



**UNIVERSITI PUTRA MALAYSIA**

**ANALYSIS OF TENDER PRICES OF STATELAND FOREST AREA IN  
PAHANG**

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**ANALYSIS OF TENDER PRICES OF STATELAND FOREST AREA IN  
PAHANG**

**By**

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**TO MY BELOVED PARENTS, WIFE AND CHILDREN**

## **ABSTRACT**

### **ANALYSIS OF TENDER PRICES OF STATELAND FOREST AREA IN PAHANG**

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Azmi Nordin

In most tropical countries, the rent capture from timber is low and have allowed the resource rents to flow as windfall profits to timber concessionaires. No policy for the sale of government forest could be soundly based unless the government knows the real value of the timber it is selling. Tendering system is the best way where government can increase revenue on forest sale. Forest possession through tender system is not new in state of Pahang as it has been practiced since the early 70's for land conversion into agricultural development. During the 80's forest individual or logging companies can obtain concessions through application. Beginning 1995, the state government announced that all applications for stateland forest should go through tender system. A study was undertaken to analyze tender price of stateland forest allocated through tendering system in Pahang. The objectives of the study were to study the trend and pattern of tender prices in stateland forest area, to compare the tender prices offered by bidders with reserved price, to examine the relationship between tender price and factors affecting it, and to estimate rent capture in Pahang. A total of 123 tender transactions of the stateland forest in Pahang from 1996 to 1999 were collected based on tender documents. A logging survey was also conducted on 10 loggers to obtain information relating to bidding behaviour. The results indicate that the average tender prices offered by concessionaires vary by district, forest type and status of tender. The average tender price offered for the period 1996 to 1999, was RM4,468 per ha. The highest tendered price occurred in the district of Bentong, averaging RM12,537 per ha. The lowest tendered price was found in Temerloh, averaging RM2,938 per ha. The average tender price for virgin forest was estimated at RM5,693 per ha compared to that of logged-over forest, estimated at RM4,090 per ha. It was also found that tender price was higher in open bidding (RM5,156 per ha) compared to closed tender (RM3,365 per ha) and sawmill scheme tender system (RM3,021 per ha). Regression results showed that timber volume of the tendered area and the numbers of bidders were two main factors affecting the bid price. The study also revealed that the rent capture by the state was estimated at 53.4 percentage of potential stumpage. Based on this study, it is recommended that the state government should revise the current tendering system in order to maximize resource rent and efficient timber harvest in the long run. The government should proceed on 'volume basis' instead of 'area basis' for maximum revenue. Future study of tendering system was also highlighted.

## **ABSTRAK**

### **ANALYSIS HARGA TAWARAN KAWASAN HUTAN TANAH KERAJAAN DI NEGERI PAHANG**

By

Azmi Nordin

Bagi kebanyakan negara-negara tropika, kutipan hasil sebenar dari pembalakan adalah rendah dan menyebabkan keuntungan besar kepada pembalak. Tiada polisi yang berkesan terhadap penjualan kawasan hutan kerajaan kecuali kerajaan tahu harga sebenar kawasan hutan yang diusahakan. Sistem tender adalah cara terbaik bagaimana kerajaan boleh meningkatkan sumber hasil hutan. Memperolehi kawasan balak melalui system tender bukanlah perkara baru di Negeri Pahang malah telah diamalkan pada awal tahun 70an semasa pembukaan kawasan pertanian. Dalam tahun 80an kawasan balak boleh diperolehi melalui permohonan oleh orang perseorangan atau syarikat pembalakan. Mulai tahun 1995, kerajaan mengumumkan semua kawasan hutan tanah kerajaan hendaklah dikeluarkan melalui tender. Kajian ini adalah untuk mengkaji sistem tender yang diamalkan di Negeri Pahang. Objektif kajian ialah mengkaji trend dan pattern harga tender bagi hutan tanah kerajaan, bagi membandingkan harga tender yang ditawarkan oleh penender dengan harga jabatan, untuk mengkaji hubungan harga tender dan faktor mempengaruhinya dan menganggarkan kutipan hasil sebenar bagi Negeri Pahang. Sebanyak 123 maklumat kawasan tender hutan tanah kerajaan Negeri Pahang dikutip dari tahun 1996 hingga 1999. Kajian keatas pembalak juga dilakukan terhadap 10 orang pembalak melalui temuramah untuk mendapatkan maklumat sikap pembalak terhadap tender. Hasil kajian menunjukkan purata harga tender yang ditawarkan pembalak berbeza mengikut daerah, jenis hutan dan status tender. Purata harga tender yang ditawarkan bagi tempoh 1996 ke 1999 adalah RM4,468 per ha. Harga tender tertinggi yang ditawarkan adalah di daerah Bentong purata RM12,537 per ha. Harga tender terendah yang ditawarkan ialah RM2,938 iaitu daerah Temerloh. Purata harga tender bagi hutan dara dianggarkan RM5,693 per ha berbanding dengan kawasan yang sudah dibalak ialah RM4,090 per ha. Adalah didapati harga tender adalah tinggi bagi tender terbuka (RM5,156 per ha) berbanding dengan tawaran tertutup (RM3,365 per ha) dan sistem tender untuk kilang papan (RM3,021 per ha). Analisa regresi menunjukkan bahawa isipadu balak dan bilangan penender adalah dua faktor penting yang mempengaruhi harga tender. Kajian juga menunjukkan bahawa kutipan hasil sebenar Negeri Pahang dianggarkan 53.4 peratus daripada nilai potensi stumpej. Berdasarkan kepada kajian ini adalah disyorkan supaya kerajaan negeri mengkaji semula sistem tender yang diamalkan sekarang bagi memaksimumkan hasil kutipan sebenar dan meningkatkan kecekapan bagi jangka masa panjang. Kerajaan negeri sepatutnya mengamalkan caj berdasarkan isipadu berbanding kepada keluasan bagi memaksimumkan hasil. Kajian selanjutnya mengenai sistem tender juga dibincangkan.

