A STUDY ON FINANCIAL CONTRIBUTION OF PRIVATE TREE FARM IN THE DISTRICT OF KUDAT

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2005

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DECLARATION

The materials in this thesis are original excepts for quotations, excerpts, summaries and references, which have been duly acknowledged.

AHMAD SAPAWI MATUSIN
PS2002-010(K)-529
25 JUN 2005

ACKNOWLEDGEMENT

I would like to express my most sincere gratitude to my Supervisor Assoc. Professor Dr. Roszehan Mohd Idrus for her guidance, assistance, encouragement and advice throughout the preparation of this project paper. I also wish to convey my appreciation to the General Manager Sabah Forest Development Authority (SAFODA), Mr. Francis Otigil and my field guide Mr. Vun Phau Aumansai for all the help rendered towards the completion of the study. My thanks and highest appreciation also go to Professor Dr. Aminuddin Mohammad the former Dean of the School of International Tropical Forestry, Assoc. Professor Dr. Amran Ahmed the Dean of School of Science and Technology for his continuous guidance and help that made the completion of this paper possible. To the course coordinator Cik Normah Hj. Awang Besar, and all my colleagues attending the same school, Mr. Roslan Abdullah, Mr. Musa Saleh, Mr. Mohammad Razali, Mr. Yusof Awang, Mr. Jameri Tahir and Mr. Mohammad Abu Bakar for all their support.

ABSTRAK

KAJIAN TERHADAP SUMBANGAN KEWANGAN LADANG KAYU PERSENDIRIAN DI DAERAH KUDAT

Kertas ini menerangkan keputusan kajian ke atas Projek Ladang Kayu Persendirian (PLKP), satu projek usahasama antara Lembaga Kemajuan Perhutanan Sabah (SAFODA) dengan peladang luar bandar di daerah Kudat yang telah dijalankan oleh penulis dalam setengah tahun kedua 2004 bagi memenuhi sebahagian daripada keperluan pengajian Sarjana Sains Agroperhutanan di Universiti Malayisa Sabah. Objektif kajian adalah untuk menentukan sumbangan kewangan PLKP terhadap pendapatan isi rumah luar bandar di Daerah Kudat; untuk menentukan luas tanah yang digunakan untuk PLKP dikalangan isi rumah luar bandar di Daerah Kudat; dan untuk menentukan jumlah input tenaga dalam PLKP dikalangan isi rumah luar bandar di Daerah Kudat. Perbandingan antara pendapatan yang diperolehi oleh peladang sebelum dan selepas menyertai PLKP memberikan analisis bagaimana penanaman *Acacia* di tanah persendirian yang terbiar boleh menambah pendapatan isi rumah luar bandar. Percubaan juga telah dilakukan bagi menentukan signifikan sumbangan pulangan tunai daripada jualan kayu *Acacia* yang dituai daripada PLKP terhadap jumlah pendapatan peladang yang terlibat. Walaupun secara teorinya tanaman kayu dalam tanah persendirian yang terbiar akan mendatangkan tambahan pendapatan tunai, harga kayu *Acacia* yang dituai dari ladang PLKP tidaklah setinggi harga yang ditawarkan oleh kilang pada tahun 2004 di Daerah berkenaan (RM36/meterpadu). Salah satu sebabnya adalah kekurangan bantuan pemasaran daripada agensi pelaksana seperti telah dipersetujui pada awal projek. Akibatnya 18 daripada 23 (78 peratus) responden yang telah menuai ladang *Acacia* mereka terpaksa bergantung kepada khidmat orang tengah bagi memasarkan kayu mereka. Mengambil kira semua kos penwujudan dan penyenggaraan ladang sehingga tuaian, pada puratanya pendapatan tahunan isi rumah adalah menurun sekitar 16% atau RM418. Sebelum pelaksanaan PLKP tidak ada peladang yang terlibat dalam penanaman kayu *Acacia*. Dalam PLKP peladang menggunakan secara purata 2.91 hektar atau 74% daripada luas tanah yang dimiliki untuk tanaman *Acacia*. Penggunaan tenaga manusia dalam tempoh tiga bulan pertama pewujudan ladang PLKP adalah pada purata 222 jam. Selepas itu penggunaan tenaga adalah tidak signifikan, dan semua peladang tidak meneruskan tanaman *Acacia* selepas tuaian pertama.

