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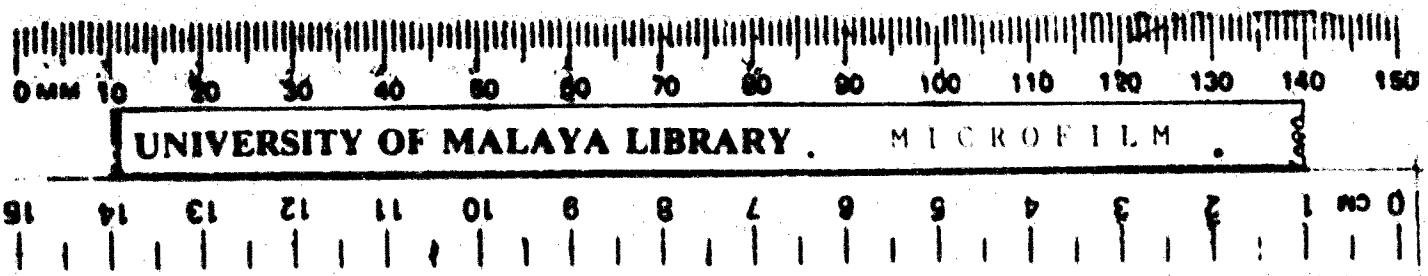

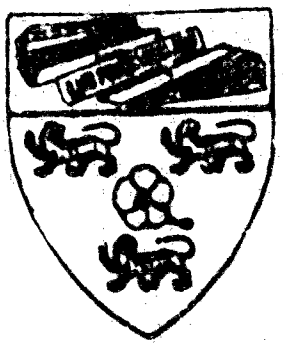

MULA

THE TIMBER INDUSTRY OF MALAYA

by

K.A.Mohamad Ariff

A Graduation Exercise presented to the University of Malaya in part fulfilment towards the Degree of Bachelor of Arts with Honours in Economics

PREFACE

Mr. Yip Yat Hoong, my supervisor, had emphasised three things at the outset: 1. exploration into relatively little known area, 2. originality, and 3. analytical treatment. The topic of my work is of particular interest since little is known about the Malayan timber industry which therefore presented a field in which I could attempt to meet the requirements laid down by my supervisor.

This work is confined to what may be termed "the timber industry proper" which consists of logging, sawmilling and exporting of timber and is not concerned with other wood-using industries such as plywood and fibre-board manufacturing. It deals with the timber industry in Malaya excluding Singapore. But I could not keep Singapore entirely out of the discussion since activities in Singapore inevitably affect the trade in Malaya.

Literature on the Malayan timber industry were not available and this was my major handicap. Secondary sources of information were meagre and were highly technical in nature with little relevance to the economic aspect of the industry. My main guide was the Malayan Forester, a quarterly journal of the Forestry Department in Kuala Lumpur which helped me in the preparation of the framework and outline.

I was thus faced with a dire necessity of depending largely on first-hand information and primary data which I gathered through a series of interviews which involved a period of three months. I chose my respondents - loggers, sawmillers and timber exporters - randomly, but to be objective and scientific I have verified the validity of information by discussions with as many people in the trade as possible.

I am heavily indebted to my supervisor, Mr. Yip Yat Hoong, for his sincere efforts to guide me diligently. His encouragement was the main ferment of my effort. I am also grateful to all my respondents, especially the officials of the Forestry Department of Kuala Lumpur, for their immense help.

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"Wood is shelter and warmth. It is the paper you hold, the book you read. It is the world's most versatile raw material. No other substance provides fuel, fibre, sugar, alcohol, synthetic rubber, explosives and even protein feed, while serving endless structural uses. ..... The chemical possibilities have barely been touched, and fibre chemistry is opening up an entirely new field of physics and textiles ....."

Forestry and Forest Products,
F.A.O. Publication,
1946.

CHAPTER I

INTRODUCTION

(A) IMPORTANCE OF THE TIMBER INDUSTRY

The timber industry in Malaya has more or less been ignored not only by laymen but also by economic circles not because it is of no significance, but because it has been overshadowed by other more important industries which dominate the Malayan economy. Few people have, if at all, any fair idea of the industry and the important position it occupies. The timber industry is now the fifth largest industry in Malaya. Its importance has been enhanced by the establishment of Malaysia since it plays a more important role in the economies of Sabah and Sarawak. Its importance, however, lies not so much on its present status as on its potentialities. It is inevitable that tin mining will die out and it is also conceivable that the natural rubber industry may be forced to succumb to the competition of the synthetic. The lopsided structure of the Malayan economy, which causes concern to many, may have to be corrected by diversification. One of the main fields where such ventures can be launched is the timber industry which possesses within itself tremendous scope for growth and development.

Malaya has 30,000 sq.miles of forest (as at 31st December, 1964). But the produce from the Malayan forests is however not large. The total volume of wood per acre amounts to about 150 tons but most of these are not available in a form suitable for conversion into sawn timber, some being too small or badly shaped or hollow or otherwise defective. In terms of saw logs, the present productivity is only about 11 tons per acre which is far better than 2 - 3 tons per acre some 30 years ago, but which compares, of course, badly with 100 tons or more per acre from the coniferous forests of Northern Europe and the American continent.

The forests products of Malaya in 1962 are shown below in tons of 50 cu. ft. solid measure[1]

Timber (logs) ...	1,612,000
Poles	51,000
Firewood	134,000
Charcoal	224,000
Total	2,021,000

Contribution to Gross National Product

In terms of value, timber production is much smaller than that of many agricultural products. It has been estimated that the value of timber output per annum forms only about 1% of the Malayan Gross National Income.[2] Should we include the value of the processed timber, the timber share of the G.N.P. will be scarcely three times as much as that of round-wood output.

The sawmilling industry, which forms an integral segment of the timber industry, is important in itself. There are 411 sawmills in Malaya excluding the 43 mills in Singapore. In 1962 the Peg-Malayan sawn timber output approximated a million tons.[3]

The timber industry also plays a significant role in its contribution to Government revenue, although no tax is imposed on export timber. Revenue from forests accruing to the Government in the form of royalties, premiums etc. is substantial, the net revenue rising from $1,306,816 in 1947 to $12,548,119 in 1962.

Contribution to Export Trade

Malaya's economy is heavily geared to export trade, which contributes about 40 % of the Malayan National Income. The export trade itself is characterised by strong skewness in that Malaya's two primary products,

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[1] Report on Forest Administration, Federation of Malaya, 1962 (unpublished).

[2] Zaharuddin b.H. Ghazali, Development Prospects for Forest Industries in Malaya, Thesis for Diploma in Forestry, University of Oxford, 1964, p.83.

[3] See Appendix H.

namely rubber and tin command jointly about 79% of the value of total exports. The importance of the timber export of course dwindles when compared with these major commodities. Prior to 1948, Malaya was a net importer of timber, but the rapid growth during the post-war years made Malaya a large exporter of sawn-timber.[4] Today, Malaya ranks as one of the biggest timber producers among the Asian countries.[5] Malaya's contribution to Asian exports of sawn Hardwood timber is shown clearly in Table 1 below.

TABLE 1

SAWN HARDWOOD EXPORTS OF MALAYA COMPARED WITH ASIA 1946-60
(1000 cu. metres)

	1946	1950	1955	1960
Malaya	33	170	202	41
Asia	80	670	1090	1445
Malaya's percentage share of Asian export	41	25.5	20	28.5

Source: Baharuddin b.h. Ghazali, Development Prospects for Forest Industries in Malaya, University of Oxford.

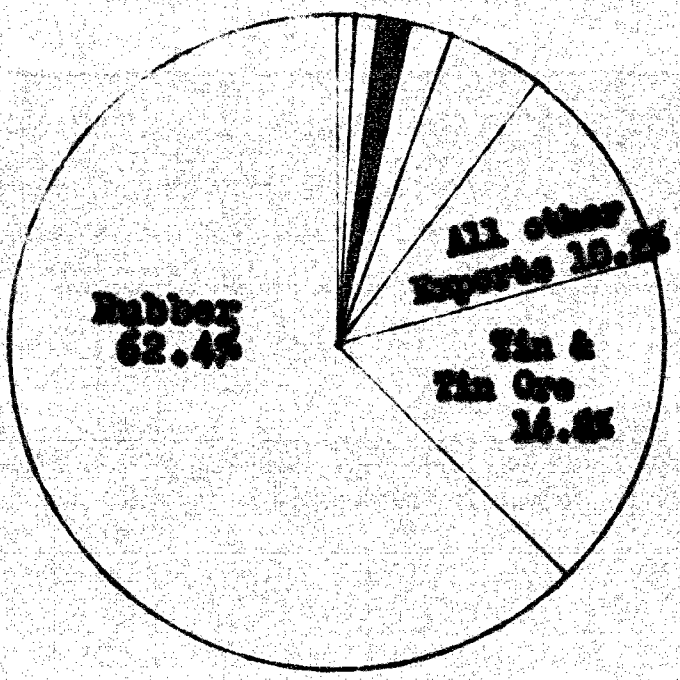
Malayan timber exports have maintained a steady but insignificant proportion of the total value of exports. Timber exports account for only about 1.6% of the total export values as illustrated in Figure 1, while rubber exports alone constitute about 22% of Malayan Gross National Product. Timber exports account for only about 0.4% of

[4] Even today, Malaya imports a few timber regularly for specific uses, Teak being the most popular used for expensive furniture and cabinet making. Others include Lingum Vitae and Douglas Fir which are used for very special uses and are not sold locally. Malayan sawn-timber imports amounted to 3513.30 tons in 1963 (External Trade Statistics, Malaya, 1963).

[5] See Tables 7 and 8.

FIGURE 1

PIE GRAPH SHOWING COMPOSITION OF MALAYAN EXPORTS
(Percentage of average annual value for 1959-1961)



Source: Federation of Malaya Yearbook, 1962.

Malaya's Gross National Product. Timber export occupies fifth position preceded by rubber, tin, iron ore and oil palm in order of importance. Its position becomes more important in the Malaysian context where it is the third most important export commodity preceded by rubber and tin and followed by iron ore and palm oil in that order.

Malayan timber exports, although insignificant in relative terms, plays an important part as a foreign exchange earner in absolute terms. Slow but steady progress has been made in timber exports as can be seen in Figure 7. Pan-Malayan timber exports presently bring in over $60 million which is substantial, indeed.

Source of Employment

The timber industry in Malaya provides employment for a substantial segment of the Malayan labour force. It is, indeed, difficult to present a precise figure of the employed owing to the fact that many a number are

employed seasonally and sporadically, many of them having more than one occupation. It has, however, been estimated that well over 25,000 persons, mainly from rural areas, are directly employed in logging and sawmilling. It is also known that for every person thus directly employed, there are about 4 others engaged in tradee closely associated with or dependent on the timber trade. Thus we have no less than 125,000 people directly or indirectly depending on the timber industry for their livelihood.[6]

In sawmilling alone 7,000 persons were employed in 1962.[7] Should we include other-wood using industries (Plywood and Particle Board Mills) the numbers employed soared to 9000 in 1962.[8]

(B) TYPES OF FORESTS

Malaya has large areas under forests, 30,000 sq. miles[9] (as at 31st December 1964) which cover about 60% of the total land area. But much of these a e of little economic importance since they largely consist of timbers of little or no commercial value which is not conducive to exploitation. Moreover, the nature of the terrain and presence of heavy undergrowth tend to reduce accessibility. Broadly speaking, Malayan forests can be classified into six major groups:[10]

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[6] Editorial, The Malayan Forester, July, 1959.

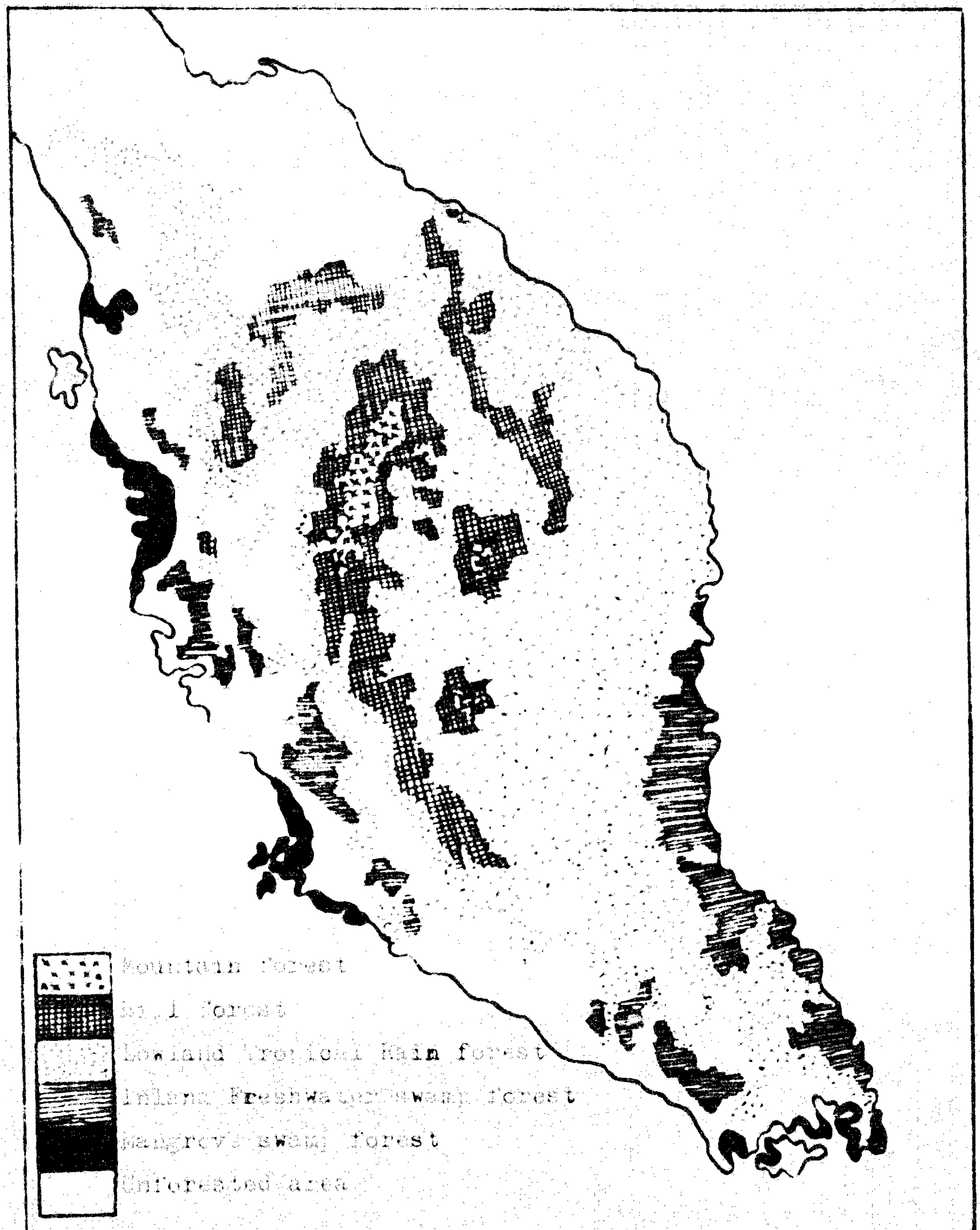
[7] Chinese numbering 5,444, Malays 1,382 and Indian 140. (Report on Forest Administration, Federation of Malaya, 1962).

