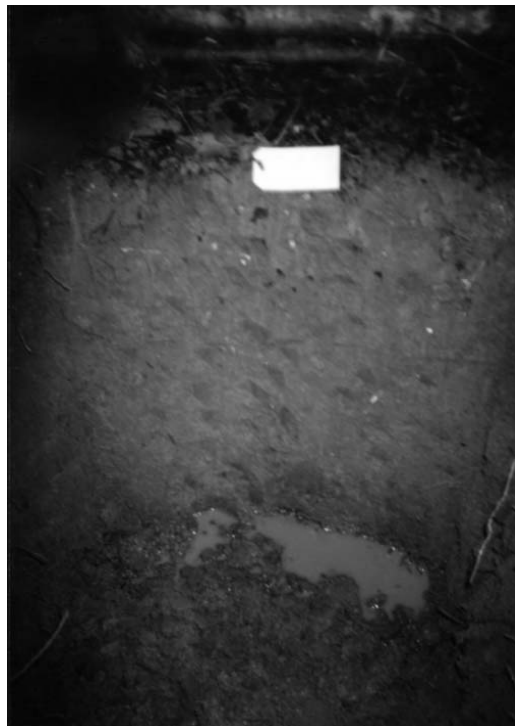
Picture 4: Profile 2



Picture 1: Profile 3



Picture 6: Profile 4



Appendix: 1

HOUSEHOLD QUESTIONNAIRE

Demographic/Socio-Economic

Household Code : _____

Village : _____

Name of Respondent : _____

Status of Respondent : _____
in the Family

Ethnic : _____

Religion : _____

Respondent's Address : _____

1. Information of Household

H/Hold Members	Relationship With the Head of Family 1=Husband 2=Wife 3=Son/ Daughter 4=Father 5=Mother 6=Grand child 7=In-laws 8=Niece/ Nephew	Gender 1=M 2=F	Age	Marital Status 1=Single 2=Married 3=Widower 4=Widow 5=Divorcee	Highest Education Level 1=Sec School 2=SRP 3=SPM 4=STPM 5=Pre-U 6=Diploma 7=Degree 8=None	Status of Occupation 1=Employer 2=Employee 3=Self employment 4=Unpaid worker 5=Housewife 6=Student 7=Not schooling 8=Pensioner 9=Unemployed	Main Occupation in the Past 12 Months 1=Farmer 2=Clerk 3=Factory worker 4=Teacher 5=Labour 6=Student 7=Logging 8=Govt. servant 7=Others (specify)	Work Place 1=Ranau 2=Keningau 3=Tenom 4=Sook 5=Tiulon 6=Dalit 7=KK 8=Others (specify)
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								

2. Information of Migrated Family Members

H/Hold Members	Relationship With the Head of Family 1=Head 2=Wife 3=Husband 4=Son/ Daughter 5=Father 6=Mother 7=Grand child 8=In-laws 9=Niece/ Nephew	Gender 1=M 2=F	Age	Marital Status 1=Single 2=Married 3=Widower 4=Widow 5=Divorcee	Highest Education Level 1=Sec School 2=SRP 3=SPM 4=STPM 5=Pre-U 6=Diploma 7=Degree 8=None	Status of Occupation 1=Employer 2=Employee 3=Self employment 4=Unpaid worker 5=Housewife 6=Student 7=Not schooling 8=Pensioner 9=Unemployed	Main Occupation in the Past 12 Months 1=Farmer 2=Clerk 3=Factory worker 4=Teacher 5=Labour 6=Student 7=Logging 8=Govt. servant 7=Others (specify)	Work Place 1=Ranau 2=Keningau 3=Tenom 4=Sook 5=Tiulon 6=Dalit 7=KK 8=Others (specify)
1								
2								
3								
4								
5								

3. Migration Pattern

Original Place of Residence	1=Within Keningau District 2=Outside Keningau District (within Division) 3=Outside Division 4=Outside Sabah
Own Land at This Place	1=Yes 2=No
Land Tenure	1=Temporary Ownership Land (TOL) 2=Native Title (NT) 3=Country Lease (CL) 4=Koperasi Pembangunan Desa (KPD) 5=Sabah Forestry Development Authority (SAFODA) 6=Cocoa Scheme 7=Not available 8=Others (specify)
Length of Stay in Village	
Size of Land (acres)	
Reason of Migrating to Tiulon	