ABSTRACT

A STUDY ON FINANCIAL CONTRIBUTION OF PRIVATE TREE FARM TO THE INCOME OF THE RURAL HOUSEHOLD IN THE DISTRICT OF KUDAT

This paper details the results of a study on Private Tree Farming Project (PTFP), a joint venture project between SAFODA and the rural farmers in Kudat district carried out by the author during the second half of 2004 as partial fulfillment of MSc. Agroforestry requirements at Universiti Malaysia Sabah. The objectives of the study is to determine the financial contribution of the PTFP to the income of the rural farmers in the district of Kudat; to determine the hectareage of land utilized for the PTFP among the rural farmers in the district of Kudat; and to determine the amount of labour input in the PTFP among the rural farmers in the district of Kudat. The comparison of income earned by the rural farmers before and after participating in the PTFP provides an analysis of how planting Acacia on private land can generate additional income to the rural household. Attempt is also made to determine the significance of the cash return from the sale of Acacia wood harvested from the PTFP would contribute towards the total income of the farmers. Although theoretically planting tree crops on idle land will give the farmers additional cash income, the price of Acacia wood harvested from the PTFP is not as high as what the millers in the district offer in the year 2004 (RM36/m³) . One of the reasons is the lack of marketing assistance by the implementing agency as earlier agreed. As a result 18 out of the 23 farmers who harvested their farms had to rely on the service of middlemen to market their woods. Taking into account all the costs of establishing and maintaining the tree farm right up until harvest, there is a 16% or RM418 average decline of farmers' average annual income after PTFP. Prior to the implementation of PTFP none of the farmers were planting Acacia on their lands. There is an average of approximately 74% or 2.91 hectares of the farmers' land holdings were utilized for Acacia farming in the PTFP. The average labour utilization during the first three months of farm establishment in the PTFP is 222 hours, after which labour input into PTFP is insignificant. All farmers discontinued Acacia farming after the first harvest.

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LIST OF ABBREVIATIONS

SAFODA	Sabah Forest Development Authority
EAI	Equivalent Annual Income
PTFP	Private Tree Farming Project
PICOP	Paper Industries Corporation of the Philippines
PLKP	Projek Ladang Kayu Persendirian

than the later because of its simplicity.

3.4. Data Entry and Analysis

3.4.1. Tabulation

Data obtained through the questionnaires sorted and tabulated using Microsoft Excel and then analyzed using Statistical Package for Social Science (SPSS version 10.0). Table 3.5 shows the tabulation of the summarized data of income, hectareage utilized and labour input in PTFP in the study area.

3.4.2. Test of normality

The assumption of normality is a prerequisite for many inferential statistical techniques (Coakes and Steed, 2001). Therefore, the data obtained in this study is first assessed for normality. The assumption was explored graphically in either one of the following ways:-

- Histogram
- Normal probability plot

A sample is not a perfect picture of the population. The distribution curve of samples from a normal population would appear to be more or less bell shaped, but it would be unrealistic to expect that every sample is exactly normal. In fact, even the population distribution of the most variables is not exactly normal. Usually the normal distribution is only a good approximation. Slight departures from the normal distribution have little effect on statistical analyses that assume that the distribution of data is normal (Norušis, undated). Figure 3.3 and Appendices C and D are

examples of normality test on the distribution of income data before the project began. The normality graph from the test is not exactly bell shape, but slightly tailed to the right. Once the normal distribution has been established as a reasonable representation of the distribution of data values for the observed variables, the information can then be used in testing statistical the hypotheses about them.