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# **CHAPTER I**

## **INTRODUCTION**

### **General Background**

In most developing countries, the forests are largely under public ownership or belong to the government (Lanly, 1982). They often cover a large part of a country but these forests rarely contribute much to the Gross National Product (Schmithusen, 1977). Utilization or allocation of forest resources can be divided into three types (Schmithusen, 1977): firstly, the raw material utilized by government through the state owned agency or other public owned agency either fully owned by the government or through joint-venture; secondly, disposal of forest land with it standing timber by grant or sale; thirdly, the government dispose the standing timber but not the land.

The third approach is most commonly adopted and disposal is carry out in three ways: (a) through sale of wood felled at roadside or riverside, (b) through sale of standing timber, and (c) through forest utilization contract or forest concession. For the first way, it is practiced largely in Europe and some part of United States. The second way is mostly practiced in developed countries especially in United States but also in certain developing countries like Malaysia and the third way is commonly practiced in most developing countries. Forest concession in tropical countries existed in different form, ways, duration, size and conditions.

A study carried out on the forest revenue system in developing countries by Gray (1983) found that developing countries are becoming concerned about their forest revenue systems because the present forest fees and charges do not adequately reflect the value of the timber cut or dispose. For most countries, a primary objective in designing a forest revenue system is to maximize forest revenue collected. Forest revenue can be related to forest charges but in many instances it does not reflect the true value of the forest. This is because forest revenue systems in most tropical countries are implemented by charging timber fees based either on timber volume (royalty) or the concession area (premium) (Awang Noor, 1994). Generally, timber fees are low and do not reflect the true stumpage value.

According to Gray (1983) level of forest charges can be divided into six methods:

- 1) Administratively set, fixed rate charges
- 2) Value-related (*ad valorem*) charges
- 3) Formula-based charges
- 4) Negotiation-based charges
- 5) Open-bid and sealed-bid auctions (tender)
- 6) Public log market

In this study we are interested in the open-bid and sealed-bid auctions or tender system in allocation of forest. Open-bid auctions are open bidding, where bidders put a price either orally or visually to the auctioneer whereas seal-bid auctions are submitted in writing and in sealed envelopes. In United States both auctions are practiced. In Malaysia tender system through seal-bid auction is practiced besides

other methods. In most cases sealed-bid or tender fetches higher price than open-bid auction. This is discussed in detailed in Chapter Two.

In the State of Pahang, the methods used in forest disposal include negotiation, tender, “freed areas” or salvage logging and minor forest products. Tender is carried out in both Permanent Reserve Forest (PRF) and Stateland Forest but the magnitude of the tendered areas are in the stateland forest. This is because most of the PRF is allocated to long-term concessions. This study analyses tender price of the stateland forest for seven forest districts for the period 1996-1999.

### **Statement of Problem**

The tender price based on area basis as practiced by the state government is considered inefficient. This is because the excess volume of tender estimated from the tendered area is not credited as extra premium. As a result, the government has incurred substantial loss on potential revenue that could be captured under efficient tendering system. Consequently, more areas of stateland forest will be opened unnecessarily to compensate the loss of revenue that could have been collected from timber harvesting activities.