4. House and Land Ownership

4.1 House

House Ownership	1=Own 2=Rent 3=Others (specify)
Land Tenure	1=Temporary Ownership Land (TOL) 2=Native Title (NT) 3=Country Lease (CL) 4=Koperasi Pembangunan Desa (KPD) 5=Sabah Forestry Development Authority (SAFODA) 6=Tiulon Resettlement Scheme 7=Not available 8=Others (specify)
Types of Housing	1=House/Bungalow 2=Room/Flat 3=Others (specify)
Types of Housing Structure	1=Wood 2=Wood and concrete 3=Concrete 4=Leaf roof/bamboo

	5=Others (specify)
Size of House (acres)	
No. of Rooms	

4.2 Land

No.	Land Tenure 1=TOL 2=NT 3=CL 4=KPD 5=SAFODA 6=Tiulon Resettlement Scheme 7=Not Available 8=Others (specify)	Village/ District	Crops Planted 1=Cocoa 2=Coffee 3=Rubber 4=Acacia 5=Paddy 6=Oil palm 7=Others (specify)	Types of Agricultural System 1=Permanent 2=Shifting cultivation 3=Home garden 4=Others (specify)	Size (acres)
1					
2					
3					
4					
5					

5. Agricultural Practices (Planted Cash Crops)

No.	Types of Cash Crops Planted 1=Paddy 2=Coffee 2=Taro 3= Rubber 4=Mango 5=Rambutan 6=Others (specify)	Size (acres)	Types of Agricultural System 1=Permanent 2=Shifting cultivation 3=Home garden 4=Others (specify)	Types of Farming Practice 1=Organic 2=Chemic al 3=Others (specify)	Estimated Monthly Expenses (RM)	Estimated Monthly Income (RM)
1						
2						
3						
4						
5						

6. Food Consumption

Types of Food	Monthly Consumption (kg)	Amount Produced (kg)	Amount Bought (kg)
a. Rice			
b. Tapioca			
c. Sago			
d. Vegetables			
e. Fruits			
f. Chicken meat			
g. Beef			
h. Lamb			
i. Pork			
j. Fish			
k. Others (specify)			

7. Economic Activities

7.1 Types of Activities

1=Yes 2=No

a. Collection of jungle produce	1	2
b. Livestock rearing	1	2

c. Small industries	1	2
d. Gardening (home garden)	1	2
e. Shifting cultivation	1	2
f. Others (please specify)		

7.2 Sales of Farm Produce

No.	Types of Farm Produce Sold 1=Rice 2=Vegetables 3=Meat 4=Fruits 5=Tapioca 6=Others (specify)	Total amount produced	Amount Sold (kg)	Market Location 1=Ranau 2=Keningau 3=Tenom 4=Sook 5=Tiulon 6=Dalit 7=Kota Kinabalu 8=Others (specify)	Estimated Monthly Sales (RM)
1					
2					
3					
4					
5					

8. Asset Ownership

Item	Numbers
a. Car	
b. Motorcycle	
c. Bicycle	
d. Radio	
e. Television	
f. Astro	
g. Video	
h. Computer	

Item	Numbers
i. Electric fan	
j. Telephone	
k. Refrigerator	
l. Sofa	
m. Electric stove	
n. Mini Bus	
o. Lorry	
p. Sewing machine	

9. Health

9.1 Ailments and Treatment

No.	Ailment 1=Influenza 2=Coughing 3=Malaria 4=Fever 5=Stomach ache 6=High blood 7=Cancer 8=Tuberculosis 9=Death 10=Others (specify)	Age	Treatment 1=Government/ Private hospital 2=Traditional medication	Duration of Sickness (days)
1				
2				
3				
4				
5				

9.2 Health Care

1=More 2=Less 3=None

Medication	At Present	10 Years Ago
a. Government/Private hospital		
b. Traditional		