[8] Comprising 8925 Full-time workers and 213 part-time workers (Principal Statistics of Selected Manufacturing Industries, 1963, States of Malaya, Dept. of Statistics, Kuala Lumpur).

[9] Of these, 12,600 sq.miles (42.25%) consist of Forest Reserves, 2,600 sq.miles (8.59%) of "Wild Life and other Reserves" and 14,700 sq.miles (49.16%) of Crown or State Lands.

[10] See C.O. Flemmich, Timber Utilisation in Malaya, Singapore, 1959, and E.H.G. Dobby, Southeast Asia, London, 1964.

FOREST TYPES OF MALAYA



Source: E.H.G. Dobby. Southeast Asia, London, 1958

1. mangrove swamp forests, 2. beach forests, 3. freshwater swamp forests, 4. lowland tropical rain forests, 5. hill forests, and 6. mountain forests. (See Map. 1)

Mangrove Swamp Forests

Stretching mainly along the West coast from Kedah to Singapore, the mangrove forests range from 50 yards to 12 miles in width. They grow in tidal waters and cover about 460 sq. miles and are worked exclusively for charcoal, firewood and poles.

Beach Forests

In places where mangrove forests or rocky headlands do not occur there is a narrow fringe of beach forests of about 50 ft. wide, mainly along the east coast. These provide timbers of little or no economic importance which are mainly used for building fishing boats.

Freshwater Swamp Forests

These cover about 2000 sq. miles of alluvial flats near coastal areas. They often grow underwater and the mineral soil is frequently covered with a layer of soft peat of varying thickness which renders exploitation difficult. These contain relatively fewer tree species which include some commercial ones and thus can make an useful contribution to timber supplies in Malaya. However, owing to inaccessibility over the swampy ground, this source of supply remains almost untouched.

Lowland Tropical Rain Forests

These lowland dipterocarp forests occur on dry land, stretching from sea level upto an altitude of about 2000 ft., and occupies about 50% of the Malay Peninsula. These forests provide the bulk of the Malayan timber supplies and of minor products such as rattans and damar. Thorny undergrowths such as Bertain and Kelubi do not impede access to the commercially valuable reserves. These yield such valuable timbers as Chengal, Balau, Kapur, Keruing and Meranti. The ecological altitudinal limit for species in these forests is about 2000 ft, but the steepness and broken nature of much of the terrain prevents exploitation of higher slopes and 1,000 ft. is the average altitudinal limit for exploitation.

Hill Forests

Hill dipterocarp forests develop on uplands and ridges between 2,000 and 4,000 ft. and provide timbers of little commercial importance. At this altitude most Keruing disappear. Exploitation is physically impracticable owing to altitude except in a few limited localities. Exploitation in these forests is economically unattractive because of their low and variable timber content. They, of course, play an important role in conserving water supplies and preventing erosion.

Mountain Forests

These consist of forests above 4,000 ft. and contain little, if any, economic species, and are left untouched except in the vicinity of hill stations. The only tree of commercial use is the "mountain oak" used for local firewood and hill station structures.

CHAPTER II

HISTORICAL BACKGROUND

Early Interests

Timber exploitation and utilisation in the Malay Peninsula have undergone the normal historical sequence, from the phase of a highly selective logging of a few important species, held in high esteem to the present day, in the initial stages to that of a more complete utilisation of a far greater number of species as is being done today.

Existing evidence show that as early as the 8th century, the Chinese had interests for the Malayan Kapur from which crystalline camphor was obtained[1] and for Chengal for a century or more ago. An early demand for Malacca cane is also known to have existed. Even at the beginning of the present century the demand for the Malayan timbers was almost confined to the species of Chengal and Merbau which were widely used for all purposes t ey being both naturally durable. At this time too, the Forest Department was interested in Tebau Merah because of the valuable gutta percha obtained from its exudate.[2]

As time advanced, greater number of species were exploited and used. In the mid-twenties the demand

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[1] I.H. Burkhill, A Dictionary of the Economic Products of the Malay Peninsula, London, 1935.

[2] J.Wyatt-Smith, "Development of Silvicultural System For the Conversion of Natural Inland Lowland Evergreen Rainforest of Malaya", The Malayan Forester, April, 1959. p.136.

still centred around Heavy Hardwoods mostly for railway sleepers for which Chengal, Merbau, Resak, Giam and Palau were used. A few other species, especially Meranti with light wood, were also exploited, but the emphasis was still squarely placed on the Heavy Hardwoods.

The demand for the Malayan species increased annually during the thirties. Gradual replacement of hand-sawer by power-driven sawmills made possible the exploitation and utilisation of species which were previously either ignored or converted into firewood. Although these simple technological break-throughs did bring many species into common use, the propertion felled of Light Hardwood to Heavy Hardwood was still low. It was only after the second world war that the Malayan timber industry began to enjoy a brisk demand for timber of all categories both at home and abroad.

With the introduction of more modern methods of extraction and hauling, it became economically necessary to remove all usable trees in a single operation. The number of commercial species removed still, however, depended largely on the distance of the forest operation from the market. Even today, this situation has not changed radically yet. Exploitation in Malaya still tends to be selective on the sparsely populated and distant East Coast and even in Pahang where there is a long rail haul to Singapore or long road haul to the sawmills and consuming centre in Kuala Lumpur.

The Sawmilling Industry

In the early twenties and before, all conversion of timber in Malaya was by means of handsawers and the sawmilling industry was confined to a few sawmills in Singapore and Teluk Anson, the former depending largely on Sumatra for their log supplies.

The first sawmill is known to have been established in Singapore before 1900.[3] The handsawer could process only a very limited number of species which were then easy to saw by hand and this had the unfortunate effect of breeding prejudice among consumers in their choice of timber. The first machine-powered sawmills were built in Singapore and these gradually spread to Teluk Anson and Mentakab by the middle twenties.[4]

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[3] C.O. Flemmich, op.cit., p.13.

[4] Durgnat, "Some Aspects of Malaya's sawmilling Industry", The Malayan Forester, October, 1958, p. 215.

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[3] C.O. Flemmich, op.cit., p.13.

[4] Durgnat, "Some Aspects of Malaya's sawmilling Industry", The Malayan Forester, October, 1958, p. 215.

These technological strides, however, did not expel the handsawers from the industry and the handsawers continued to produce a far greater outturn mainly of Red Meranti and Chengal.

A turning point in the history of the sawmilling industry occured in 1929 when M.F. Chipp was appointed as Forest Engineer whose attention was focussed on the short-comings of the sawmilling industry. To increase the supply of logs, roads and tramways were built in forest areas and free advice was offered to prospective sawmillers on the construction of their mills. Measures were taken to prevent haphazard development of the industry. Legislation was first introduced for the licencing of sawmills so that it became necessary to get the approval of the Forest Engineer to set up mills. In 1931, there were only 8 sawmills in Singapore, 1 in Johore and 3 in Penang, all of them being owned by Chinese. The equipment then were old, labour was only casual and output was intermittent.[5]

By the end of 1933 several more mills were in operation and exports of sawn timber to Europe from Singapore had already begun. During this period, demand for wooden cases from the pineapple canning industry gave a considerable fillip to sawmilling. In 1937 there were 63 mills, 56 of which were owned by Chinese, 3 by Europeans, 1 by an Indian and 1 by a Japanese. The industry than used 287 circular saw-benches and 11 bandsaws employing about 3,000 men.[6] By 1939, there were 78 mills in operation with an annual output of 10 million cu.ft. of sawn timber.[7] The number of sawmills increased to 80 by 1940, whose outturn accounted for 65% of all logs produced, the remaining still being handsawn.

Circular saws were most popular because they could withstand rough handling by the unskilled labourers and also because the initial outlay and maintenance costs

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[5] Report on Forest Administration, Malaya, 1931.

[6] Report on Forest Administration, Malaya, 1937.

[7] C.O. Flemmich, op.cit., p.13.

were low. Saw benches were introduced in Malaya from England from where these were imported for some years. Very soon practically all the sawmilling equipment were being produced by engineering works in Malaya. Most of the machines were, however, housed in primitive buildings and were driven by semi-portable steam engines usually bought at second-hand from abandoned tin mines. This does not mean that the mills were inefficient. The local Chinese is wellknown for his remarkable ingenuity and many labour saving devices were adopted as a result of which high rate of production, though the finished product was often rough, was achieved. One of the notable adaptation was the needle-pointed widely spaced teeth of the circular plate saws which enabled better cutting at high speeds on the interlocked-grained Malayan timbers than any standard tooth ever devised.[8]

The Japanese Occupation

The war period and the Japanese occupation caused a great deal of harm to the timber industry in Malaya. The industry was disrupted and was almost in ruins. Many small unlicensed mills with single benches, which were economically sub-marginal, sprang up. There is evidence of heavy exploitation during this period mainly for defence projects and boat building by the Japanese.[9] From the vast quantities of logs left lying in the forests it is inferred that the extraction and transport system could not cope with the demand in the latter stages. It is believed that there were 71 sawmills in 1941. Of these 20 were destroyed or dismantled during the Withdrawal or during the Japanese Occupation. Some 30 mills were constructed by the Japanese and 13 by private enterprise during the Occupations.[10]

The Emergency

The Emergency which followed the Occupation, caused the sawmillers extreme difficulties. Forest mills had to be frequently closed or protected by armed policing

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[8] Ibid.

[9] Report on Forest Administration, Federation of Malaya, 1946.

[10] Ibid.

Logging areas were often closed for long times or had to be shifted constantly to meet the requirements of the Security Forces. Erection of perimeter fences and police barracks increased costs. Many large mills were forced eventually to quit the forest areas and to migrate into urban centres were conditions were more favourable.[11] This, of course, led to longer log hauls from the logging area to the mill at an increased cost, which, however, was offset by the reduction in cost of security measures. But expensive equipment could not be safely operated in forest areas. Direct terrorist attacks on sawmills were not uncommon. During this period over a dozen mills with large sawn timber stocks were burned to the ground; many locomotives and lorries were destroyed and haulage buffaloes were not spared either.[12]

Thus the Emergency upset the industry most by forcing the mills into the towns, confining logging to certain areas (concentration of logging operation in certain areas were advocated for security reasons), increasing the wages of loggers while reducing their working day to about 4 hours (the workers were forbidden to take food into the forests) and preventing adequate supervision. The industry was saved from this painful strangulation by the easing of the Emergency.

The Export Trade

There are no recorded evidence to indicate when the trade first began although old statistics do show that there was a substantial export of timber as early as 1885.[13] It was only in 1932 that the first trial shipments of Malayan timber were exported to the United Kingdom.[14] In 1933, 320 tons were exported, the species involved being mainly Meranti with Keruing, Kapur and a little Geronggang and Sepetir.[15]

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[11] Ibid., p.14.

[12] J.P. Edwards, "Malayan Timber Exports to the United Kingdom", The Malayan Forester, July, 1951, p.140.

[13] Editorial, The Malayan Forester, October, 1959.

[14] Editorial, The Malayan Forester, July, 1956.

[15] Durgnat, op. cit., p.215.

In pre-war years although timber exports thus took place, the quantity involved was too negligible. Only a few selected species were exported on Government-to-Government basis mainly to the United Kingdom. Ungraded timber was exported also to the Middle-East countries and Mauritius before the world war II.

It was only after the war, since 1948, that exports became important to the timber industry in Malaya. First exports in the modern sense by private exporters were done to the United Kingdom and Australia in 1948. The present trade in good quality graded timber stemmed from the publication of the Malayan Grading Rules by the Government in 1949. Graded timber exports from Malaya have leaped from a meagre 3,000 tons in 1948 to 168,000 tons in 1962 although with a great deal of ups and downs. In early 1948 there were only 3 exporters in Malaya and Singapore. Within six months the number of exporting firms increased to 7.

There are no restrictions on timber exports in Malaya except that logs were not allowed to be exported until 1959 when two species namely white Meranti and Merawa were allowed. In 1963 the ban on export of Kempas in log form was lifted. Today the Malayan timbers are exported to some 50 countries all over the world and most of the Malayan logs are exported to Japan. Timber exports have become increasingly important as a foreign-exchange earner to Malaya and in Pan-Malaya today there are 133 exporters, although only about 80 of them can be said to be prominent in the trade.

Post-War Developments[16]

The year 1946 marks the beginning of an era of rapid development for the industry which had suffered considerable dislocation during the war. Increased demand at home and abroad for rehabilitation was the spur to this unprecedented expansion which continued despite many setbacks caused by the Emergency.

The huge increase in population with increased per capita consumption of sawn timber, the deficiencies of the War years and the boom period in the early fifties led to a tremendous increase in production. In 1958, there were 434 mills operating with an output of nearly 34

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[16] See Appendix D

million cu. ft. of sawn timber.[17] A large number of these single-bench mills spread all over Malaya in small towns to meet local demand. The Emergency was, in a sense, a blessing in disguise in that it necessitated better methods of operation and gave rise to technological improvements. After the Emergency some sawmills had begun operation closer to the forests again and few had taken this opportunity to install modern log-carriers using large bandsaws for breaking down the logs. Sawmillers began to appreciate the need for preventing waste, and now change-over from circular resaws t to small handfed 4" blade bandsaws is taking place rapidly.

The 72" rack-fed break-down bench maintained for a long time its popularity for cutting flitches from the logs, but now in many mills flitches are passed on to bandsaws for resawing, which with 1/8" kerf and feeds of 120 to 140 feet per minute give a very high and economical resawing outturn. The handsawer has now practically disappeared though he may still be seen working even in Singapore where long planks for the boat building industry are still hand-sawn.

These improvements in techniques have led to greater utilisation of Malayan timbers and greater variety is now exploited and utilised. The emphasis on Heavy Hardwood, is now waning off and attention is now focussed on light hardwoods. The following table illustrates clearly the increased demand for timber during the past 40 years and also the increased proportion of naturally non-durable timbers utilised.

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[17] Report on the Forest Administration, Federation of Malaya, 19[illegible].

