UNIVERSITI PUTRA MALAYSIA

STUMPAGE APPRAISAL USING TENDER PRICE IN PAHANG, PENINSULAR MALAYSIA

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BY

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For My Beloved Family

For giving me so much

and …..

Asking so little in return

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ABSTRACT

Previous studies have shown that tropical forests are under valued. This may result in unsustainable harvest, biased against conservation and low revenue to the government. A study was conducted in the state of Pahang, Peninsula Malaysia to determine the trend and patterns of tender prices based on 277 logging transactions between the period 1993 to 1998. An analysis was also conducted to compare the actual tender price offered by the concessionaires with the estimated tender price using residual value technique for three logging compartments. Data on tender prices were collected from the Pahang State Forestry Department sales record. For the comparative analysis of tender price between actual and estimated price, data were obtained from state-own logging enterprises. These include data on timber volume, log price, logging and actual tender price. The result indicate that the average tender price offered by the concessionaires is RM6,271.44 per hectare, and the highest average tender price is RM14,236.51 per hectare. The highest average tender prices (RM10,558.76 per hectare) is in the District of Lipis, followed by District of Jerantut (RM8,996.21). In general, the tender price has shown fluctuating trends during the study period, mainly due to economic situation and demand supply situation of log. The result from comparative analysis indicates that the concessionaires are relatively over-estimate the stumpage value, ranging from 6.4 to 20.14 percent. The study suggests that tendering would indicate full market value of a logging compartment when it is used for timber production. The estimated tender price using the residual value technique can be used to set the floor price. Further research is needed to obtain a comprehensive tendering mechanism before implementing any policy reform on forest revenue system in the state.

ABSTRAK

Kajian-kajian yang lepas menunjukkan bahawa kawasan hutan tropika telah dinilai dibawah nilai yang sebenarnya. Situasi ini akan menyebabkan hutan dituai secara tidak berkekalan, kurangnya aktiviti pemuliharaan dan turut mengakibatkan pengurangan dalam hasil kerajaan. Kajian ini telah dijalankan di negeri Pahang, Semenanjung Malaysia untuk melihat corak dan bentuk harga tender yang ditawarkan oleh pembalak, berdasarkan 277 urusniaga tender balak antara tahun 1993 sehingga 1998. Kajian juga telah membuat perbandingan antara harga tender sebenar yang ditawarkan oleh pembalak dengan harga tender yang dianggarkan melalui kaedah 'nilai baki' bagi tiga kawasan kompartment. Data berkaitan harga tender diperolehi daripada rekod jualan Jabatan Perhutanan Negeri Pahang. Bagi analisis perbandingan harga tender, data telah diperolehi daripada syarikat pembalakan kepunyaan negeri. Ini termasuklah data mengenai isipadu balak, harga balak dan harga tender sebenar. Keputusan menunjukkan purata harga tender ialah sebanyak RM6,271.44 sehektar dan purata harga tender tertinggi ialah RM14,236.51 sehektar. Daerah Lipis menyumbangkan purata harga tender tertinggi (RM10,558.76 sehektar) diikuti dengan daerah Jerantut (RM8,996.21). Secara amnya, harga tender menunjukkan arah menurun di sepanjang masa yang dikaji, mungkin disebabkan oleh keadaan ekonomi dan juga corak penawaran dan permintaan bagi balak. Keputusan daripada kajian perbandingan juga menunjukkan pembalak telah emnganggarkan harga stumpej yang lebih tinggi, di dalam lingkungan 6.4 hingga 20.14 peratus. Kajian ini mencadangkan agar sistem tender mengambil kira sepenuhnya nilai pasaran bagi sesuatu kawasan kompartment, apabila ianya digunakan untuk pengeluaran balak. Penganggaran harga tender menggunakan kaedah nilai baki boleh digunakan untuk menentukan harga asas. Kajian seterusnya diperlukan untuk mendapatkan satu mekanisme tender yang komprehensif sebelum melaksanakan sebarang perubahan dalam polisi yang berkaitan dengan sistem hasil hutan bagi sesebuah negeri.

CHAPTER ONE

INTRODUCTION

1.1 General Background

Malaysia is fortunate to be blessed with a relatively large tract of rich and diverse tropical rain forests, which has been acknowledged to be amongst the most complex ecosystem. This natural heritage, amongst others, has contributed significantly to the socio-economic development of the country and the cultural and spiritual development of its people since time immemorial. It is a relatively cheap and renewable source of readily available food materials and daily goods for the rural communities. It is also vital for environmental protection; it also serves as carbon sink, storehouse of invaluable genetic materials, as well as ensures a clean and continuous supply of water for domestic and industrial consumption (Hashim, 1997).