9.3 Maternity and child care facilities

1=Midwife

3=Government

clinic/dispensaries

2=Hospital

4=Private clinic

No. of Children	Types of Facilities
Child 1	
Child 2	
Child 3	

No. of Children	Types of Facilities
Child 4	
Child 5	
Child 6	

10. Recreational Activities

1=Once a week

4=Twice a year

2=Twice a month

5=Never

3=More than twice a month

Activities	At Present	10 Years Ago
a. Sports		
b. Visiting relatives/friends		
c. Hunting/fishing		
d. Shopping at the nearest town		

11. Perception towards Changes in Rural Socio-Economic Development

1=Strongly agree 2=Agree 3=Disagree 4=Strongly disagree

a. Implementers/government agencies concern of the local people welfare	1	2	3	4
b. Implementers do not give equal job opportunities to the local people	1	2	3	4
c. Implementers help the local people with socio-economic development planning	1	2	3	4
d. Activities provided by implementers/government agencies improves the society welfare	1	2	3	4

e. In your opinion, what are the changes of the following aspects in this village:-

Social (welfare, education level, health) _____

Economic (income) _____

Cultural _____

Political _____

12. Institutional Involvement of Household Members

Organization	Numbers Household Members Involved	
	Male	Female
a. Religious Association		
b. Farmers Association		
c. Youth Association		
d. Cultural Association		
- Kadazan Dusun Murut(KDM)		
- United Sabah Dusun Association (USDA)		
e. Others (specify)		

13. Labour Allocation/Source

Activities	Neighbourhood		Paid Workers		Own Family	
	Male	Female	Male	Female	Male	Female
a. Paddy						
b. Corn						
c. Fruits						
d. Ground nuts						
e. Vegetables						
f. Pineapple						
g. Rubber						
h. Tapioca						
i. Cocoa						
j. Livestock						
- Fish						
- Chicken						
- Duck						
- Cow						

- Goat						
- Pig						
k. Others (specify)						

1. Who are normally involved in social neighbourhood activities?

1=Yes 2=No

Relatives	1	2
Neighbour	1	2
Friends	1	2
Others (specify)		

14. Income for the Whole Household for the Past 12 Months

14.1 Source of Income

Source of Income for the Past 12 Months			
Income	No. of Family Members Receiving Paid Income	No. of Working Days per Year	Income per Year (RM)
a. Income from monthly paid employment			
b. Pay (before deduction for EPF and tax)			
c. Allowances (accommodation)			
d. Bonus			
e. Others (commission, over-time pay)			
f. Food subsidy			
g. Accommodation subsidy			
h. Other types of aid/contribution from other family members			
i. EPF contributions			
Total			

EPF: Employee Provident Fund

14.2 Cash Income

Cash Income other than Emolument	Value (RM)
a. Royalties	
b. Interest	
c. Dividend	
Total	

14.3 Other Income

Types of Income for the Past 12 Months	Value (RM)
a. Lodging house rent	
b. Own production - Gardening - Forest products - Handicraft	
c. House rent or others (inclusive of land and house rent)	
d. Agricultural rent	
Total	

15. Household Expenses for the Past 12 Months

Items	Expenses (RM)
a. Food	
b. Beverage	
c. Clothing and accessories	
d. Oil and energy	
e. Furniture and household accessories	

f. Health	
g. Transportation and communication	
h. Recreation, entertainment, education and culture	
i. Other goods and services - Food expenses (outdoor) - Beverage expenses (outdoor)	
j. Others (specify)	
Total	

16. Debts and Savings for the Past 12 Months

16.1 Debts

Loan	Amount of Debts (RM)	Paid Debts (RM)	Balance (RM)
a. Government			
b. Bank			
c. Cooperative			
d. Shop keeper			
e. Middleman			
f. Others (specify)			

16.2 Investment

Types of Investment	Value (RM)
a. Land (purchase, rent and collateral)	
b. House renovation and assets	
c. Share	

Types of Investment	Value (RM)
d. Bank deposit and financial institutions	
e. Business	
f. Insurance	

Appendix:

HOUSEHOLD INTERVIEW

Perception towards the Cocoa Scheme (for Those Involved)

Name of Respondent : _____

Date and Time of Interview

Trip	Date	Time	Interviewer	Language Used
First				
Second				
Third				

1. Perception of Household Head During Cocoa Plantation Scheme and Now

1.1 Social Amenities (compare present condition with cocoa-scheme period)

1=Worst 2=Bad 3=Same 4=Better 5=Much Better

	During Scheme						Present Situation				
a. Water supply	1	2	3	4	5		1	2	3	4	5
b. Power supply	1	2	3	4	5		1	2	3	4	5
c. Roads	1	2	3	4	5		1	2	3	4	5
d. Drainage and sanitation	1	2	3	4	5		1	2	3	4	5
e. Schools	1	2	3	4	5		1	2	3	4	5
f. Sundry shops	1	2	3	4	5		1	2	3	4	5
g. Health facilities	1	2	3	4	5		1	2	3	4	5
h. Recreational facilities	1	2	3	4	5		1	2	3	4	5
i. Community hall	1	2	3	4	5		1	2	3	4	5
j. Place of worship	1	2	3	4	5		1	2	3	4	5

1.2 Economic Aspects

1=Worst 2=Bad 3=Same 4=Better 5=Much Better

a. Present economic condition compared to cocoa-scheme period	1	2	3	4	5
b. Expectation in 1-2 years time	1	2	3	4	5
c. Present job opportunities compared to cocoa-scheme period	1	2	3	4	5
d. Present opportunities towards higher education compared to cocoa-scheme period	1	2	3	4	5
e. Present income compared to cocoa-scheme period	1	2	3	4	5
f. Food supply compared to cocoa-scheme period	1	2	3	4	5
g. Present housing condition compared to cocoa-scheme period	1	2	3	4	5
h. Present recreational facilities compared to cocoa-scheme period	1	2	3	4	5

2. Problems

a. What is the reason that stop you from planting cocoa ?

1=Yes 2=No

Pest attack	1	2
Low price	1	2
Squirrels/rats	1	2
Transportation	1	2
No expertise	1	2
Others (please specify)		

b. What types of fertilizers do you normally apply?

1=Organic

3=None

2=Chemical

4=Others (please specify) _____

c. How do you normally apply pest control?

c. Why did the government stop giving assistance to cocoa planters since 1987?

- 1=Pest attack
2=Marketability
3=Low price

- 4=Introduction of new plantation
5=No expertise
6=Others (please specify) _____

e. What are the main problems of cocoa planting and solutions?

Problems

Proposed Solutions

3. Implementation

a. What were the main problems encountered during the implementation of the resettlement scheme?

- 1=Lack of government agencies support
2=Seedlings delivery
3=Transportation

- 4=Lack of technology transfer
5=Integrated pest management
6=Other (please specify) _____

b. Frequency of meeting between implementing officers with the participants.

- 1=Once a month
2=Twice a month
3=Once in 2 months

- 4=Once in 3 months
5=Others (please specify) _____

c. Are landowners allowed to voice their problems/opinions during the meeting?

- 1=Very often
2=Often
3=Moderately

- 4=Seldom
5=Never

d. What types of problems raised during the meeting?

- 1=Very often 2=Often 3=Moderately 4=Seldom 5=Never

Fertilizer application methods	1	2	3	4	5
Pesticide control methods	1	2	3	4	5
Processing strategies	1	2	3	4	5
Subsidies	1	2	3	4	5
Marketing strategies	1	2	3	4	5
Others (specify)					

e. How is the cocoa processing (husking and drying) done?

- 1=Landowners 3=Send to processing factories
2=Cocoa Board/govt. agencies 4=Others (please specify) _____

f. Who collects the dried cocoa from the settlement?

- 1=FAMA, etc 3=Landowners send to Cocoa Board
2=Private traders 4=Others (please specify) _____

g. Where is the location of the Cocoa Board or government agencies responsible for the collection and buying of the cocoa?

- 1=Ranau
2=Keningau
3=Tenom
4=Sook

- 5=Tiulon
6=Dalit
7=Kota Kinabalu
8=Others (please specify) _____

h. How many times training were given during the implementation of the project?