TABLE 2

VOLUME OF TIMBER EXPLOITED IN TONS OF 50 cu. ft

Year	Heavy Hardwoods or naturally durable timbers	Light Hardwood or not naturally durable timbers	Ratio of Heavy Hardwood to remainder
1925	36,000	72,000	1: 2.0
1935	56,000	142,000	1: 2.5
1939	126,000	369,000	1: 2.9
1950	95,000	638,000	1: 6.7
1955	86,000	1,021,000	1:11.8
1963	7,895,000	87,265,000	1:11.5

Source: Annual Reports of the Malayan Forest Department.

The above development in forest utilisation has been the result of the introduction of sawmills, the more modern methods of extraction, years of extensive research, increased botanical and wood technological knowledge of the timber species and modern development of wood preservation. Kempas and Keruing provide excellent examples of improved utilisation of Malayan timber resources. Kempas was left in the forest untouched until post-war when it was found to be extremely suitable for railway sleepers when treated with a preservative. Keruing is now not only one of Malaya's most important species, but also produce the most preferred timber for export to the United Kingdom where it is used also in rail-wagon construction. Thus species once completely ignored have now become commercially valuable. The growth of other wood using industries in Malaya such as plywood manufacturing have contributed toward widening the Malayan market for timber. The present trend in the utilisation of timber products although satisfactory still leaves room for further strides in this direction.

CHAPTER III

DEMAND

The Present Trend

That there are adequately ready substitutes for timber is a fallacy. No one substitute is as versatile as timber. Timber is cheap, available in various sizes and species, has tremendous strength in relation to weight with low heat and sound conductivity and can be shaped and fixed easily.

Demand for timber is a derived demand - derived from the uses to which they are put. Timber is a material capable of a great range of uses. From early times it has been used as fuel and also used in the construction of buildings and in shipbuilding. In all these uses timber consumption has fallen greately but this does not mean demand for timber has ceased. New uses for timber, new by-products from timber are constantly discovered thereby widening the market for timber by opening up new avenues. Large quantities of timber had been used and still are being used in the mining industries, especially in the coal mining industry, all over the world. Timber also provides rawmaterials for the production of rayon, viscose, acetate, paper, plywood, hardboard, fibre-board etc.

Substitutes for timber especially in the construction industries are a real threat, but the peculiarities of timber are such that demand for timber does not slacken despite the presence of these substitues: timber is now increasingly used for decoration purposes on walls, ceilings and floors. The pulp and paper manufacturing industries still remain the major source of demand for timber.

In spite of the growth of substitutes, world demand for timber has been increasing steadily. Consumption of timber seems to be positively correlated to the

standard of living in any economy. Contrary to popular belief that increasing incomes tend to reduce outlay on timber, empirical evidence prove that income effect is positive in developed countries as far as timber consumption is concerned. Every development in science and in the country's economy seems to improve the demand for timber. Australia has a per capita consumption of sawn timber of 15 cu. ft., while Germany and the United Kingdom both have a per capita consumption of 6 cu. ft. Malaya with a per capita consumption of 2.75 cu. ft. of sawn timber[1] already probably uses much more timber per head than any other Far East Asian country outside Japan. The present trend is towards increased consumption of timber per head and rapid developments in the world economy bolster this trend.

Although world demand for timber <u>in general</u> is thus wide and inelastic to some extent, the demand for Malayan timbers in particular is not that well established. Malayan timber species are of the hardwood category for which there is very little scope in the pulp and paper manufacturing industries. Malayan timbers are not popular even at home, leave alone the overseas market. Only a few species have, if at all, established for themselves secured positions in the foreign market. About 24 species are exported from Malaya, but only a handful of these are of any importance in terms of both volume and value: Meranti, Keruing, Jelutong and Damar Minyak, in that order. Of these Meranti and Keruing constitute about 80 percent of the total Malayan graded exports. Australia and the United Kingdom are the biggest buyers of Malayan timbers, importing about 40 % of the total Malayan timber exports. The principal buyers of Keruing are the United Kingdom, Australia and West Germany. More than 70% of Light Red Meranti exports go to Australia which also imports about 95% of Malayan exports of Damar Minyak and about 50% of Malayan Kapur exports. South Africa takes in about 84% of Red Meranti exports from Malaya while most of the Dark Red Meranti goes to France and Belgium.

Although there is no imminant danger of threat from substitutes to timber in general, threats are quite

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[1] Lim Chong Yah, "Port Swettenham Timber Exports," <u>Traffic Flow Through Port Swettenham Projected to 1975</u>, University of Malaya, 1964.

real as far as the Malayan species are concerned. Tropical timbers compete with one another in the world market. Malayan species face tough competition from those from Siam and Philippines and compete even with non-Asian species. Malayan Keruing, for example, faces keen competition from the Siamese Yang; Parana of South America competes with our Damar Minyak; and the Russian Cedar competes with our Meranti in the Australian market. The species from Siam and Philippines, in this respect, perhaps, have greater lead over the Malayan species in the overseas market because of their popularity although our timbers provide perfect substitutes for the rival species.

Although the export market is more important in terms of value to the timber industry of Malaya, it is the local market which is of greater importance in terms of volume because only 30-35% of the total sawn timber productions are exported, the rest being consumed at home.[2] Our local market itself is not free from prejudice, for local users still prefer well-known imported species, especially Teak. Preservation facilities and years of research have endeavoured to eradicate this bias with considerable success. The timber trade in Europe, too, is peculiarly conservative and it will take years to popularise a timber on such a selective market.

Demand for Malayan timbers is therefore highly elastic and the Malayan share of the overseas market is very flexible depending on price levels and on the conditions of supply in the competing countries.

Domestic uses of Malayan Woods[3]

The kampong folks depend mainly on local resources for most of their needs. Gunva, Kelat, Dungun and Leban are commonly fancied for foot-handles while for ploughs and plough-handles Leban is preferred and for mallets Dungun is used. Nemesu and Medang are held in high esteem for building constructions. Sena, Sepam and Sepetir are the main species used for parang-sheaths. Tops of the larger variety used for the famous national games of "main gasing" are made out of Penaga.

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[2] See Chapter 6.

[3] The Utilisation Branch of the Forest Department, Kuala Lumpur provided much of the information for this section and the next section.

Although Moroa and Kopetir are used for carving by the aborigines, Nyireh is much preferred. They make strong springy and attractive walking sticks out of a shrubby tree known as Jerentan. Punaga is reported as the wood used for making bows.

In the urban areas forms of timber use are well known. For building and general construction a wide variety of timber is now commonly used if these are available in preservative treated form. Balau has established itself as the standard wood for bridge girders and posts while Red Balau is widely used for bridge decking. Kempas, Tualang, Meranji and Red Balau occupy an unrivalled position as the best parquet flooring material. Jelutong is used for the making of bus bodies. For panelling purposes Kemesu is preferred to other Light Hardwoods, although Ramin is invariably used if light coloured woods are fancied. In areas where Meranti Bakau occurs this is preferred to Light Red Meranti for building construction especially for roof timber, for it is said to be more durable. Merbau has been popularly used for decorative works, such as cabinet and joinery works, but experience has shown that even thoroughly seasoned wood when converted into smaller sizes frequently twist and deforms excessively. The Timber Research Institute has received complaints that Keruing used as cross-arms locally splits badly. Tembusu is used popularly as butcher blocks, although it is now believed that Ru is a much superior wood, for the latter is said to last at least twice as much as Tembusu.

Surveys of sawmills and timber depots reveal that species which are in popular demand in the local market include Balau, Chengal, Merbau, Kapur, Kempas, Tualang Keruing, Mengkulang, Jelutong, Dark Red Meranti, Light Red Meranti, Yellow Meranti, Meraaua etc. Some species formerly considered as of little economic value are observed to be coming into prominence. Pelong is increasingly exploited for planking, scantlings, strips and batten. Substantial quantities of Mentas are going into building constructions mainly as roof timber and posts. The Malayan railway uses considerable amount of Keruing and Kempas for railway sleepers and for coach building. Other species known to be commonly sawn for general constructional projects include Chempaka, Petai, Derum, Karas, Berangan, Bekat, Resak etc.

The 411 sawmills in Malaya take in about 1.3 million tons of logs. The plywood factories (6 in 1962)

in Malaya consume about 10,000 tons of timber. About 4,000 tons of logs are used annually by the three malayan match factories.[4] Statistics are not readily available regarding the timber inputs of the wood-wool slab factory and the particle-board factory in Johore Bahara.

Foreign Uses of Malayan Species

Very little information could be gathered on the end use of exported woods. The present trend in the export trade indicates that more and more of Malayan species find an increasingly favourable place in the foreign market where they are put to various uses for which non-Malayan species were previously used.

Dark Red Meranti is becoming increasingly prominent in some parts of Europe, especially in Belgium and Holland, and in South Africa for use in joinery, furniture and general construction. France, however, is known to prefer Light Red Meranti because of its easier working qualities.

Dark Red Meranti was once well sought by the New Zealand importers, but at present this is said to have suffered a setback because the Housing Department of the Ministry of Public Works has scrapped off this wood off the list of woods ap roved for joinery. The allegation by the New Zealand authorities that Dark Red Meranti is "too prone to distortion" has met with severe objection and protest by the Malayan exporters. There are also reports from New Zealand that Keruing is susceptible to cattle attack[5] and that Balau bridge decking is more slippery causing more fatal traffic accidents due to the skidding than non-Malayan timber decking. The Malayan reaction to these complaints is that there are baseless allegations.

In some parts of Europe, Keruing is said to have been tried for the manufacture of brush backs as a substitute for Beech, but was found to be unsuitable due to its susceptibility to surface checking. In Continental Europe, particularly in France, Mengkulang is widely

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[4] One of these factories is known to import part of its requirement of timber from overseas.

[5] New Zealand cattles are said to relish and eat up the Keruing fence posts.

used for wine casks, and Penarahan and Terentang for packing cases and crates. Mengkulang, Red and White Meranti are used in the European plywood factories. In the boat-building industry Nemesu and Serayu are used for planking Giam for keels, Tembusu for decking, Terantang for masts, Chengal and Balau for boat frames and Keladang for ship-decking.

In the American market, greater interest is shown in the Malayan woods in recent years. American wood-using industries are said to be seeking supplies of Malayan Kauri, Jelutong, Merawa, Mempisang for the manufacture of broom and brush handles. Pakistan and Iraq are known to be interested in Keruing and Kempas for the making of railway sleepers. The United Kingdom imports large quantities of Keruing and Kempas for railway wagon building and railway sleeper manufacturing. Japan has special interests in white Meranti and Merawa for use in the plywood industry.

Interest in Malayan woods is increasing in the overseas markets. Some European countries and Australia are known to be seeking suitable substitutes for a variety of woods such as the West African Panga Panga, Jebere, Missanda etc., the New Guinea woods of Erima, Tuan, Basswood, Beech etc., the Australian Jarrah, the South American Greenheart, the North American Oak etc. There are also possibilities of Malayan woods being used in the manufactures of gun stocks, salt water piling, brush back and brush and broom handles, archery bows, bowling alley flooring, crossties, wooden platters, carving etc.

The Future Outlook

The past performance and the present trend all point to a potential increase in demand for Malayan timbers in the world market. Although competitions from synthetics is too remote to worry about, rivalry from the non-Malayan species is too real to ignore. Though Malayan species are growing in popularity in the world market today there is still large room for further improvements in this direction.

Malayan species are vulnerable to fungi and insects during growth, after felling and during storage; Oxidation breaks down the structure of the timber; and difficulties are experienced in the making of good joints. These drawbacks are, however, not peculiar to the Malayan

species alone, but are common among most of the tropical woods. Chemical and pressure treatment overcomes these shortcomings to a great extent. Malayan Heavy Hardwoods are estimated to last about 300 years while the economic life of the lighter woods is said to be about 100 years. Preservative treatment of timber extends the economic life of the timber and widens the range of uses to which they can be put.

The present per capita consumption of wood in Malaya is only about one-seventh of that in America, Australia and in some European countries. With the increasing standard of living, the per capita timber consumption is expected to rise from 2.75 cu. ft.[6] to about 5 cu. ft. in the forseeable future and this coupled with the increasing population at the rate of 3.3% per annum local consumption of timber is expected to rise. Similar trends can be expected in the overseas markets. Foreign countries are experiencing difficulty in the supply of timber from their local reserves which fall short of demand and thus are seeking supplies from outside. Thus there is a promising market for Malayan species in the overseas markets although competition from the non-Malayan timber substitutes would no doubt enhance the elasticity of demand to some extent.

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[6]There are differences in the per capita consumption between States of Malaya, Perlis, for example, having 1.35 cu. ft. per capita while Selangor, 3.8 cu.ft. per capita.

CHAPTER IV

SUPPLY

Sources of Supply

Log supplies in Malaya come from the vast forest resources which cover about 60% of the total area. Of these Pahang and Perak jointly account for more than 52%.[1] Broadly speaking, Malayan sources of timber supplies can be divided into two major categories - State Land Forests and Reserved Forests.

State Land Forests refers to those that are eventually to be cleared and passed on to the State Land Officers for alienation. This source of supply claims about 49% of the total forest areas. Supply from this source tends to be inelastic because of continued exploitation for development purposes. In the 2nd Five-Year Plan about 250,000 acres of new land would have to be opened up between 1961 and 1965 for 12 land development projects per year, and this source thus releases considerable amount of logs no matter what happens to the price of timber.

Forest Reserves, on the other hand, is under the management of the Forest Department which is concerned with long-term programme of providing the requirements of the country on a sustained yield basis[2] and it is consequently in the Forest Reserves that silvicultural treatment is undertaken. At present about 42% of the total forests are under Forest Reserves. Timber supply from this source thus depends entirely on the regeneration policy of the Forest Department.

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[1] See Appendix B

[2] Supposing 70 acres are leased out for felling at a rate such that one acre would be felled yearly and regenerated subsequently. By the time the 70th acre is felled in the 70th year the trees on the first acre could be 69 years old and would be ready for felling in the 71st year. The 'rotation' then, is 70 years and the 'annual coup' one acre. By this means sustained yield is maintained.

Logging

Logging is a specialised activity undertaken by either the independent logger or the sawmiller himself. All rights to the forests are vested in the hands of the State Governments which alone have the right to issue licenses or permits for logging, although the Forest Department retains a large say in the case of Forest Reserves. Unworked or virgin areas are leased out on a tender basis at a high premium which depend on such considerations as quality and quantity of available species and the nature of the terrain and working conditions which may affect the cost of extraction. In the case of previously exploited areas, the so-called K.S.K. areas (Kawasan Sudah Kerja), licences are issued quite freely without any premium. The length of the lease and the size of the leased area vary from case to case. Recently, with the increasingly large amount of capital employed, operators have justifiably insisted on a legal right to a large working area even if the actual area to be worked annually is small. This has led to inauguration in many states upto 10 year-long agreements.