Presently, Malaysia is enjoying strong economic growth, with GDP rising from RM120.3 billion in 1995 to RM130.2 billion in 1996 (Anon, 1996a). The total exports value of timber and timber products (including rattan and wooden furniture) for Malaysia amounted to FOB RM185.3 billion in 1995. For Peninsular Malaysia alone, the total export value of timber and timber products (excluding rattan and

wooden furniture) amounted to RM2.3 billion and RM2.1 billion in year 1995 and 1996, respectively (Anon, 1996c).

Apart from that, total investment in the major wood-based industries in Peninsular Malaysia in 1996 was estimated to be RM2,627 million. Of this total, about RM1, 665 million or 65% were in the sawmilling industry, RM624 million or 26% in the plywood/veneer industry and RM332 million or 9% in the wood moulding industry (Anon, 1996c).

Under the Malaysian Constitution, land is defined as a state matter and is thus within the jurisdiction of the respective State Governments. As such, each state is empowered to enact laws on forestry and to formulate forest policy independently. The executive authority of the Federal Government only extends to the provision of advice and technical assistance to the states, training and the conduct of research and maintenance of experimental and demonstration stations (MTIB, 1995). Thus, revenue derived from forests in the form of royalties, premium, forest development cess and others represent a considerable and important proportion of the State Government's total income amounting to RM2 billion. In 1992, the total forest revenue collected from the various states in Malaysia amounted to RM1,743.3 million based on a production of 43.5 million m^3 of roundlogs including rubber wood logs and other forest produce. For various states in Peninsular Malaysia, the total forest revenue collected amounted to RM335, 980 million. This amount increased to RM 359,420 million in 1996 (Table 1). At the

federal level, additional revenues is collected through export levy and income tax (Anon, 1996c).

Table 1: Forest Revenue Collected in 1996 (RM)

State	Royalty		Premium	Cess	Others	Total
	Sawlogs	Other Forest Products				
Johor	3,734,032	1,598,446	13,784,707	1,696,632	2,309,188	23,123,005
Kedah	3,499,080	174,258	16,276,272	1,014,241	2,871,216	23,835,067
Kelantan	27,393,226	71,028	30,072,762	4,985,093	43,819,643	106,342,752
Melaka	201,936	224	381,578	47,115	110,173	741,026
N.Sembilan	3,328,366	348,813	405,338	651,175	617,281	5,350,973
Pahang	28,034,713	347,551	75,143,057	8,428,442	7,224,614	119,178,377
Perak	12,951,070	1,216,872	13,934,055	2,751,183	6,877,728	37,730,908
Perlis	23,843	2,502,791	10,596	3,986	11,126	2,552,342
P.Pinang	2,826	201	0	1,484	92,265	96,776
Selangor	2,046,622	2,528,147	1,160,908	516,351	2,112,724	8,364,752
Trengganu	13,216,589	319,070	11,149,662	3,264,088	4,155,940	32,105,349
Total	94,432,303	9,107,401	162,318,935	23,359,790	70,201,898	359,420,327

Source: Forestry Department of Peninsular Malaysia (1996)

In concord with the above statistics, it has indirectly assisted to the regional development in this country, such as opportunities for employment. The forestry sector provided direct and indirect employment for almost 250,000 persons in 1996. In Peninsular Malaysia, forestry sector provided employment for 87,512 persons, specifically 13,798 persons in the logging industry, 27,967 persons in sawmilling, 13,403 persons in the plywood/veneer industry, 8,569 persons in the moulding sector, and the remainders are in other secondary and thirtiary wood-based processing industries. More than RM500 million were paid out in salaries and wages for workers involved in the forestry sector (Anon, 1996c).

The total forested area in Malaysia as at the end of 1995 was estimated to be 18.91 million hectares or 57.5% of the total land area, with the proportion of forested land being higher in Sabah and Sarawak than in Peninsular Malaysia. Of this total, it is estimated that some 16.41 million hectares are the inland dipterocarp forests, with the remaining 1.69, 0.62 and 0.19 million hectares being from water swamp, mangrove swamp and plantation forests, respectively. The distribution and extent of forest areas by major forest types and regions is as shown in Table 2. This amount does not include agriculture tree crops, which covers 4.8 million hectares. Thus, if inclusive of the agriculture crops, the total tree cover in Malaysia in 1995 amounted to 23.71 million hectares or 72% of the total land area.