1=Once a month

4=Once a year

2=Once in 2 months

5=Once for the whole project period

3=Once in 3 months

6=Never

4. Impact

4.1 Perception towards Changes in Rural Socio-Economic Development

1=Strongly agree 2=Agree 3=Disagree 4=Strongly disagree

a. Implementers/government agencies concern of the local people's welfare	1	2	3	4
b. Implementers do not give equal job opportunities to the local people	1	2	3	4
c. Implementers help the local people with socio-economic development planning	1	2	3	4
d. Activities provided by implementers/government agencies improves the society welfare	1	2	3	4

e. In your opinion, what are the effects of cocoa scheme on the following aspects:-

Social (welfare, education level, health) _____

Economic (income) _____

Cultural _____

Political _____

f. In your opinion, what are the most suitable crops to be planted on your land?

4.2 Involvement in the Cocoa Plantation Scheme

1=Strongly agree 2=Agree 3=Disagree 4=Strongly disagree

a. Cocoa project should not be continued and replaced by other scheme	1	2	3	4
b. Management and implementation of the project is satisfactory	1	2	3	4
c. Local participants should be involved during the planning of the project	1	2	3	4
d. Local people are given subsidies to manage the cocoa plantation	1	2	3	4
e. Cocoa project allows me to obtain land title	1	2	3	4
f. Cocoa planting has improved my socio-economic status	1	2	3	4
g. Cocoa price is good	1	2	3	4
h. Allocation of seedlings are not satisfactory	1	2	3	4
i. Management and implementation of the project has not reached the expected level	1	2	3	4
j. Implementers/government officers should be the main motivator for the planters	1	2	3	4
k. Implementers/government officers maintain good relation with the villagers	1	2	3	4
l. Implementers/government officers do not concern about the project development	1	2	3	4
m. Villagers are well informed and given fullest support to join the project	1	2	3	4
n. Land ownership under Cocoa Scheme is not good for the community	1	2	3	4
o. Cocoa project has not reduced the poverty level in this village	1	2	3	4

p. Are you willing to plant cocoa at a larger scale in the future?

1=Yes

2=No

If "Yes", _____ acres

If "No", Why? _____

q. How did you know about the scheme?

1=Through relative

4=JKKK

2=Through friend

5=Others (Specify)

3=Through District Officer

Appendix: 2**SOIL SURVEY OF THE TIULON RESETTLEMENT SCHEME****Profile: 1**

Profile No.	1	Soil Group:	Podzols / Skeletal
Location:	Block D	Soil Family:	
Parent Material:	Old Alluvium	Vegetation / Land use:	Kepayan / Ferns
Landform:	Terrace	Drainage:	Imperfectly drained
Slope:	Level	Micro-relief:	Gentle
Description:	Jopen Abut	Flooding:	
Date:	22/10/2001		

Depth (cm)	Horizon	Description
0 – 8	A	Very dark grayish brown (10YR3/2) fine sandy loam; friable; many fine roots; many fine and medium pores; clear, smooth boundary with large roots;
8 – 18	B1	Brown (10YR4/3) fine sandy loam; crumb; many fine roots; many fine and medium pores; clear wavy boundary with few medium roots;
18 – 32	B2	Light brownish gray (10YR6/2) fine sand; crumb; very few fine roots; few fine pores; clear wavy boundary;
32- 43	C	Light gray (10YR7/1); hard span.

Profile: 2

Profile No.	2	Soil Group:	Alluvial
Location:	Block E	Soil Family:	
Parent Material:	Alluvium	Vegetation / Landuse:	Rubber
Landform:	Accreting Alluvium	Drainage:	Well drained
Slope:	2 – 3°	Micro-relief:	Undulating
Description:	Jopen Abut	Flooding:	
Date:	22/10/2001		