Operators in Malaya are local and foreign investments in this field is absolutely nil unlike that in Sabah and Sarawak. Local operators are largely of very small size compared with the large foreign companies that have pioneered the exploitation of tropical rain forests in many areas outside Malaya. Locally, the operators are largely Chinese, except in some of the northern States, but recently a serious attempt has been made to encourage Malays to play a more active role in the timber industry and special Malay reserves have been set up to accomplish this. Unfortunately, in actual practice, Malay licensees tend to leave operations (one reason being lack of capital) to the Chinese counterpart for a fixed sum.

Extracted timbers, before leaving the logging area, have to be checked and measured at checking stations which are situated along roads at strategic points. After measurement, the Forest Guard at the station issues a "Removal Pass" in which is stated the exact type and quantity of produce carried. The duplicate of the Removal Pass is sent to the District Forest Office concerned for accounting purposes. The licensee then normally settles his account monthly having a large deposit. The larger mills virtually act as checking stations in themselves with a resident Forest Guard to check the logs entering the mill

and to issue the Removal Pass.

Generally speaking, exploitation is done far more thoroughly by the sawmiller than by logging contractors. This is hardly surprising since the sawmiller will take anything that can be reasonably sawn whilst the independent logger will only take what he can sell at a profit. In the case of State Land Forests, the operator is at liberty to extract the desired timbers leaving the unwanted ones, whereas operators in the Forest Reserves are obliged to clear the land for silvicultural reasons no matter whether they need the species or not.

Sawmilling

Sawmilling in Malaya is largely kept separate from logging except in the case of a few large ones which attempt at vertical integration so as to achieve some economies of scale, and these have their own working areas with their mills sometimes located near the source of supply or near the market. But even the big ones, nowadays, prefer dealing with independent loggers to undertaking logging themselves. There are many reasons for this preference. Logging is a 'speculative' activity with a high degree of risks and uncertainties. It is difficult to survey the forests thoroughly before leasing, except a limited portion of it. Most surveys are confined to aerial view which, however, tells very little about the quality of the timber. The prospective operator therefore faces the dire necessity of making his decision based largely on guesswork. There is a risk of not having a sufficient quantity of quality timber, in which case the logger stands to lose. Moreover, in the case of Forest Reserves, the logger has to remove all species no matter useful or not which may add more to his costs than to his revenue. The sawmiller to avoid all these uncertainties and risks orders required species with a regular log supplier. If demand for a certain special falls, order can be curtailed, but if the sawmiller does logging himself, operation cannot be stopped so easily because of heavy initial costs and labour commitments. One advantage of operating one's own working area is the security and regularity of log supplies, (without depending on others) so essential for large investment in the sawmills. But this aspect is of little importance since the financially sound mill can always manage to procure for itself desired species at any time under normal circumstances.[3]

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[3] See Chapter VI.

There are 411 sawmills in Malaya and 43mills in Singapore with a total input of 1.3 million tons of logs and a total output of 970,000 tons of sawn timber, using 44,000 h.p. and employing 9,000 men.[4] Sawmills are largely in the hands of Chinese although Malay interests in the industry is becoming increasingly important. Statistics are not readily available regarding classification of ownership by race, but it is known that about 96 % of the sawmills are owned by the Chinese, while only one mill in the east coast is known to be owned by an Indian.

Seasonality

The timber industry in Malaya is subject to seasonality in that during September-December period of north-east Monsoon logging and extraction activities are reduced and even frozen in some areas.

The effect of this seasonal rhythm in logging, however, does not produce severe difficulties to sawmilling. Sawmills, especially the large ones, keep sufficient stock of logs in anticipation of Monsoon shortages. But this demands large storage facilities and there are risks of insect attack and decay - a fact which discourages stocking of logs. The large mills with sufficient capital can play safe by paying higher prices and large advances for log supplies even during Monsoon.[5]

One cannot attach much importance to the occurance of seasonality since its severity varies from place to place and from time to time. The Chinese operators are undaunted by weather peculiarities and are highly responsive to high prices for logs. One point must be noted: although the volume of output and intensiveness of activities are definitely affected during monsoons, they do not cease altogether with the result that supply of sawn timber remains unaffected to some extent.

Although production and employment thus fluctuate seasonally, seasonal variations in price are relatively unimportant in the timber industry, for demand adjusts itself to supply conditions by regulating stocks

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[4]See Appendix E

[5]See Chapter VI

in anticipation of this seasonality. Both sellers and buyers are able largely to ride the pinches of the season. The fluctuation in supply that might otherwise cause price swings are met by counterveiling regulations of stocks. Where timber produces are handled mainly by small scale operators who are handicapped by poor storage facilities and by expensive credit, we can expect to find a noticeable price movement. Such tendencies are, however, neutralised by the activities of the larger ones.

Analysis

On the supply side competition is keen. But the type of competition within the industry, however, is so peculiar that we cannot attribute with any technical precision to perfect competition or monopolistic competition. There are large number of sellers so that one's activity does not affect that of another to any considerable extent. Although product homogeneity is the rule rather than exception, buying and selling are still manipulated by such consideration as goodwill, finance, reliability etc. Obviously, there are no physical product differenciations in the timber trade other than by species and grades, but supplies from some sources may be held in higher esteem because of reputation and goodwill created by past performances.

Supply of timber in Malaya is more or less inelastic. Supply of logs from the State Lands are inelastic because land development releases constant amount of logs yearly, whereas supply from the Forest Reserves is regulated according to demand to some extent. Nevertheless, overhead costs and large capital sunk in the operations necessitate continual operation no matter what happens on the demand side. This renders supply rather inelastic.

The timber industry tends to maintain its output and adapt itself on the price side of the market. Supplies from small 'family' sawmills are particularly inelastic. They keep going even in depressed times mainly by virtue of their low variable costs. When the family has no employment alternatives and is willing to work for whatever timber may bring, its only variable cost may be fuel and other minor supplies. Under such a situation, timber supply from the family mill tends to be very inelastic. And if the family derives a substantial share of its cash income from timber and when the price falls, the family may counteract the effect upon income by processing more timber.

Supplies from larger mills too are inelastic but for a different reason. Larger mills have large capital sunk in the sawmilling equipment that they cannot curtail production when prices are moving downward. Production continues as long as variable costs can be covered and something is left over to cover part of the fixed costs. This does not mean that supply is not responsive to price changes. Inelasticity of supply refers to certain ranges in the supply curve where price falls and price rises apparently have no profound effect on supply for various reasons. Involvements in logging are of such a nature that a minimum extraction is necessary irrespective of price conditions. Constant release of land for land development projects also a contributive factor.

Over certain ranges, however, supply may be rather elastic and respond well to price movements. This is because operations can be stepped up in the forests when demand for certain species rises. Additional output does not necessitate additional investment. Existing equipment employed in the forests can be used to extract more timber with little variable costs. Similar situation prevails in the sawmilling where supply responds better to a rise in price especially if the mills are operating under conditions of increasing returns.

Beyond a certain point supply may tend to be inelastic by virtue of the fact that more and more forests cannot be readily made available for exploitation without time lags, and the sawmills become overworked beyond capacity with the result that diminishing returns discourage further production. Even the sawmills which can technically handle more logs cannot cope up with increased demand because of log shortages. All these explain the inelasticity of supply beyond certain levels of output. This is what exactly happened in mid 1959 when the industry was unable to meet large orders from the overseas even though prices were exceptionally high.[6]

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[6]See The Malayan Forester, October, 1959.

CHAPTER V

COSTS OF PRODUCTION

The Concept

It is indeed difficult to speak of "total" costs of production as far as the timber industry as a whole is concerned. We can only deal with logging and sawmilling costs which merely consist of capital expenditure and other incidental and processing expenses. The trees that are now exploited are the free gifts of Nature and the cost of growing these trees, even if it can be possibly estimated, cannot be normally included in the 'total' costs of production, for nobody insure such costs. Royalties and premiums are no doubt paid but these do not represent the true value of the trees that are felled and removed.

In the case of newly regenerated forests by silvicultural means, one may state precisely the cost of growing such trees. The initial cost involved in clearing and planting and the subsequent cost of supervision alone are not the only costs of growing these trees. One must also allow for the time lag between planting and harvesting, a 70 year rotation. Because of inherent difficulties involved in estimating such costs we have to contend with incurred costs or outlays in the accounting sense.

Premium and Royalty

All timbers in the forests have to be felled and removed only under a license or permit which are issued by the State Governments. In the case of virgin areas, whether State Lands or Forest Reserves, a premium has to be paid on a tender basis, the premium depending on the force of competition, nature of the species, contour and relief of the area which may affect cost of extraction. Loggers prefer logging in the Forest Reserves even at a high premium, for the Forest Reserves are said to contain normally large quantities of species of high commercial value than State Land Forests.

The premium rate has increased considerably in the recent years, not due to enforcement by the Government but due to simple interplay of the economic forces of supply and demand. Keen competition among loggers and sawmillers for such areas have inevitably resulted in higher premiums which have, of course, inflated costs of production. The yield of timber from natural forests varies considerably, some areas being much poorer than others. The prospective loggers are choosy regarding the area of forests in which they are prepared to work. The recognition of this overriding fact has led to variations in premiums paid by the loggers operating in the Reserve Forests.

In addition to the premium paid by loggers working in the Reserved Forests, royalty has to be paid on logs removed. This royalty is a standardised rate for all logs irrespective of whether they come from Forest Reserves or State Lands. The Royalty, of course, varies according to species removed, the rate being higher for Heavy Hardwoods than for lighter ones.[1]

Labour

It has been estimated that about 25,000 men are engaged in felling, logging and sawmilling industries, which can be still classified as being labour-intensive. The wages of labour have gone up in the recent years thus accounting for increased costs of production. The system of employing the labour force and the basis of payment all differ from district to district and from trade to trade.

In the logging industry the permittee nearly always appoints a kepala to supervise the work of the labour force in the logging area and pays a fixed monthly wage usually with a bonus at the end of the year. The workers employed in felling and extraction are invariably paid on a piece-work basis. In certain districts, as in

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[1] $10.50 per ton for light woods, $25 per ton for hardwoods like Chengal and Heavier royalties for heavier woods like Merbau.

Lipis, two groups of labourers are employed, one group undertaking felling and the other, extraction. The group employed in felling and cross-cutting is paid on a piece rate more for Kempas, Keruing and Heavy Hardwoods than for Meranti and other Light Hardwoods. The group engaged in the extraction is paid also on piece-work at rates which vary considerably according to whether it is the labourer or the permittees who are responsible for the initials cost and subsequent upkeep of the roads and lorries.[2]

In other districts, as in Taiping, the practice is such that the sawmilling permittees pay the workers a flat rate irrespective of species, sizes and defects whereas the logging permittees all pay at rates which vary with species and qualities of the logs extracted. Logs which are likely to yield less than 40% of their volume upon conversion at the sawmills are discarded.[3] It is also known that in some districts the practice is to pay for logs on the basis of diameter or circumference. In many districts extra money is generally paid for logs of 20 ft. or more in length.

In Central Pahang most of the logging gangs have their own equipment and undertake logging and extraction on contract although terms of the contract may vary. The Johore Lumbering Association is known to exercise some control over the forest labourers of its members and also advise on prices at which logs should be sold on the Singapore market. Outsiders other than sawmillers are said to have difficulty in getting labourers to operate in their areas except on the terms of the above Association.

Although payment basis thus varies between districts the variations are not apparent between labourers working in the Forest Reserves and State Lands within the same district. If a sawmiller is known to pay the forest labourers special rates for the extraction of Heavy Hardwoods or for the extraction of over 20 ft. in length, similar rates are likely to be paid by a neighbouring contractor although the general tendency is for the logging

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[2] I.P. Tamworth, "A Review of the Methods of Organising Exploitation in the Tropical Rain Forests of Malaya", The Malayan Forester, April, 1937, p.67.

[3] Ibid., p. 68.

Contractor to pay a higher price than sawmillers for selected species of high commercial value and pay much lower rates for less popular species. Of course, minor differences are bound to exist on such question as provision of amenities i.e. food and lodging for workers.

Factor labour is still of great importance in the sawmilling industry too. There were 7,002 workers employed by the sawmills in Malaya in 1962.[4] This labour force is invariably paid on a time-rate basis although 8-hour day work is not strictly followed by all sawmills. For additional hours of work which are quite common for most sawmills in 'boom' times, the workers are paid at an over-time rate. The whole wood-using industry in Malaya including Sawmills, Plywood and Particle Board Mills employed 8,925 full-time workers and 213 part-time workers paying wages amounting to $17,852,000 in 1962.[5] Conditions of employment and basis of payment do not much diverge from those in other manufacturing industries in Malaya.

Mechanisation

Mechanisation as a revolution in the industry took place only lately although other ingeneous techniques and devices have been in vogue for a long time. In the early days timber extraction meant merely the conversion at the stumps by handsawers, the produce later being carried out of the forest by hand or dragged by buffaloes to the nearest road. These methods were found obsolete and inefficient as early as the 1930's[6] and today timber haulage by buffaloes has become almost extinct except in some isolated places as in Kelantan.[7] In the 1930'sa an ingenious system called "Panglong"[7] was devised to

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[4]Report on Forest Administration, Federation of Malaya, 1962. (unpublished).

[5]Principal Statistics of Selected Manufacturing Industries, 1961, States of Malaya, Dept. of Statistics, Kuala Lumpur.

[6]C.O. Fleemich, op. cit., p.14.

[7]The 'panglong' is known as "Kuda Kuda" in Borneo and Sarawak. The panglong is a sledgeway made of poles laid upon the ground, the bearers running lengthwise with cross bars of round poles at about 2 ft. intervals. Upon these a timber sledge carrying the log is hauled by man power for about a mile although they occasionally reach up to 4 miles.

increase the size of the log that could be extracted. The panglongs terminate at a road or a river or a tramway.

Tramways in dry land forests were built without any ballasting and with as little levelling as possible. Light rails of 12 to 14 lb a yard were used and the trolleys were pushed by hand. Tramways are used almost exclusively in the coastal swamp forest where the ground is too wet to allow any other form of wheeled traffic and they remain popular to the present day. Increasing labour costs have led to a number of labour-saving devices. Panglongs have been reduced to lengths as short as possible, to about a ½ mile, and roads and tramways have been extended deeper into forests. Diesel locomotives of 15.20 h.p. with a capacity to pull 50 tons on a well-laid track are commonly used. The short panglong up to a tramway still remains the cheapest method in the swamp forests. Diesel locomotives are popularly used for hauling the trucks on the tramway line and there are several suitable makes of machine such as the Hudson Bunsalet which costs about $12,000. Using conservative figures, 20 h.p. machine with a capacity to pull a load of 25 tons at about 3½ m.p.h., working on a 3 mile haul and carrying 1,200 tons of logs per month will mean only about 12 cents per ton-mile including depreciation, repairs, fuel and wages.[8] This method is successfully used in Malaya by large operators like the Kin Chin Hoe Mills at Bentong and Labis and the Malayan Steam Sawmills at Labis.