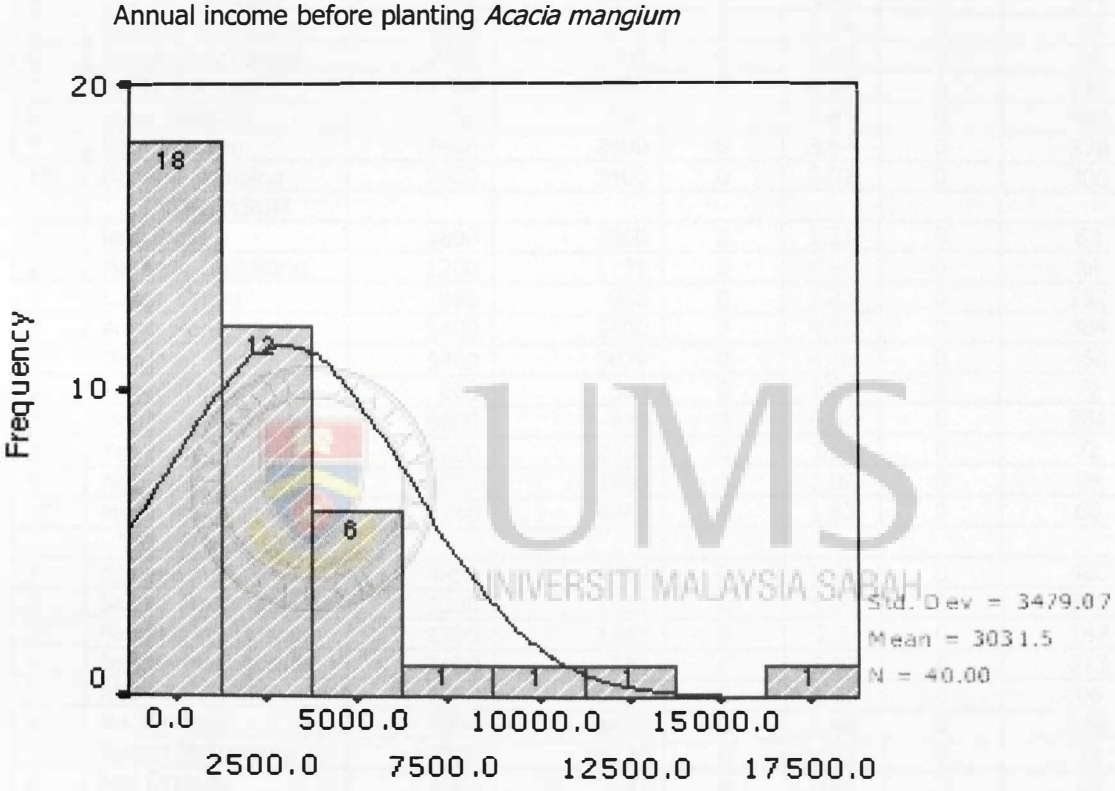

Figure 3.3: Normality distribution graph of data on income before the PTFP

3.4.3. Missing values

While every effort has been taken, admittedly it is not possible to obtain complete data sets for all cases. Therefore, for all the missing data in this study the cell is left blank. All missing values are excluded from the analysis.

Table 3.5 : Summary of income, hectareage utilized and labour input on in PTFP in Kudat district.

No.	Name of participants by region	Annual Income (RM)		Hectareage utilized for Acacia farm (Hectare)		Labour input into Acacia farm (Hours)	
		Before	After	Before	After	Before	After
	HOBUT						
1	Marimpun Baning	2400	2400	0	0.49	0	24
2	Sali Sinongkuan	1200	1025	0	3.24	0	96
3	Rahman Asim	1200	814	0	4.45	0	216
4	Mojuntin Bongkol	5400	5042	0	4.45	0	576
5	Suntiam Mantagilik	1200	-191	0	3.24	0	60
6	Zameron Kobuntok	2400	2400	0	2.83	0	96
7	Jefery Rahman	11400	10996	0	6.07	0	216
8	Laina Dalehim	600	508	0	2.43	0	480
9	Ellen Masalim	2400	2400	0	3.64	0	378
10	Okuring Sumbing	2400	2400	0	2.02	0	300
	INDERASON						
1	Bala Brala	1800	1800	0	1.21	0	63
2	Marimau Ombiliong	1200	1171	0	0.40	0	84
3	Rujum Onjou	960	960	0	3.23	0	192
4	Wong Men Yeng	5400	5400	0	4.04	0	384
5	Marunsai Dawai	5400	5079	0	4.45	0	456
6	Tomaki Ombirol	600	600	0	1.21	0	72
7	Mojuling Onzou	6600	-438	0	6.07	0	384
8	Yap Nyuk Chan	1200	2436	0	3.64	0	72
9	Abbi Paisa Hj Mohd	1800	1800	0	2.02	0	96
10	Majial Mongulizang	4740	4740	0	1.62	0	60
	TELUK MARUDU						
1	Asangki Maratim	4800	4800	0	1.21	0	480
2	Salipat Madangkat	1200	1021	0	4.04	0	360
3	Fatimah Hj. Yahyaa	1200	1043	0	2.5	0	147
4	Jendah Mangantad	2400	-583	0	6.07	0	213
5	Abd Aziz Maland	2040	1923	0	2.02	0	96
6	Au Yun Foh	4800	4435	0	6.48	0	168
7	Spevin Mogindang	10320	10320	0	1.62	0	72
8	Asri Ondong	2400	-37	0	0.81	0	15
9	Lundia Amit	1800	1800	0	0.2	0	144
10	Joubit Batik	600	600	0	0.81	0	90
	SUANGPAI						
1	Adol Sokunil	1800	1800	0	2.02	0	192
2	Datuk Idrus Matakim	18000	18000	0	6.07	0	900
3	Norneh Assam	1200	1128	0	1.21	0	96
4	Lenzin Onginjan	1200	1221	0	0.81	0	216
5	Sadai Gonsungut	1200	1033	0	2.02	0	288
6	Harden Jamir	600	449	0	2.83	0	18
7	Ozong Ozong Kurusi	600	318	0	3.23	0	72
8	Ramlah Suhaimi	1200	1200	0	6.07	0	900
9	Rozan Asam	3000	-185	0	2.83	0	48
10	Asat Ondom	600	387	0	2.83	0	72