Depth (cm)	Horizon	Description
0 – 15	A	Very dark greyish brown (10YR3/2) clay loam; loam; abundant fine roots and many medium roots; few medium pores; clear wavy boundary;
15 – 36	AB	(10YR5/4) clay loam; many fine and medium roots and few large roots; many fine and medium pores; sub-angular blocky; clear wavy boundary;
36 – 60	B1	Brownish yellow (10YR6/8) clay loam; sub-angular blocky; few medium roots and few large roots; many fine and medium pores and few large pores; line of organic / humus layer; smooth boundary;
60 – 99	B2	Brownish yellow (10YR6/8) clay loam; sub-angular blocky; few fine and medium roots; many fine and medium pores; smooth boundary;
> 99	B3	Brownish yellow (10YR6/8) clay loam; sub-angular blocky; few fine roots; many fine and medium pores; few fine pores.

Profile: 3

Profile No.	3	Soil Group:	Red-Yellow Podzolic
Location:	Block C	Soil Family:	
Parent Material:	Old Alluvium	Vegetation / Landuse:	Bushes
Landform:		Drainage:	Well-drained
Slope:	2°	Micro-relief:	Gentle
Description:	Jopen Abut	Flooding:	
Date:	22/10/2001		

Depth (cm)	Horizon	Description
0 – 14	A	Dark yellowish brown (10YR4/4) clay loam; sub-angular blocky; abundant fine roots and many medium roots; abundant medium and fine pores; clear wavy boundary;
14 – 26	AB	Dark yellowish brown (10YR4/4) clay loam; sub-angular blocky; abundant fine roots and many medium roots; abundant medium and fine pores; clear wavy boundary; many burned charcoal; one large hole;
26 – 43	B1	Strong brown (7.5YR5/6) clay loam; sub-angular blocky; few fine roots; many fine pores; clear wavy boundary;
43 – 71	B2	Yellowish red (5YR5/8) clay; sub-angular blocky; few fine roots; few fine pores; boundary cannot be distinguished.

Profile: 4

Profile No.	4	Soil Group:	
Location:	Block A	Soil Family:	
Parent Material:	Alluvium	Vegetation / Landuse:	Rubber
Landform:		Drainage:	
Slope:		Micro-relief:	
Description:	Jopen Abut	Flooding:	
Date:	22/10/2001		

Depth (cm)	Horizon	Description
0 – 29	A	Dark yellowish brown (10YR3/6) clay loam; sub-angular blocky; abundant fine and medium roots; abundant medium and fine pores; many earthworms;
29 – 75	AB	Dark yellowish brown (10YR4/6) clay; sub-angular blocky; few fine roots; many medium and fine pores; boundary not clearly distinguished;
>75		Water-table

Cashflow Budget for Coffee Production

Informant: Joseph Edward

Location: Tiulon Youth Resettlement Scheme, Sook, Sabah

Land size: 5 acres

Date: 22 Oct 2001

Item \ Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total amount
Gross income																					
Coffee (kg)				450	600	660	780	780	780	780	780	780	780	780	780			360	600	700	10390
Price per kg				10	8	7	6	7	7	7	7	7	7	9	11			6	7	7	
Total output	0	0	0	4500	4800	4620	4680	5460	5460	5460	5460	5460	5460	7020	8580	0	0	2160	4200	4900	78220
Input (Variable costs)																					
Seedling	9000																				
Fertilizer	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	
Pesticide	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	
Transportation				65	65	65	65	65	65	65	65	65	65	65	65			65	65	65	
Total input	10500	1500	1500	1565	1565	1565	1565	1565	1565	1565	1565	1565	1565	1565	1565	1500	1500	1565	1565	1565	39975
Balance: Credit / Debit	-10500	-1500	-1500	2935	3235	3055	3115	3895	3895	3895	3895	3895	3895	5455	7015	-1500	-1500	595	2635	3335	38245
Balance per month	-875	-125	-125	244,6	269,6	254,6	259,6	324,6	324,6	324,6	324,6	324,6	324,6	454,6	584,6	-125	-125	49,58	219,6	277,9	

Note: This table is not include family labors, fixed costs and tax

Family labors used to carry out work for Land preparation, watering,weed control, pest control,loosen soil and haversting

Local curenry: RM (Malaysia)

Selling Coffee at market by himself

Calculation for only 20 years

Appendix 4 Tiulon Youth Settlement Scheme

Translated by Malaysian Counterparts

Background

- Tiulon Youth Settlement Scheme was started in 1972 with the total area of 1500 acres (607 ha)
- The scheme was managed by Department of Agriculture because the Ministry of Culture, Youth & Sports did not have qualified staff to run the scheme
- Main crop planted was cocoa
- 1st batch of intake was in 1974 and the land was cleared.
- In 1977, the Ministry of Culture, Youth & Sports took over the management.
- By 1987, 1725 acres (698 ha) of land was developed out of the total 3291 acres which were earmarked.