This method is highly economical because once the high initial cost of the rails is borne the tracks can be laid and relaid in different parts according to needs at a cost much lower than that of constructing a lorry road; subsequent maintenance cost too is meagre; and finally, the cost of hauling timber over it is relatively far cheaper than by lorry, tractor or by any other means.

The hill forests present the biggest field for mechanisation. Tractors can be used efficiently on landscape of foothills and undulating lowlands except in the swampy valleysand on the steep hills. Tractors are used in these areas for dragging logs from the tree stumps to the nearest lorry track or tramway. There is of course an economic limit for this method, the limit being about 2 miles which is considerably longer than most panglongs. The bulldozer is another great labour-saving device for lorry roads and logging tracks.

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[8] B.E. Webb, "Economy in Sawmilling", The Malayan Forester, January, 1950, p.15.

It has been noticed that although marginal private costs of using these mechanical aids are low compared to other methods, their marginal social costs are extremely high especially in the case of tractors which cause damage to the ground and to the tree crop.

To reduce the high cost of road haulage many mechanical devices have been adopted. The 4 wheel-drive winch lorries[9] have been proved efficient and economical. They can be easily handled in very rough terrains and the cost of road construction can be therefore minimised. They can be operated on dry ground to reach any place that a tractor can. Problem of declivity can be overcome to some extent. They are known to work up to the 2,500 ft. contour so steep that they are obliged to use their own winch to haul themselves up empty and to lower themselves down when loaded with logs. The load is, however, limited to about 125 cu. ft. and the winch lorries do not usually run for more than 4 miles and at the terminus the load is transferred to 5-ton lorries that are better suited to run on the main road.[10]

Mechanisation has been intensified in the sawmilling industry, too. Handsawers have disappeared, and even the circular saw which dominated the sawmilling scene until recent years is now a machine of the past and is now rapidly replaced by the more efficient bandsaw.[11] This replacement of the circular saw by the bandsaw saves between 7 and 10% of timber which would otherwise disappear in sawdust so much so that even though a breakdown bandsaw costs about $35,000 it will pay for itself in a year.[12]

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[9]The local name of the 4 wheel-drive winch extraction lorries is "San Tai Wong" which literally means "King of Ridges". These lorries have been largely constructed from surplus army machines with a locally manufactured winch mounted behind the cab driven from the power take-off.

[10]C.O. Flemmich, op. cit., p.15.

[11]See Chapter II.

[12]B.E. Webb, op. cit., p.20.

There are large scopes for mechanisation in sawmilling to prevent wastage. Every year thousands of tons of convertible timbers go up in flames in the form of slabs and off-cuts that would be used with modern machines into usable timber such as parquet blocks, flooring strips, box shooks, cabinet squares, etc.[13] The machines that could do this job are a pendulum cross-cut saw and a 4-cutter which cost about $600 and $10,000 respectively.

Although the use of labour is not excessive on the saw benches these days, the number employed upon odd jobs round the mill can be minimised. To convey sawdust from the machine to the furnace, forced draught sawdust extractor could be used; Gravity and line rollers can be operated to move timber about the mill; and better layout can prevent waste of time in shifting things about the mill. Great time-lag between 'shifts' is common in most sawmills so that a full day's productive work from the equipment is not achieved. In many a mill a saw is often seen spending more time cutting air than it should. A better layout could prevent this unnecessary waste.

An American sawmill design with 100 h.p. and working mainly Douglas Fir produces about 4,800 tons per annum with a crew of only 8 men. This yields an output of 48 tons per h.p. and 500 tons per labour per annum.[14]

There are automation mills producing 20 tons per labourer per day or about 5000 tons of sawn timber per labourer per annum. These are achievements for our sawmillers to envy.

Cable logging has been successfully used in the Philippines under American tutelage and this could be a demonstration for our logging industry. Such technological strides are highly imperative since we are every year moving away from logging areas that can be approached from the existing road system. As areas are becoming increasingly inaccessible, methods of extraction must improve in efficiency to ensure regular supplies of timber at reasonable costs. But, before such large scale capital can

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[13] Ibid.

[14] Durgnat, op. cit.

be sunk into these projects, the logger must of necessity have greater security of tenure.

Most of the simple mechanical aids are made at home and thus foreign exchange can be saved. Several of the bandsaws are locally manufactured. Portable breakdown saws such as Avons and Dolmars are increasingly used especially in smaller mills for handling large logs. A special feature of the sawmill at woodlands, Singapore, owned by Siaw Brothers Timber Co. is that it is equipped entirely with machinery made in Malaysia; the log cutter is made in Singapore and other machinery, in Kuala Lumpur.[15]

Mechanisation is our main hope to reduce the increasing costs of production if our timbers are to remain competitive in the world market.

Transportation

Transportation costs constitute a substantial portion of the total costs of production, especially where roads have to be built by the logger or sawmiller to facilitate extraction. The amount of money spent on road-making depends on the terms of lease and unless longer years of lease is obtained loggers do not pay much attention to road construction which may cost about $13,000 a mile.[16] Sometimes bridges too have to be built across streams, bridges good enough for a 8-tonlorry or a bull-dozer to run across.

Mills which do not have their own working areas only employ contractors to bring out the logs to a betau site on the roadside and have no appreciable capital of of their own ploughed in the logging areas. The system of payment for labourers employed on road-making varies. Some permittees build their own roads and pay less per ton for extraction whilst others leave road construction to the Kepalas in charge of the logging gangs.[17]

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[15] The Straits Times, Kuala Lumpur, 12th April, 1965.

[16] Editorial, The Malayan Forester, April, 1959.

[17] The usual practice is to pay the labourers at daily rates for the simple reason that it is impractical to pay by the length of roads completed due to differences in terrain.

Those with considerable capital at hand and who have their own working areas do undertake road building to economise log extraction and transportation. Where access to reserves do not exist, loggers often experience great difficulty in obtaining the consent of the owners to build access roads through their land. Frequently, tolls have to be paid by the logging industry to the rural Malays for permission to haul timber across their land to the nearest public access.

The main object of making jungle roads is to cheapen the cost of extracting logs. But this costs money depending on the quality of the roads made. Some sawmills even go to the extent of laying a laterite surface. But the cost of these road improvements is eventually recouped in lower contract prices with their loggers and in lower repair cost to their lorries. A great deal of money can be saved by using a road as compared with dragging by the winch lorry or tractor along the forest floor. A reasonably good road, including construction and maintenance, costs roughly from $1 to $5 a ton-mile, whereas the dragging costs are usually between $10 and $15 a ton-mile.[18] Since more than a million tons of logs are extracted annually in Malaya, the saving that can thus be made, can be very substantial, indeed.

Disparity in transportation costs exists between those operating in State Land Forests and Reserved Forests. In the former case, the loggers are free to extract only those species for which there is a ready market and leave the uneconomical ones; whereas in the latter case, the loggers are obliged to remove all the trees as demanded by the Forest Department so that transportation costs may exceed the actual market value of the hard-to-sell species removed from the forests.

River as a cheap means of transportation is always resorted to wherever feasible. The panglong terminates at a river for logs to be floated. The mills at Teluk Anson, Kota Bahru, Muar, Batu Pahat are known to be served sometimes by rafts of logs from upriver. The river transport facilities are better available in the east coast where rivers are bigger and for many years logs have been regularly floated to the river mouths where they are loaded into tongkangs for mills in Singapore.[19]

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[18] Editorial, The Malayan Forester, April, 1959.

[19] C.O. Flemmich, op.cit., p.14.

Transportation costs assume increasingly greater proportions in the recent years. Only a handful of these mills are located in the forests closer to the logging areas and thus have the advantage of being able to escape heavy transportation costs. Most of the Malayan sawmills are located away from the logging areas clustering in the urban centres, closer to the market. This distance from the forests has caused the costs of production of sawn timber to rise because of heavy freight costs. This situation applies particularly to sawmills in Negri Sembilan, Selangor and Singapore which depend for their log supplies on other states. Pahang exports 75% of its exports to Selangor sawmills and 15 % to Singapore mills. Singapore mills draw bulk of their supplies, more than 77% of their needs, from Johore. All these mean higher costs to the sawmills in these States.

Such costs, of course, do not fall evenly on all these mills. Those who operate their own lorry transport services could get their logs delivered from the logging areas direct to their sawmills at a lower cost than those who depend on the loggers for transport or on other transport agencies for log delivery.

It is now recognised that log traffic should be off the road and on to rail which is a more appropriate form of transport for such a commodity. The sawmill of the General Trading Corporation (M) Ltd., Petaling Jaya with both road and rail access, has set an example for others to follow.

Seasoning and Treatment

Seasoning[20] is simply the process of drying woods

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[20] Newly felled timber has large moisture contents, the weight of which frequently exceeds the dryweight of wood. After felling the wood is allowed to dry and shrink until it reaches a moisture content that is in equilibrium with the average temperature and humidity of its surroundings. During this process warping, twisting, cupping and bowing, unless great care is taken, may be caused by the inherent different shrinkage rates.

There are 2 types of seasoning processes: one is called "Air seasoning", where the wood is allowed to dry naturally under suitable conditions; and the other, "Kiln-seasoning" in which wood is heated to temperatures appreciably higher than atmosphere. For further details see A.V.Thomas and F.G. Browne, Notes on Air Seasoning of Timber in Malaya, Malayan Forest Service Trade Leaflet No.15.

as quickly as possible and without degrade to an air dry condition. Air-seasoning is the general practice in Malaya and most of our species are suited for this process. The sawmiller requires space and storage facilities for this process and the rentals for such spaces constitute the major portion of its cost. The Timber Depot at Kuala Lumpur charges $29 per ton for seasoning on sales of sawn timber.

Kiln-seasoning, on the other hand, has the advantage of speed, thus reducing the need for large seasoning sheds for which many mills and timber yards have insufficient room.

Some species are highly susceptible to fungi and insects which attack the woods, reducing their value. Chemical or pressure treatment of timber guards the wood against danger of such attacks and lengthens the economic life of these species. Such treatments are, however, done only on specification from the customer and the Timber Depot at Kuala Lumpur charges $40 per ton for this service on sawn timber sold. There are 30 impregnation plants in Malaya to do this, larger mills having their own plants which cost about $70,000 each. It must be stated clearly that most of the sawn timbers used in the market are not subject to this treatment.

Grading

Most timber for exports are graded according to the Malayan Grading Rules and this costs money. Some of the large mills employ timber graders and others engage private or Government graders for grading their timbers ready for distributions for a fee. But most of the timber sold in the local market are ungraded.

The Need for Economy

Today's timber costs about 4 times as much as it did in the pre-war years. Sawmillers who have foresight and capital to use more modern methods have reaped high profits due to rise in the value of timber. Costs of production in the timber industry has increased considerably in the recent years. Although labour is not used excessively by the industry there is room for labour saving techniques. Malayan timbers face stiff competition abroad and the need to achieve economy in production by minimising costs, is indeed great if we are to face our competitors optimistically.

CHAPTER VI

MARKETING

Functional Approach

By marketing we mean the process by which time, place and possession utilities are added to the product utility which is thus made available on the market. At this juncture, we must avoid interpreting the term "marketing" as is commonly done in the business world, to mean simply finding an outlet for commodities. This is but one side of the matter, the seller's side. There is yet another side, that of the buyer for whom marketing is finding a source. And for both it means production and consumption of manifold services that facilitate selling and buying.

The approach adopted in this chapter is oriented from the angle of various functions performed in the marketing process, to lend the presentation a cohesive touch.

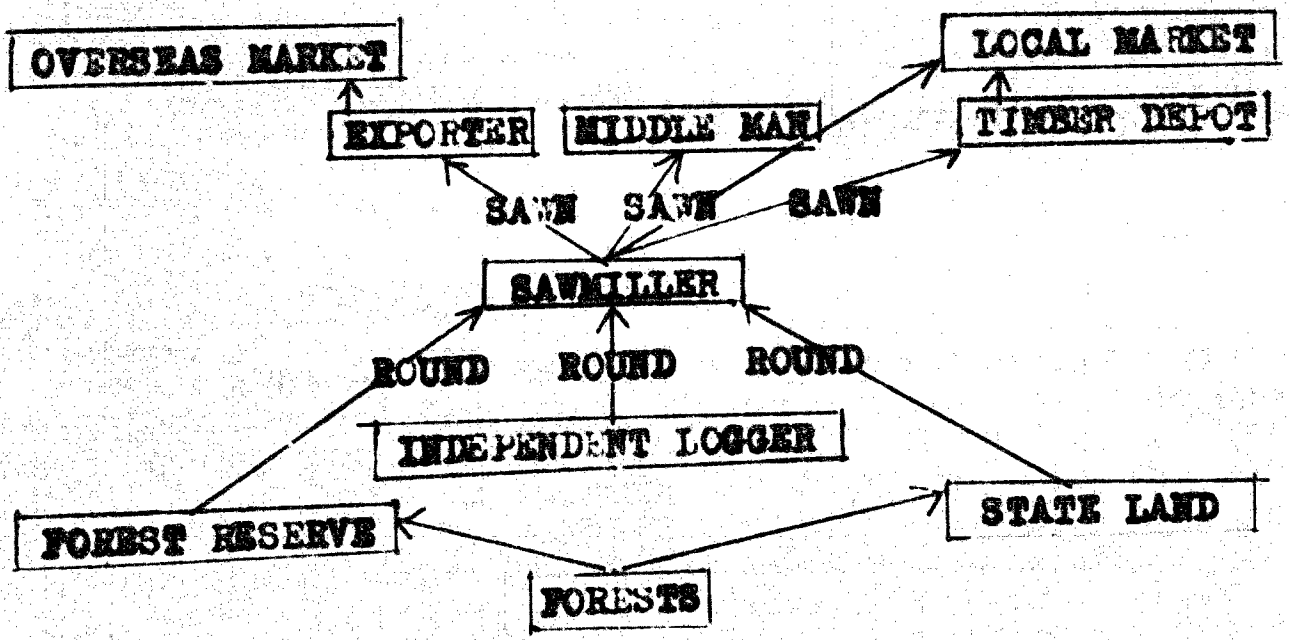
Channel of Distribution

A piece of timber of the same specie and grade is identical with another piece of the same category, the product being differentiated only by specie and grade and not by brand, package, etc. as in the case of manufactured goods. This unique uniformity of the product renders marketing of timber less complex and the channel through which distribution takes place, rather short. In a nutshell the channel is made up of the logger, the sawmiller and the exporter. The logger extracts logs and sells them to the sawmiller from whom the exporter purchases the sawn timber to be sold on the overseas market. Sometimes the channel can be even shorter when there occurs some degree of vertical integration. Some sawmillers are loggers themselves; some exporters operate their own sawmills. It is not very rare for this integration to go further combining logging, sawmilling and exporting.