Table 2: Distribution and extent of natural forest by major forest types in Malaysia, 1995 (million ha)

Region	Peninsular Malaysia	Sabah	Sarawak	Malaysia
Land Area	13.16	7.37	12.33	32.86
Dipterocarp Forest	5.38	3.83	7.20	16.41
Swamp Forest	0.30	0.19	1.20	1.69
Mangrove Forest	0.10	0.32	0.20	0.62
Plantation Forest	0.07	0.11	0.01	0.19
Total Forested Land	5.85	4.45	8.61	18.91
Percentage total of Forested Land	44.5	60.4	69.8	57.5

Source: Hashim (1997)

In view of the crucial role of forests for timber production, the conservation of soil, water and wildlife, as well as in the protection of the environment, Malaysia has set aside a total of 14.28 million hectares of its natural forests as the Permanent

Reserved Forest (PRF) to be managed and developed sustainably. Approximately 10.85 million hectares or 76% of the PRF are production forests with the remaining 3.43 million hectares being protection forests (Hashim, 1997). The status of the PRF in Malaysia is summarized in Table 3.

Table 3: Permanent Reserved Forest in Malaysia, 1995 (million ha)

Region	Protection Forest	Production Forest	Total Land Area Under PFE	Percentage of Total Land Area
Peninsular Malaysia	1.90	2.78	4.68	35.6
Sabah	0.53	3.07	3.60	48.8
Sarawak	1.00	5.00	6.00	48.7
Malaysia	3.43	10.85	14.28	43.5

Source: Hashim (1997)

1.2 Statement of Problem

In Peninsular Malaysia, forest is harvested under concession agreements between a state government and a private party called timber concessionaire. The policy of tendering a timber concession favours those who have a long-term interest in the timber industry. The policy is designed to encourage those who handle timber processing and downstream activities (Anon, 1995).

Currently, closed system of tendering is practiced in Peninsular Malaysia. Under this system, concessionaires will submit their bid based on their valuation of timber volumes, market conditions and other factors associated with tender price. In order to be fair to both parties (i.e. the government and concessionaire), a forest concession needs to be evaluated first and the bid ceiling and the floor price can be set by the State Government. At present, there is no standard procedure adopted by the government. The normal practice is to accept the highest bidder, without considering others factors. If the bid floor and ceiling prices are not first determined, the prevailing market condition in tendering system, does not reflect the true value of tender price. This will not benefit long term sustainable forest management in the state. Much of the timber value could be either captured by the government or the concessionaire.

There has been also no study pertaining to stumpage valuation using tender price at any state in Malaysia. Sulaiman (1977), however, suggests that the timber fees system had to be revised to ensure a rational balance revenue gain by state governments and concessionaires. The only study of tender price was conducted by Nur Hajar (1998), who estimates the stumpage value using tender price in the state of Kedah. However, the results cannot be generalized for the whole Malaysia. Thus, this study was done to infer and obtain estimates of stumpage value for the other states. As such, the setting of tender price for the particular logging compartments can be evaluated based on prevailing market conditions and willingness to bid by the concessionaires.

1.3 Objectives of the Study

The objectives of this study were to examine the trend and patterns of tender prices offered by the concessionaires, to estimate the tender price of logging compartments in Pahang, and to compare the actual tender prices offered by the concessionaires with the estimated tender prices using residual value technique.

1.4 Organization of the Study

This thesis is organized in five chapters. Chapter Two presents the review of literature on stumpage appraisal. The methods used in the study are described in Chapter Three. Chapter Four presents the results and discussion, while Chapter Five provides the conclusion and recommendation of this study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Definition and Concept

Stumpage is defined as a standing timber in unprocessed form as found in the forest, that is timber on the stump (Chapman, 1926; Brown, 1949; Avery and Burkhart, 1994) destined soon for harvest (Duerr, 1993). It is a collection of trees in a contiguous area that is or could be offered for sale as a resource from the forest. According to Davis (1996) and Davis and Johnson (1987), the term could also mean the physical content of standing tree, within a contiguous area whether live or dead, or cut in connection with construction of logging road as long as it remains in the forest and is not cut into logs and other merchantable units.