### **Justification**

Many studies have reported that rent captured on timber sale by governments in many tropical countries were low (Sulaiman, 1977; Thomson, 1984; Gillis, 1988a; Repetto and Gillis, 1988; Vincent, 1990; Vincent, 1994; Mayers and Bass, 1998). For

instance, the Philippines the rent capture is about 11.45% (Boado, 1988), 32% in Indonesia (Gillis, 1988b), 12.1% in Peninsular Malaysia (Vincent, 1990), 31.5% in Ivory Coast (Gillis, 1988c) and 38% in Ghana (Gillis, 1988c). Thomson (1984) stated that no policy for the sale of government wood could be soundly based unless the government knows the real value of the wood it is selling. Gillis (1990) noted that the excess profits available to concessionaires, combined with failure in concessions policy and its enforcement, often contribute to excessive rent-seeking behaviour in tropical timber producing countries. Gillis views is supported by Barbier et al. (1994) conclusion that the failure of governments to collect excess profits from concessionaires may provide an additional incentive for timber operators to mine one concession after another in quick succession. In most tropical countries, due to low rent capture have allowed the resource rents to flow as excess profits to timber concessionaires, often through short-term harvesting operations.

Tendering system is the best way where government can increase revenue on forest sale. However study by Thomson (1984) on Malaysian Forest Revenue concluded that it poses a number of problems: (a) the tenders are on area basis and are specific to a particular area, (b) because they are area specific, they cannot be used to determine the wood values of other areas unless all factors are identical- location, topography, volume per hectare and species present, and (c) there are no rules for deciding on which tendered prices to accept on the tenders received- the highest or the average? In this project, a study was carried out only on stateland forest areas, which have been allocated through tendering system with respect to premium. An important issue is whether the tendering system currently practiced by the state of Pahang provides maximum revenue to the state government. It has been stated that the forest



‘have become big business’ but agencies like Forest Department do not operate like a big business. The Government should be concerned with obtaining the highest possible value for public timber and ensuring that timber is awarded efficiently, to the firm (bidder) having the highest timber value (Brannman, 1996).

Thus, a study on tender prices in Pahang is expected to provide a clear picture on pattern and trend of tender prices and its determinant for the stateland forest. The study also provides a policy recommendation on how to improve the tendering system in order to increase government revenue collection without jeopardizing the logging industry in the state.

### **Objectives of the Study**

The objectives of the study were:

1. To study the trend and pattern of tender prices in stateland forest area allocated under the tender system.
2. To compare the tender prices offered by bidders with the reserved price set by the state government.
3. To examine the relationship between tender price and factors affecting it.
4. To estimate the rent capture in timber harvesting activities of stateland forest in Pahang.

## **Organization of the Study**

Theory of stumpage, methods of stumpage determination, techniques of stumpage appraisal, component of stumpage appraisal, previous studies on forest pricing in Malaysia, stumpage appraisal in Pahang and tendering procedures and oral auction and seal bids concepts are highlighted in Chapter Two. The methodology and data analysis are discussed in Chapter Three. This includes the development of the regression model of the tender price. A general discussion of the results of the study is presented in Chapter Four. Finally, conclusion and recommendations are highlighted in Chapter Five. This includes policy implications that emerged from the empirical analysis and suggestions for further studies on tender system in Pahang and Malaysia.

## **CHAPTER II**

### **LITERATURE REVIEW**

#### **Theory of Stumpage**

Stumpage is live timber, “standing on the stump” or standing trees in the forest (Klemperer, 1996). It can be referred to as timber in unprocessed form as it is found in the woods (Davis, 1966). The term can also applied to live or dead standing trees, to timber that is wind-thrown or cut in connection with right-of-way clearing, as long as it is in place and not cut into logs or other merchantable units (Davis, 1966; Davis and Johnson 1987). Stumpage value is what buyers pay for standing timber ready for harvest (Klemperer, 1966). Stumpage value is often termed as the “economic rent” of timber. It represents the maximum price a buyer would be willing to pay for the standing timber approximates the price which would prevail in a competitive market (Gray, 1983; Grut et al., 1991).