Let us have a look at the distributing channel. The main sources of supply of logs are the Forest Reserves and the State Lands which are worked by either independent loggers or sawmillers themselves. Where the sawmiller does not have a working area for himself he buys logs from the independent logger. In the case of local distribution, the sawmiller mostly deals with the consumer directly although it is not rare to engage a middle man to market sawn timber when large volumes are involved. The Timber Depots in Kuala Lumpur and Ipoh themselves act as marketing agents by buying from the sawmiller and selling in the local market. Figure 2 illustrates this marketing channel.

FIGURE 2

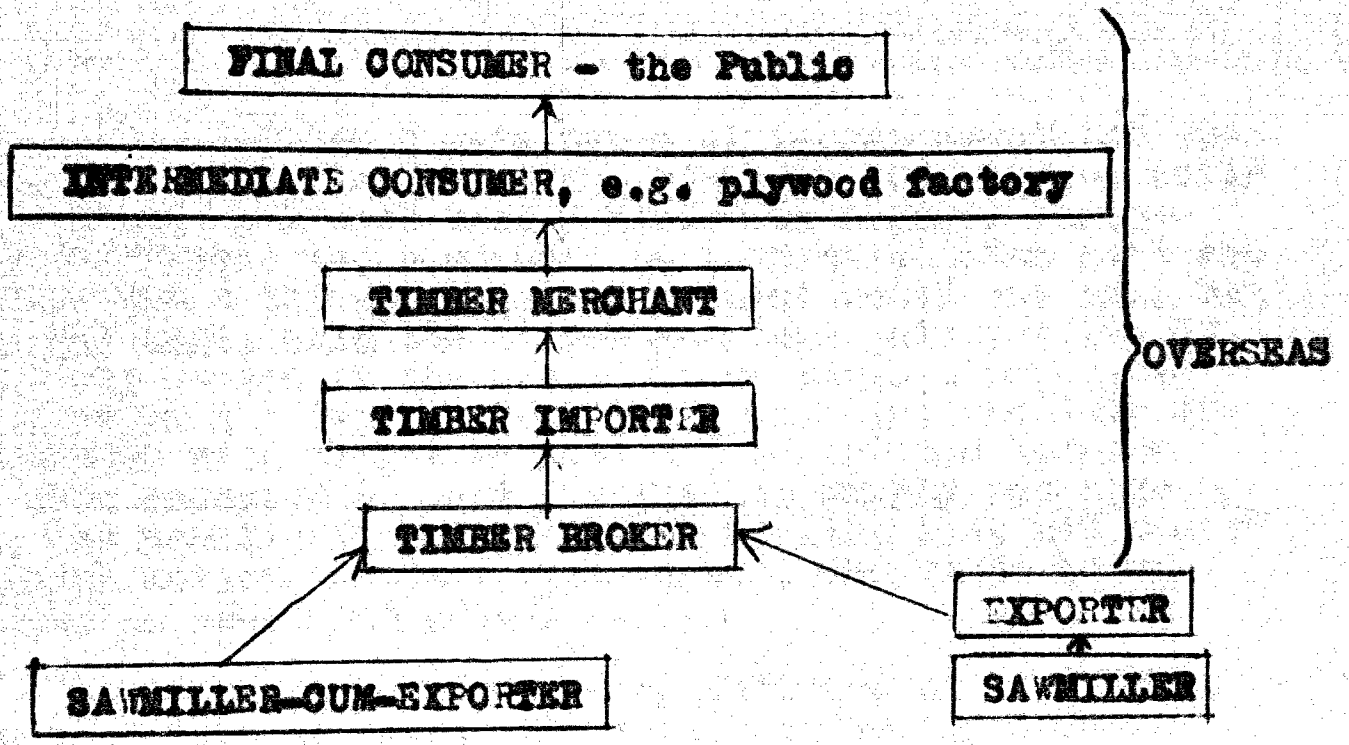
DIAGRAMATIC REPRESENTATION OF LOCAL TIMBER MARKETING CHANNEL



In the case of distribution overseas the channel is slightly longer. The exporter who has not a mill of his own buys from the sawmiller and sells the sawn timber to the importer. Should we include transactions taking place abroad, the channel will be lengthened: the broker deals with importer who deals with timber merchant who in turn deals with wood-using units as can be seen in Figure 3 below.

FIGURE 3

DIAGRAMATIC REPRESENTATION OF OVERSEAS TIMBER MARKETING CHANNEL



Log Supplies for Sawmilling

Most of the Malayan sawmillers are without working areas and therefore depend entirely on independent loggers for log supplies to feed their mills. This extreme dependence on loggers for supplies puts the sawmiller in a highly precarious position especially if he has invested a large sum on the mill and thus has a heavy fixed cost. This fact of overriding importance gives rise to intricate transactions between sawmillers and loggers.

Regularity of log supplies depends on two factors, finance and location. A financially strong mill can always manage to have continuous supply of logs even during the monsoon when logging activities are almost freezed. Most of the independent loggers survive on the financial backing given by the sawmiller who thus obligate the loggers to supply desired species of good quality at special prices. It is the sawmiller with no financial pool to fall back on who always experiences difficulty in

getting logs. Location or situation of the mill also counts a lot. When a sawmill is situated at an odd place quite off the main traffic the loggers may skip it for they prefer carrying logs to longer distances to earn higher transport fees and at the same time being able to carry cargo on their return journey - which means sawmills at the urban centres have advantages over mills at odd places.

There are 3 main types of logger-sawmiller arrangements regarding marketing of logs. One logger sells his stumpage for cash when contract is signed; another takes a deposit the remainder to be settled when logs are scaled; and a third awaits his payment until the mill has sawn the logs, sold the timber and been paid for it. Of these the second is the norm. These three, however, do not exhaust the types, there being many intermediary arrangements with slight variations. Sometimes loggers who have accepted deposit may fail to supply but this does not usually happen and the sawmiller does not resort to legal actions against such logger, the trade being carried on trust and goodwill.

Arrangements regarding delivery of logs, too, vary from case to case. The sawmiller owning lorries may send his lorries to the <u>betau</u> site to collect the logs from the logger; or the logger may deliver the logs at the doorsteps for a freight charge; or sometimes, a transport agent may be engaged by the sawmiller or the logger to effect delivery to the sawmill; or the sawmiller may hire lorries from another sawmill to carry the logs if these lorries are free to do so. It is also known that certain selected species are auctioned at the <u>betau</u> site fixing only a minimum upset price as in Negri Sembilan.

There is yet another system of buying logs from 'middlemen' who are private lorry owners. They buy the logs from the logger at the forest <u>betau</u> site and sell to the sawmill which pays a premium rate to cover the cost of transportation with a surplus left as their 'tea money'. Some of these middlemen are specialised in timber trade, but others engage in these activities only sporadically carrying cargoes to areas where they buy timber of selected species on their return journey expecting to make a reasonable profit on resale of logs to sawmillers. Usually the timber carried by these middlemen are pre-sold in that prearrangements are made with a sawmiller to deliver a particular specie at a fixed price. Most sawmillers are

willing to pay large tea money if the lorry-middleman can procure for them the desired species. These middlemen are most active during the boom phase of the export trade, but once the supply of logs begin to exceed the demand they are most seriously affected.

Inter-State Timber Trade

Most of the Malayan sawmills are located in urban areas closer to the market than to the sources of supply and thus experience difficulty in getting logs for their mills. This fact applies with special force to mills in Negri Sembilan, Selangor and Singapore which depend on other States for log supplies. Some of these mills operate their own working areas in other States mostly in Pahang and Johore, the rest relying on independent loggers for supplies.

Selangor sawmills derive about 75% of their inputs from other States especially from Pahang, which alone supplies about 88% of Selangor's total imports of logs, as can be seen in Table 3.

TABLE 3

IMPORT OF LOGS & SAWN TIMBER INTO SELANGOR FROM OTHER STATES, 1962.

States	Saw-Logs in Tons of 50 cu. ft.		Sawn-Timber in Tons of 50 cu. ft.	
	1961	1962	1961	1962
Pahang	142,000	173,000	37,000	35,000
Negri Sembilan	22,000	21,000	3,000	3,000
Malacca	-	-	1,000	1,000
Perak	1,000	2,000	-	-
Johore	5,000	-	9,000	5,000
Total	170,000	196,000	50,000	44,000

Source: Federation of Malaya Report on Forest Administration, 1962 (unpublished).

Singapore presents a unique example of this heavy reliance on other states for supplies. The timber industry in Singapore although with no commercially exploited forests of its own, contributes substantially in commerce and finance towards the Singapore economy. Singapore, until recently, imported a substantial proportion of her requirements, over 10% from Indonesian islands around Sumatra. This source of supply is now entirely cut off due to Confrontation and Singapore now falls back on Malayan reserves. Johore is the major supplier of logs for Singapore mills which import about 75% of their inputs from Johore and about 15% from Pahang. Total Malayan exports to Singapore is quite substantial as shown in Table 4. The lorry-middlemen referred to in the

TABLE 4

SAW-LOGS AND SAWN TIMBER EXPORTS
FROM MALAYA TO SINGAPORE, 1955-1961

Year	Saw-Logs in Tons of 50 cu. ft	Sawn Timber in Tons of 50 cu. ft.
1955	173,000	48,000
1956	213,000	43,000
1957	204,000	41,000
1958	230,000	44,000
1959	216,000	50,000
1960	274,000	59,000
1961	286,000	40,000

Source: Reports on Forest Administration, Federation of Malaya.

previous section are most active in this inter-State timber trade. Sawmills which depend heavily on other states are prepared to pay attractive prices to induce them to deliver logs of desired species. Besides, Singapore is an attractive outlet owing to the ease with which the lorry drivers can fill their lorries with goods on the return journey. These incentives were so powerful that a few years back Johore sawmills felt a tightening effect on log

supplies. As a result an export duty of $5 per ton was imposed on logs leaving Johore for Singapore. Complaints from Singapore Government and concessions from the Central Government have revoked this duty.

In the inter-State timber trade Pahang plays a very important part. Pahang has the largest reserves in Malaya, about 36% of the total forested area, and is the major exporter of logs and sawn timber to other States. The following Table throws light on the importance of Pahang as a supplier of timber to other states:

TABLE 5

EXPORTS OF TIMBER FROM PAHANG TO OTHER STATES, 1961

Exported to	Saw-Logs in Tons of 50 cu. ft.	Sawn Timber in Tons of 50 cu. ft.
Selangor	142,000	37,000
Singapore	41,000	2,000
Negri Sembilan	3,000	-
Others	3,000	-
Total	189,000	39,000

Source: Report on Forest Administration, Federation of Malaya, 1961.

This inter-state marketing of timber is not confined to saw-logs alone. A good deal of inter-state marketing of sawn timber too takes place with Johore and Pahang again figuring prominantly as shown in Tables 3,4 and 5. This is mainly because exporters and local contractors derive part of their supplies from the saw-mills in these states.

Local Distribution of Timber

More than 60% of Malaya's sawn timber outputs are consumed locally. The channel of local distribution, as we have already seen, is rather short since dealings

are carried out in off-hand manner. Engaging a middleman is exceptional. Sawmills are prepared to market timber according to specifications. The local market still prefers ungraded timber to reduce cost of purchase, and about 90% of the sawn timber sold on the local market are ungraded and untreated.

Local market is still highly selective in the choice of timbers. Loyalty to teak is still strong although it is relatively expensive. It has been asserted by the Timber Research Institute, Kepong, that many of our species can be used for multi purposes if properly treated. Chemical and pressure treatments are said to lengthen the economic life of the timber and widen the range of uses to which it can be put. But such treatment is not always resorted to. Only 10% of the total sawn timber marketed locally are subject to this treatment which costs money. It cannot be denied, however, that treatment of timber is becoming popular and there are about 38 treatment plants all over Malaya which facilitate timber marketing.

Export trade is given top priority in the Malayan sawmilling circles owing to its lucrativeness and there are mills which cater exclusively for overseas marketing. However, almost all mills are engaged in local marketing since there are always some timber left over as a surplus or as unsuitable for exports. Such sawn timbers disqualified for overseas marketing are disposed locally. Whether or not a mill undertakes marketing locally or caters for marketing abroad depends largely on its location and the types of species handled and the quality of timber processed.

Timber Depots in Kuala Lumpur and Ipoh are two links in the local marketing channel, catering exclusively for local market and principally for government departments and other public bodies. Their contribution to general public is still insignificant because the prices charged by them is slightly higher than that by private sawmillers. The discriminating public resorts to these sources mainly because of the guarantee given as regards species, quality and quantity.

All orders of the Government departments and other public bodies including the Timber Depots themselves are placed through the Utilisation Branch of the Forest Department. Timbers thus marked are shown in Table 6.

TABLE 6

LOCAL TIMBER SUPPLIES BY UTILISATION SECTION OF FORESTRY DEPARTMENT, 1961-62

Purchaser	1961		1962	
	Sawn Timber in Tons of 50 cu. ft.	Round Timber in Tons (Hoppus)	Sawn Timber in Tons of 50 cu. ft.	Round Timber in Tons (Hoppus)
Timber Depots	6,760	-	2,450	-
Malayan Railway	7,100	850	7,210	840
P. W. D.	350	-	160	-
Armed Forces	180	30	210	-
Other Govt. Depts.	340	10	400	20
Private Individuals	550	-	220	-
Total	15,280	890	10,650	860
Value	$2,374,000		$1,686,000	

Source: Report on Forest Administration, Federation of Malaya, 1962 (unpublished).

Exporter-Sawmiller Relationship

Only about 30% of the Malayan timber exporters have sawmills of their own, the rest deriving their supplies from independent sawmills. When an exporter receives an order for quotation from overseas he contacts the sawmiller and asks for a quotation and the period within which timber can be supplied. When the exporter gets a confirmation order from the Importer overseas, he signs

a formal contract with the sawmiller stipulating the quantity, quality, species, grade, price, delivery date etc. which binds both parties.