Stumpage value is therefore defined as the price of a standing timber in a forest, i.e. at the stump (Chapman, 1926; Brown, 1949; Avery and Burkhart, 1994). Stumpage value also refers to the price paid for the right to severe the trees from their stump and removes them from the forest (Nautiyal and Love, 1971; Haley, 1980; Leuschner, 1984). Others authors defined stumpage value as the difference between the price a mill will pay for the timber, and the costs of felling and transporting the timber from the forest to the mill (Awang Noor et al., 1992; Dominic, 1995). Stumpage is normally valued by estimating its market value

(Leushner, 1984). Godoy (1992) further defined stumpage value as the economic rent from timber extraction, which is equivalent to its sale price less the social and private costs of producing and transporting the timber. Economic rent corresponds to the stumpage value of timber, which is obtained from the market price of timber less the costs of effective logging, transport, profit margin and risks.

The valuation of stumpage is important to almost activities in timber business. It is the raw material of the forest to provide the other forest products that will be commercialised to the public as a consumer. Not only it is frequently bought and sold, but it also provides the land or forest owner with timber income. Small differences in contracted stumpage prices can greatly affects the profitability of timber harvesting and conversion (Davis and Johnson, 1987). Since stumpage value affects the timber business, it is important to practise the best method to estimate the value before any economic transaction can be made.

Estimating the stumpage value is sometimes referred as stumpage appraisal (Duerr, 1960; Davis and Johnson, 1987; Gregory, 1987). Mgeni (1989) defined stumpage appraisal as the estimation of the value of the standing timber that is available for harvesting at both specified age or size and geographical location. According to Leuschner (1984), the purpose of stumpage appraisal is to estimate, at a particular point in time and the value of standing timber available for cutting on a particular area. Since stumpage is the collection of trees in a contiguous area,

hence, the stumpage value on a particular area is the aggregation value of the sum of individual trees making up the sale (Davis and Johnson, 1987).

2.2 General Problem in Stumpage Appraisal

The value of the stumpage varies according to several factors namely, the timber property factors and the working conditions. Timber property factors include merchantable value of the species, quality, size and density of standing timber. The stumpage value will be increased substantially once the above factors are higher. The working area conditions include the terrain accessibility, and the distance of the stumpage from the market. The more accessible and nearer to market the higher the stumpage value. According to Brown (1949) and Worell (1959), stumpage value is also influenced by the proportion of stand to be removed, the average size of trees in the stand, the market demand of the species and the method which the timber are sold.

Davis and Johnson (1987) outlined six factors that should be consider before going into specific appraisal method in any stumpage appraisal. These factors are the seller's interest in the buyer, condition of sale, estimating product selling value, determining of production costs, the time elements and differences in species values.

2.2.1 The seller's interest in the buyer

The value of stumpage can be estimated by either prospective buyers or prospective sellers or both, as a guide to their bargaining in the market. Many public timber managers are required to sell stumpage at no less than its appraised value. A stumpage value estimate can serve, too, in assessment for property taxation, in calculating losses, in insuring against loss and so on.

Forest owners or sellers consider the process of timber harvesting as a crucial and final act. This process forms pant and parcel of a well management timber production process. The forest owners must try to obtain the best possible prices in the market for the sales of their timber. Forest owners often award their concession to established independent logging contractors who could provide reasonable price for their timber as round logs to supply the logger's processing plants. The loggers are also dependent on the forest owners as they normally dominate stumpage price negotiations. Thus, forest owners must control their desire to make money by the necessity to enable the concessionaires to sustain in business and the reliability to handle the forests owners logging requirements. Therefore, both the short-term and long-term objectives should form as the basis when the forest owners appraise the value of their timber stand.

These conditions of sale are part of the deal to the buyer, and the costs of meeting them are considered part of the costs of cutting timber. This is known as a

transaction costs. The differences in the conditions of sale are often important and cause controversy and frequent misunderstanding in relation to stumpage appraisal.

2.2.2 Condition of sale

Before the loggers are allowed to go in the forest to harvest timber, a legal agreement documents known as contract is usually made. Basically, various restrictions are imposed by the forest owners such as controlling the harvesting intensities to meet other objectives such as to obtain higher market price for the sale of timber, reduce the impact of logging damage to ensure a better regeneration of the residual stand and so on.

Normally, the forest owner designates the area and the particular trees to be harvested, specifying when and how they shall be extracted and the condition which the harvesting should be left. A number of restrictions may be imposed to protect the trees that are left from damage, specify utilisation standards, guards against erosion, minimise damage to other forest land values such as recreations and wildlife, and specify the location of timber harvesting activities. The listing for the condition of sale that may be imposed by the forest owner can be long and varied.

Thus, to the loggers, these conditions of sale are eventually too costly for them to harvest the timber stand. The variations in the conditions of sale are the