3.4.4. Test of Hypotheses or Test of Statistics

The objectives of the study require the observations of household income, land utilization and labor input into *Acacia* farm of the same subjects under two different conditions – 'before and after' PTFP. Paired samples t- test ('before and after') design is used to analyze the results of the two observations of income to test the null hypothesis (**H**◦) about the population mean. The first observation consists of the annual income of farmers , the number of hectare of land planted with *Acacia* and the number of hours of labour input into *Acacia* farm before PTFP. The second observations of the three variables were made after the *Acacia* is harvested and sold. The figures of the annual income before PTFP are derived from the interpolation of the monthly income as stated by the farmer in the SAFODA Assessment Form at the initial stage of the project implementation.

The lump sum sales revenue derived from the *Acacia* final harvest is converted into an Equivalent Annual Income (EAI) based on 6 percent discounting rate and the number of years from farm establishment until harvest. The 6 percent discounting rate is adopted based on the assumption that it would probably be the interest rate that SAFODA and the farmers could earn in the next best alternative investment. The Equivalent Annual Income from *Acacia* sales is added to the Annual Income of the farmer at the initial stage of farm establishment to make up the Annual Income after PTFP.

The advantage of the paired design is that it makes it easier to detect the true differences when they exist (Norušis, undated). By observing the amount of income earned, number of hectare of land planted with *Acacia* and the number of hours of labour input into *Acacia* farm of the same household after PTFP, the differences can therefore be attributed to the *Acacia* farming in the PTFP.

CHAPTER 1

INTRODUCTION

1.1. Background

The development of commercial forest plantations in Sabah started in 1974 with the establishment of Sabah Softwoods Sdn. Bhd. (SSSB) and later followed by Sabah Forest Development Authority (SAFODA) in 1976. These establishments were government funded due to the high capital outlay required in the establishment of forest plantation. The late 1980's and 1990's witnessed the participation of privately-owned companies and individuals in forest plantation development, largely on their own alienated lands.

The Private Tree Farm Project was established by the Sabah Forest Development Authority (SAFODA) in early 1988 with the aim of improving the socioeconomic well-being of the rural population in Sabah. The establishment of the project is part of the fulfillment of the sixth objective of the creation of SAFODA which among its development strategy is to promote the establishment of private tree plantations (Bolong and Kahar, 1998). At the initial stage, the implementation of the private tree plantation was focused in the northern region of the state in particular in the District of Kudat, Kota Marudu, Pitas and Kota Belud, involving about 300 participants. Later, similar projects were extended to the southern, western and central regions of the state.

When the project was first implemented, selected participants were provided with subsidized tree seedlings, free technical advice (planting, maintenance and

harvesting techniques) and guarantee access to the timber market outlets. Currently, there are about 3,000 hectares of land belonging to individuals involved in the project mostly found in the northern region of the state.

The tree species selected for the project was *Acacia mangium*, an exotic species of legume which is popularly known to the rural population in the state as "Kayu Kertas" (Paper Tree) or "Kayu SAFODA" (SAFODA Tree). *Acacia mangium* is a very fast growing species attaining 15 meter height and 40 centimeter diameter at breast height (DBH) in 3 years and height growth of 23 meters in 9 years has also been recorded (Anon, 2003b). *Acacia mangium* has high resilience, drought and fire resistance and able to flourish on marginal lands where other trees or agricultural crops would normally fail.

However, ten years later, in June 1998 the concept was revised and changed to a joint venture project. It was decided that proceeds from future timber sales be shared in 80:20 basis where the land owner takes 80 percent, and SAFODA takes the remaining 20 percent (Bolong and Kahar, 1998). With the change in concept, additional two species namely Teak (*Tectona grandis*) and Sentang (*Azadirachta excelsa*) were to be introduced. These are high value species which have good market potentials (Bolong and Kahar, 1998). However, planting of these two new species never materialized in the Northern Region of Sabah.