Financial transactions usually accompany such contracts, the exporter paying between 5% to 60% of the value of the deal to the sawmiller in advance. This financial arrangement is carried out under different names. To the sawmiller it is a "deposit" for the order so placed; to the exporter it is an "advance", a sort of financial assistance to ensure prompt supplies.

The degree of co-operation between the sawmiller and exporter depends largely on the nature of financial arrangement. Such financial assistance secures for the exporter prompt delivery of sawn timber of good quality at special prices, for the sawmiller needs money to pay for the logs and meet other expenses. The sawmiller is, therefore, bound by such contracts. The exporter would, of course, vehemently deny that this amounts to exploitation. Whether or not such practices warrant such a strong term, the open secret is that such financial helps are not without strings attached.

Although the exporter could thus handle money in such a way to turn a transaction to his advantage, the exporter's position is not secure. Any contract signed by the sawmiller has little significance, for infringement of contracts are not uncommon. Such contracts could be breached by failing to supply the timber within the stipulated time. The exporter's predicament, in such situation, is quite apparent. He cannot easily dodge the importer like local sawmillers. It is beyond business morality and his reputation in the overseas market will be at stake. Legal action against the sawmiller is beyond business convention in Malaya. Therefore, when the exporter smells possibilities of delays, he begins to coax and cajole the sawmiller into supplying the timber promptly and is even willing to pay additional sums to get things done rather than resort to stern measures.

One exporter in Kuala Lumpur reports that a contract as old as 1960 still has not been fulfilled yet. But the exporter can always shrewdly turn this situation to his benefit by putting pressure on the sawmiller to meet the old contract when current prices are higher. This compensates, so the exporters say, for the loss and difficulty faced due to breach of contracts.

When supplies are ready for export the exporter sends his graders or hires graders to grade the timber 10% of which are check-graded by the Forestry Department. Sawmiller's obligation is completed when timbers are put aboard the boat and he gets paid almost immediately. The sawmillers prefer dealing with organised exporters than with local merchants for fear of bad debts.

Each contract between the sawmiller and exporter deals with a single transaction. A long term contract is usually avoided by both parties mainly owing to the unstable nature of timber prices and of export trade. There are exceptions, however. If an exporter receives orders to despatch a certain quantity of a certain specie at regular intervals for certain purposes, the exporter may then enter into long-term contracts. Should prices rise during this period, the sawmiller and the exporter are both at a loss. In such cases, some degree of price flexibility is usually allowed by the importer when such a long term contract is signed. An exporter may also sign a long-term contract with the sawmiller on his own accord, if he speculates a continuous increase in demand for certain species and anticipates future orders from importer for these species.

Dealings with Overseas Buyers

It is importers in the foreign market who distributes Malayan species to wood-using industries. The importer does not usually have direct dealings with the Malayan exporters, the go-betweens being the timber brokers who claim about 3 to 5% as their commissions. Malayan exporters have established close ties with a few brokers to gather orders for them. This, however, does not mean that these brokers deal exclusively with any particular exporting firm; they also consign orders to other exporters as well. For want of better service and reliability only a few of the brokers are selected by local exporters to deal with.

As there is keen competition between Malayan exporters, similar competition prevails between importers too. Some importers may not like their suppliers dealing with rival firms. When a Malayan exporter discovers that another importing firm offers better terms he may try to establish ties with this firm without offending the usual customers. This he does by setting up subsidiary exporting firms under different names. General Trading Corporation, for example, is known to have 5 such subsidiary

exporting units. This is actually the practice in Malaya and explains why the number of timber exporters have risen recently.

When a cable is received from the broker for quotation, the exporter cables back the c.i.f. value of timber and the period within which the offer will be valid and awaits reply to sign a formal contract with the local sawmiller.

Before a quotation is cabled to the broker, the exporter explores the local sources and adds a mark-up and other charges to the price offered by the sawmiller. The important fact is that the overseas broker contacts not one exporter but many at the same time. The keenness of competition among exporters is, therefore, given due importance in the pricing of export timber. But slight differences in prices offered do not matter much to the importer who looks for other aspects of the deal such as goodwill, prestige, reliability, promptness of delivery, service rendered etc.

When timber is graded and check-graded and put aboard a ship, the usual practice is to draw a letter of credit and the bank pays the exporter upon the submission of relevant documents.

Timber Export Trade Examined

To the Malayan timber industry, the overseas market is of greater importance than local market, not in terms of volume, but in terms of value. As we have already seen above there is a preference for exporting in the local sawmilling circles and thus this trade warrants a special treatment here.

In order of importance, Timber export occupies the fifth position in the Malayan exports trade. Although the timber export trade is subject to a great deal of ups and downs, the general trend is towards increased exports both in volume and value (See Fig.7). In 1963,[1] the total Pan-Malayn timber exports reached 380,000 tons (of 50 cu. ft.) valued at $62,323,169 f.o.b.

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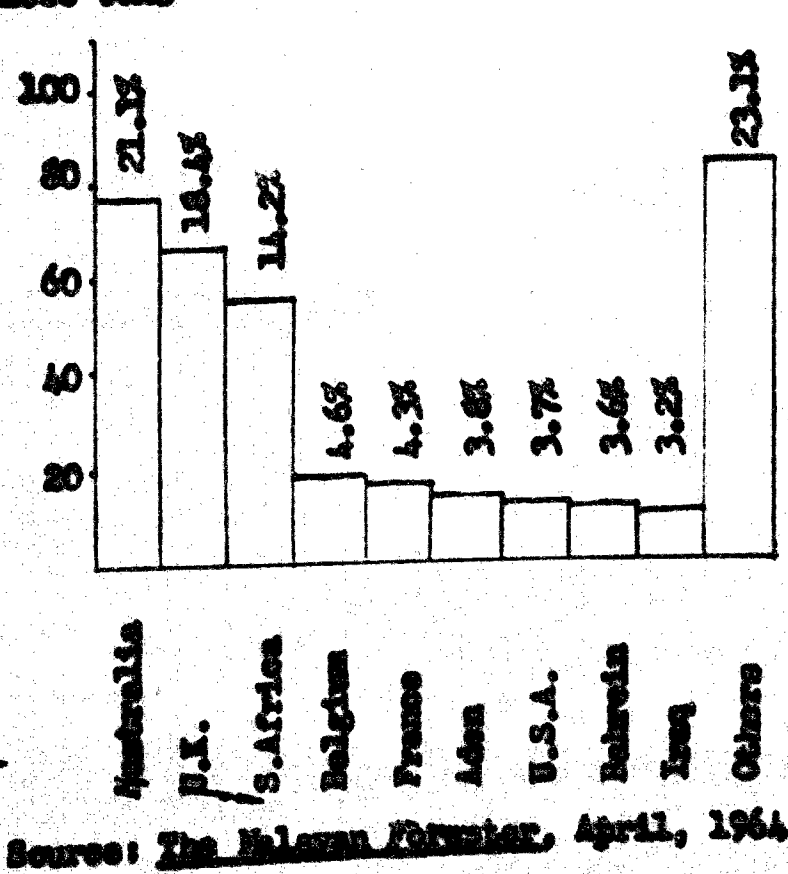
[1] All figures in this section refer to the year 1963 unless otherwise stated.

The United Kingdom remained the largest customer for Malayan timbers until 1957 after which Australia became the leading importer challenged by the United Kingdom only in 1961 and hitherto Australia's leading position is unrivalled. Both Australia and the United Kingdom dominated the Malay n timber export trade until recent years accounting for no less than 80% of total exports. Even though their leading positions are still intact and their timber imports from Malaya have increased in absolute terms, their shares of, the total exports have fallen tremendously owing to the entry of many other countries into the scene importing substantial quantities of Malayan species.

Australia accounts for about 21% and the United Kingdom about 19% of total Pan-Malayan timber exports. South Africa maintains the third position importing about 14%, followed by Belgium, France, Aden and U.S.A., as illustrated by Figure 4.

FIGURE 4

BAR CHART SHOWING PAN-MALAYAN TIMBER EXPORTS, 1963.

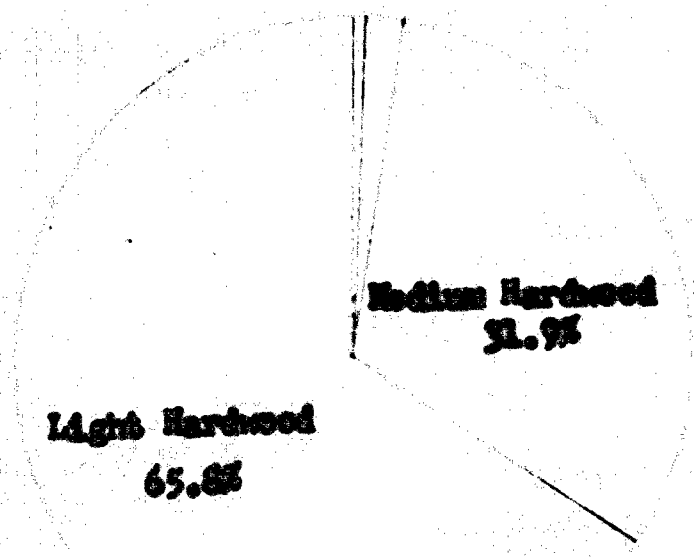


Source: The Malayan Forester, April, 1964.

During the early phase of the timber export trade Heavy Hardwoods dominated the exports, but now their importance has been considerably reduced not because of a fall in demand for them but because of increasing costliness of Heavy Hardwoods due to its growing scarcity. Now Light Hardwoods are more important, constituting more than 65% of the total. Medium Hardwoods form about 32% of the total exported. Damar Minyak, the only Malayan softwood to be exported, is growing in popularity in the overseas market, its share of the total being about 2% (See Figure 5).

FIGURE 5

PIE GRAPH SHOWING COMPOSITION OF TIMBER EXPORTS, 1963



Source: The Malayan Forester, April, 1964.

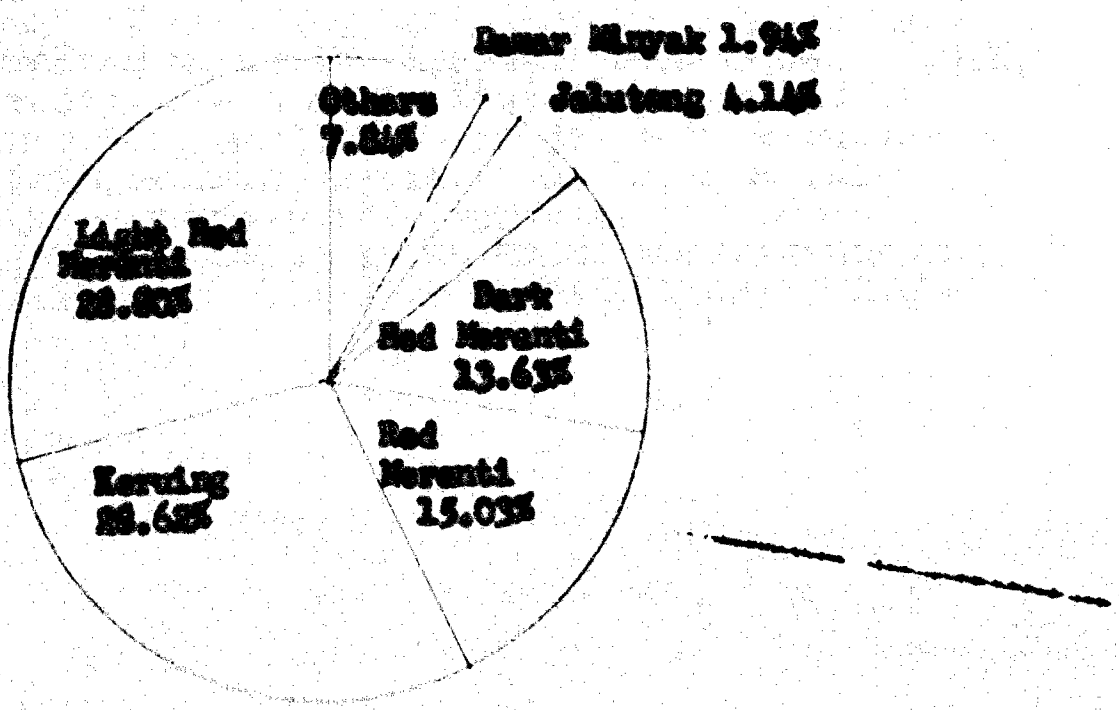
The export of Damar Minyak is of particular importance to

the timber industry in Malaya since there is absolutely no demand for it at home whereas it fetches high prices abroad. In fact, in the second week of April, 1965, this particular specie was the most expensive of all Malayan species exported. About 96% of Damar Minyak goes to Australia, the rest being bought by the U.S.A., Holland, the United Kingdom and Japan in order of importance.

There are altogether about 25 species exported from Malaya to some 30 countries but of these only a few are of any economic importance. As shown in Figure 6 Light Red Meranti is the leading specie forming about 29% of the total exports followed very closely by Keruing. Other species, in order of importance, include Red Meranti, Dark Red Meranti, Jelutong and Damar Minyak whose share of the total being 15%, 14%, 4%, and 2% respectively. Australia possesses the largest outlet for our Light Red Meranti, while the United Kingdom represents the biggest market for our Keruing.

FIGURE 6

PIE GRAPH SHOWING COMPOSITION OF MALAYAN TIMBER EXPORTS BY SPECIES.



Source: The Malayan Forester, April,1964.

Although Malayan timber export trade has been experiencing continuous growth during the post-war years, it has also been facing tough competition in the overseas market from other tropical countries. Siamese Yang rivals our Keruing; Philippines Luan competes with our Dark Red Meranti; Parana of South America presents a formidable threat to our Damar Minyak. Even the Russian Cedar competes with the Malayan Meranti in the Australian market. But the Malayan specie has distinct advantage over the Russian one in Australia. The proximity of Malaya to Australia tends to reduce cost of transportation. Moreover, supplies from Malaya are more regular and the quality is well standardised thanks to the Malayan Grading Rules.[2] All these enable our Meranti to meet the Russian competition competently in the Australian market.

Let us examine Malaya's stand in the world market. In Table 7 it can be seen that Malaya is second only to the Philippines in timber exports to North America, and to Ghana in exports to Europe. Malayan exports, however, exceed even Ghana and Nigeria combined in the exports of sawnwood to Africa. Malaya also has a strong hold in the markets of Asia and Oceania. In terms of volume Malayan total Hardwood exports exceed those of any other as can be seen in the Table below.

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[2] Malayan Grading Rules were first devised in 1949 and the means of ensuring that they are obeyed have long been outstanding among the tropical countries. M.G.R. were so widely recognised that in 1957 they were adopted as the basis for F.A.O. grading rules for sawn Hardwood timbers in the Asia-Pacific Region. The Malayan rules are being constantly revised and improved, the latest edition having stress grading rules which incorporate the latest recommendation arising from international consultation.