Objectives

1. To provide job opportunities for the landless and unemployed youths especially school dropouts;
2. To provide training in modern agriculture techniques;
3. To reduce the rural urban migration of youths; and
4. To build an agricultural foundation for the youth to be responsible and dynamic society.

Implementation Policy

1. Open to all unemployed and landless Malaysian youths of Sabah origin who has interest in agriculture;
2. Must be between the age of 18 – 35 years old with minimum primary 6 education and is willing to settle down in the Scheme;
3. Hostel will be provided, pocket money and food allowance will be given for 3 years;
4. During the period of 3 years, the youths are accommodated in the Hostel and at the same time, they will be trained with practical aspects of agriculture;
5. At the end of the period, each participant will be given 10 acres of land which has been planted with cocoa and a house. An allowance of RM6 per day will be given until their cocoa trees are in production.

Implementation Methods

1. Selected youths are to stay in the Hostel for 3 years and are given the following training:
 - (a) Discipline and physical training;
 - (b) Basic agricultural training for 2 months;
 - (c) On the job training including clearing and developing the land.
2. Participants are divided into groups headed by a group leader and supervised by one supervisor from KKBS.

3. Once cocoa has been planted, the area will be surveyed and sub-divided into blocks of 10 acres each. The participants will cast ballots to determine their respective lots.
4. Houses will be built in each lot before the participants move into their respective blocks.
5. The participants will have to look after and tend to their own respective lot.

Land Ownership

- 10 acres of land divided into 8 acres for cocoa cultivation and ½ acres for housing and the rest for home garden.
- Repayment for 15 years in the hope that all debts will be settled
- Repayment are for:
 - (1) land development cost
 - (2) housing cost
 - (3) pocket money allowance
 - (4) food allowance and
 - (5) cost of personal equipment such as uniform, shoes, hat etc.

Repayment Mode

- Income of less than RM250 per month - no deduction;
- Income of more than RM440 per month - maximum deduction of RM180; and
- Income of RM260-RM430 per month – graduated mount from RM10– RM170.

In December 1987, repayment was stopped due to:

- Exit gate of the scheme was not guarded anymore and the farmers sell their cocoa beans outside to Keningau and not through the management.
- Falling of cocoa price and their income was too low to be deducted i.e. less than RM250 per month.

Handing Over Land Title

23 September 1989 – 110 land titles were handed over to the farmers and the remaining 44 land titles are still not released by the Land & Survey Department. KKBS have already requested the authority to expedite this matter.

Total Plantation Area

- Cocoa – 1094.55 acres (433.13 ha)
 - Coffee – 88 acres (35.51 ha)
 - Fruits – 139 acres (56.21 ha)
 - Others – rice, yam, tapioca etc.- 250 acres (101 ha)
- Total : 1571.55 acres (636 ha)

In addition, rubber – 350 acres (142 ha)

Expenses from the Trust Fund from 1978-1987 = RM16,490,501.83

Development of land

Including area applied by JKKK of the Scheme is as follows:

- Settlement area – 1540 acres (623 ha)
- Grazing land – 180 acres (73 ha)
- Village reserve – 170 acres (67 ha)
- Graveyard – 40 acres (16 ha)
- JKKK Administrative office, religious bodies, school, clinic & nursery plots – 80 acres (32 ha)

Total Settlement schemes and JKKK village reserve: 2010 acres (814 ha)

Total number of idle land (uncultivated): 1281 acres (519 ha)

Grand Total : 3,291 acres (1,332 ha)

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