1.2. Definition

For the purpose of this study definitions to the following terms are provided and applied:-

1.2.1. Private Tree Farm

According to the American Forest Foundation the term "tree farming" was first used in the 1940's to introduce the public to sustainable forestry terminology they could easily understand. Farming implies continual stewardship and production of goods year after year. Private Tree Farming in this study refers to planting of trees (*Acacia mangium*) on land belonging to individuals in the district of Kudat in a joint venture project with SAFODA to produce wood.

1.2.2. Financial Contribution

Monetary gain derived from the sale of *Acacia mangium* wood from the private tree farm project (PTFP) under a joint venture effort with SAFODA.

1.2.3. Joint Venture Project

Tree farming project initiated by SAFODA where local individuals provide the land and labour whereas SAFODA provides free *Acacia mangium* seedlings, technical advice and market outlet for the wood. Proceeds from future timber sales to be shared among SAFODA and the land owner on a 20:80 basis.

1.2.4. Labor Input

This term refers to as the total number of hours the land owner and/or his workers spend working or attending to the *Acacia mangium* farm in the PTFP venture project with SAFODA during the first three months of the farm establishment.

1.2.5. Hectareage utilized

The number of hectare of land owned by the individual participant planted with

Acacia mangium in the joint venture project with SAFODA

1.3. Problem statement

Like most rural areas of Sabah, the rural part of Kudat (Figure 3.1), in general still can be considered as lacking of significant activities that generates substantial financial contribution to the rural community. The community, which comprises largely of the Bajau and Kadazan/Dusun with the exception of the Chinese, are still poor in many ways. The Bajaus being the largest indigenous ethnic group, which make up about 10% of the total population in the district, dominated the coastal areas and mainly engaging in traditional fishing activities and coconut cultivation.

The Kadazan/ Dusun community on the other hand settled mostly in the interior part of the region are largely subsistence farmers. Their cash income and livelihood are very much dependent on cultivation of agricultural crops such as coconut, corn, peanut, and hill paddy. Perennial crop like rubber is also cultivated on a small scale. Based on the particulars recorded in the project application form by SAFODA, the average income of the participants during the initial stage of the project implementation in 1989 was RM235 per month. This amount is well below the poverty line index of RM460 per month for a household of five as estimated by the Institute for Development Studies of Sabah based on a Poverty Study in Sabah carried out in Kudat, Kota Marudu and Pitas districts 1986 (Mohd. Yaakub,1991). Lately oil palm was introduced into the region, some of the people began to cultivate oil palm besides the traditional crops such as hill paddy, corn and peanut which are commonly cultivated. However, to date the number of households in the district succeeding in oil palm cultivation is limited probably due to soil suitability problem and high establishment cost of oil palm plantations. This is evidently shown in the

month of April 2004 Statistical Report produced by the Department of Statistics, Sabah. As of 2002 only 855 hectares of oil palm was cultivated in the district of Kudat. This figure is relatively small compared to the total area cultivated with the same crop in the adjacent district of Kota Marudu, which has 3803 hectares of oil palm during the same period. As a result most of the smallholders' land that were cultivated with coconut remained so until today. The over matured coconut trees become less productive and eventually neglected. After years of neglect, apparently the coconut plantations were invaded by lalang (*Imperata cylindrica*) and secondary forest regrowth. This scene is commonly seen all over the study area today.

In a preceding study conducted by Van Leur *et. al.*, (1987) on Shifting Cultivation of the Rungus in Kudat and Pitas districts reported that the average monthly income for paddy farmers was RM124.75 per household for single cropping (RM242.50 for double cropping). For coconut and rubber smallholders, it was between RM114 to RM171 and RM100 to RM150 per household respectively. About 73 percent of the fishermen earned less than RM150 per household per month. The annual income of shifting cultivators was between RM50 and RM150 per household. Investigation by the Department of Statistics on Household Income, 1984 discovered that out of the total 229,000 households in Sabah, 76,000 of them fell within the category of the poor. This figure represents 33.1 percent poverty rate, which rank fourth in the nation after Kelantan, Kedah and Perlis. A profile of poverty at poverty line of RM460.00 produced by the Institute for Development Studies, Sabah in 1986 showed that there was a 79.5 percent poverty incidence in rural Kudat. The Ministry of Rural Development collaborated that the northern region of Sabah which include the District of Kudat as one of the areas which still has the highest number of