Klemperer (1966) distinguished between the terms valuation and appraisal. Valuation is the procedure for finding an investor’s value of an item while appraisal is the procedure for finding market value. Smithusen (1977) defines stumpage appraisal as a method of evaluation of the residual of standing timber. Thus, the terms stumpage valuation and stumpage appraisal are interchangeable. However, Davis and Johnson (1987) argued that valuation is essentially an academic topic and in contrast to appraisal is a legally guided and professional finding of market value. They further

argued that because of special considerations in forestry such as the market imperfections, the element of interest costs for using resources over time, and the abundance of non-market and public goods, require that the professional forester take valuation seriously.

Value is a human perception- it is worth of something to a particular individual, at a given place and moment in time in relation to utility, satisfaction and pleasure. The worth or value received is determine by time, goods, or money an individual willing to pay to obtain, possess or use the good or service in question. David and Johnson (1987) identified three kinds of values: market value, value in use and social value. Market value is the most frequently use which involved the price at which fully informed, willing, and numerous buyers and sellers exchange goods and services that lead to competitive market. Value in use is of something to a given individual- how they value the item (forest) and it uses. Social value involved society as a whole. The benefits are established by legislators, public administrator and sometime on special elections.

The purpose of stumpage appraisal is to estimate the value of the standing timber available for cutting at a particular time and on a particular area (Davis, 1966). It involves the seller and the buyer negotiated on an agreed price. Appraisal or valuation is important in the establishment of the market price as an upset or floor price. In most cases below which no negotiation or bidding accepted. Although stumpage values are simple, in practice they are not easy to estimate as they depend on log prices that vary considerably with species and grade. The stumpage value of

higher-priced species grades can be several times that of lower-priced species or grades and in some cases stumpage can be zero or negative (Grut et al., 1991).

### **Methods of Stumpage Determination**

Stumpage determination is the act of fixing the rates to be paid by the grantee or buyer, be it through a unilateral decision of the forest owner, through negotiation or through auction (Schmithusen, 1977). The determination of stumpage should be aimed at realizing the real value of the standing timber and the true volume of the actual removed raw material. This is important, as it will minimize the danger that stumpage rates will give an incentive either to concentrate exploitation in limited areas of the country or on extraction of high value species or qualities.

According to Schmithusen (1977), stumpage may be determined by a fixed schedule of fees, by timber auctioning or tender and individual negotiations between the parties.

#### **Stumpage Determined by a Fixed Schedule**

In many countries, the stumpage rates are specified in a fixed schedule that is usually attached to forest law or regulations. A company has no choice but to accept the rates if it want to do logging and at the advantage if the rates are low. The disadvantages of fixed rates as follows:

- i) The stumpage rates are usually determined for a long period and often cannot be adjusted rapidly to changes in the value of the raw material.

- ii) The rates are usually fixed at the same level for the whole country or for large forest regions. The areas near the mills will be overexploited, while harvesting in remote regions will be low.
- iii) Often, stumpage is determined at flat rate for all species or for a few groups of species. This can lead exploitation of more valuable species compared to less known species.

There is no good reason why stumpage fixed this way should provide adequate payment for wood removed (Schmithusen, 1977).

### **Timber Auctioning**

A different way to arrive at the value of standing timber is through verbal bidding at public auction or written sealed tenders. The price to be paid is often influenced by competitions. The raw material sold in this manner will give the forest owner a considerably higher price than from fixed stumpage rates. The auction method usually based on minimum price, below which the owner will not sell. This method is good for short-term period (3-5 years) but not for long term utilization contracts since it is impossible to predict the changes of prices and costs over a period of perhaps 10 years or more. Nevertheless, this can be applying but the stumpage should be predetermined at a regular interval.

## **Stumpage Determination Through Negotiation**

For contracts covering large forest areas, stumpage rates are often individually negotiated between the forest owner and the interested company. It could be in the interest of the grantor (owner) to dispose of different methods such as stumpage sales and short-term contracts with public bidding, which will indicate price levels for standing timber that, may serve as a reference for stumpage determination in negotiating long-term contracts. A renegotiation provision is important if the grantor and the company have agreed to keep the price for the raw material low during the initial stage of operation in order to facilitate the establishment or expansion of a forest industry.

### **Factors Influencing Stumpage Values**

As mentioned earlier stumpage value is what buyers pay for standing timber ready for harvest. A knowledge of these factors, and particularly how stumpage prices respond to changes or variation in the factors, will prove useful in designing forest charges that adequately reflect variations in stumpage value and are responsive to changing values. Gray (1983) identifies four factors affecting the stumpage values.

### **Log Prices and Price of Final Products**

Stumpage values to purchasers will vary depending on the products produced. In most instances, plywood prices are much higher than export logs prices. Thus companies with plywood plants would value the timber more highly and in