TABLE 7

TROPICAL HARDWOOD EXPORTS OF SELECTED COUNTRIES IN THE MAIN IMPORTING REGIONS, 1953/55 & 1960/62
(1000 cu. meters, Sawn)

Exporting Countries	Europe		N. America		Africa		Asia		Pacific		Total	
	a	b	a	b	a	b	a	b	a	b	a	b
Malaya	68	130	3	10	20	58	36	74	40	110	167	38
Thailand	32	76	1.4	3.6	2.8	6.8	38	39	-	1.2	94	12
Philippines	2	4.1	89	129	14	5.8	16	11.4	7	3.7	128	16
Ghana	113	200	19	21	19	22	0.2	-	0.4	3.3	153	24
Nigeria	34	49	0.1	8.3	2.6	5.3	0.1	-	0.1	0.2	37	6

a= 1953/55 average
b= 1960/62 average

Source: Yearbook of Forest Products Statistics

TABLE 7

TROPICAL HARDWOOD EXPORTS OF SELECTED COUNTRIES IN THE MAIN IMPORTING REGIONS, 1953/55 & 1960/62
(1000 cu. meters, Semm)

Exporting Countries	Europe		N. America		Africa		Asia		Pacific		Total	
	a	b	a	b	a	b	a	b	a	b	a	b
Malaya	68	130	3	10	20	58	36	74	40	110	167	382
Thailand	52	76	1.4	3.6	2.8	6.8	38	39	-	1.2	94	127
Philippines	2	4.1	89	129	14	5.8	16	11.4	7	3.7	128	164
Ghana	115	200	19	21	19	22	0.2	-	0.4	3.3	153	247
Nigeria	34	49	0.1	8.3	2.6	5.3	0.1	-	0.1	0.2	37	62

a= 1953/55 average
b= 1960/62 average

Source: Yearbook of Forest Products Statistics

Despite competition, which has been intensified in the recent years, from other tropical countries, Malaya has been achieving tremendous strides in her timber exports. The growth of timber exports from Malaya within a period of 12 years is illustrated in Table 8 below.

TABLE 8

EXPORTS OF MALAYAN+ SAWN HARDWOOD 1950-1962

Region	1950	1955	1960	1962
	(1000 cu.metres (Sawnwood)			
Europe	83	64	127	126
North America	-	5.4	7	15
Africa	8	22	60	59
Asia	66	43	70	83
Oceania	13	67	148	105
Total	170	201	412	388

+includes Singapore exports.

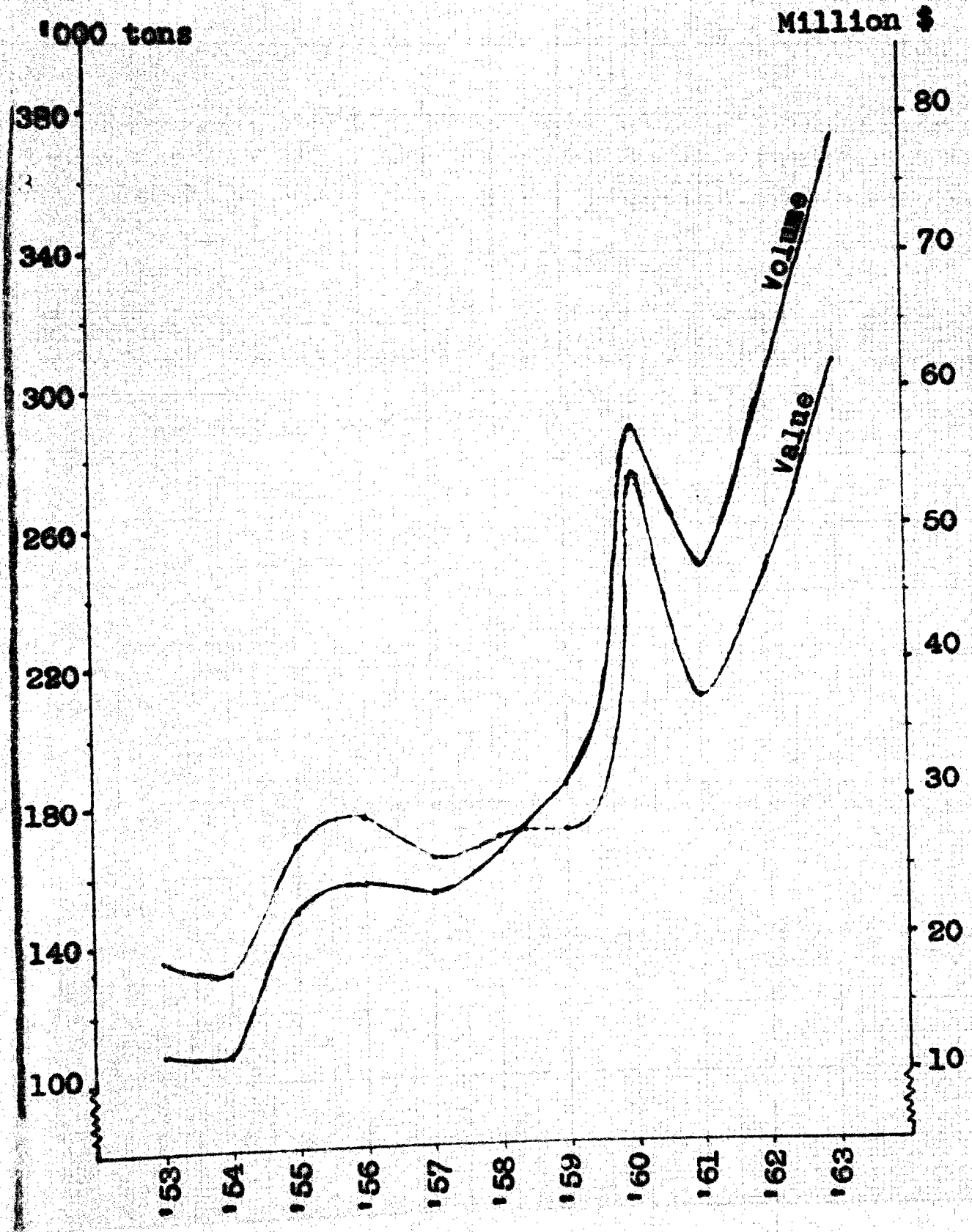
Source: Yearbooks of Forest Products Statistics, F.A.O.

Figures 7 and 8 also illustrate export trends and progress made between 1953 and 1963. Figure 8 makes a study of the trends in graded timber exports as against ungraded timber exports from Malaya and Singapore, while Figure 7 compares export volumes with export values.

Malayan produce is made up of a large variety of Hardwoods which are suitable for a wide range of uses and this, perhaps, gives Malaya a tremendous scope to overcome obstacles presented by other countries such as Ghana and Nigeria whose timber exports consist largely of Mahogony, which is applied for specific purposes, and

FIGURE 7

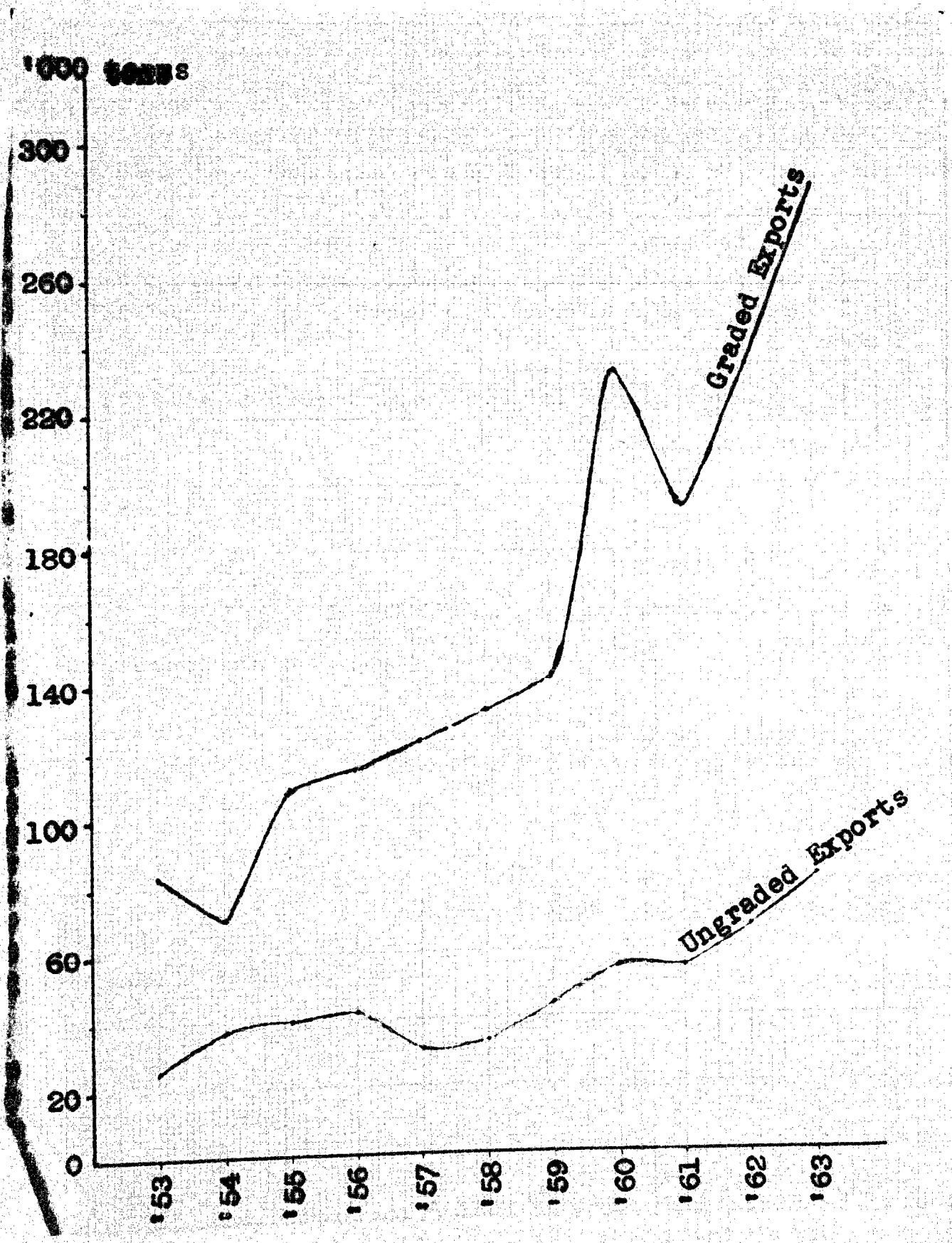
VOLUME AND VALUE OF SAW TIMBER EXPORTS FROM MALAYA AND SINGAPORE - 1953 TO 1963



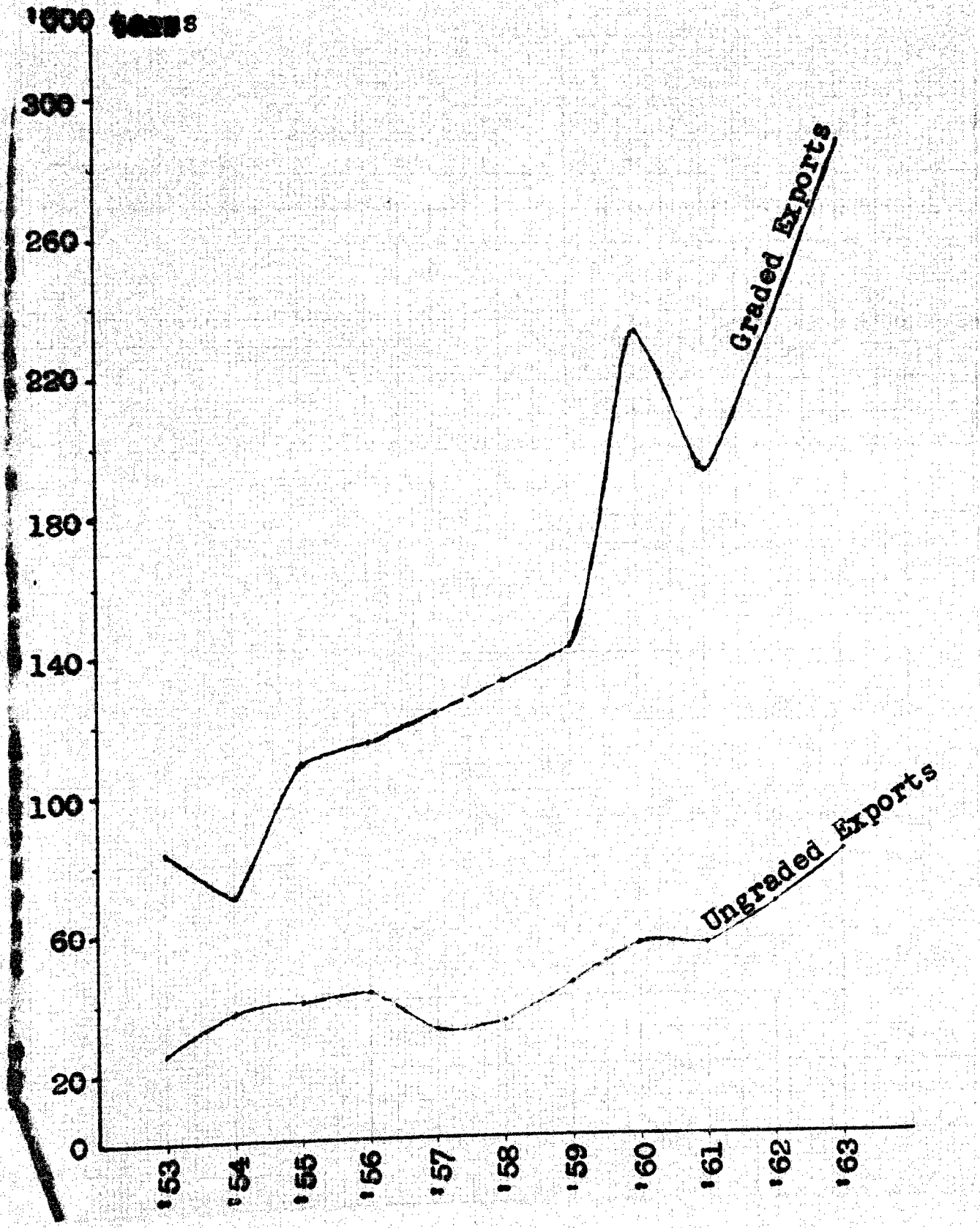
Source: The Malayan Forester, April Issues, 1954-64.

FIGURE 8

GRADED AND UNGRADED SAWN TIMBER EXPORTS FROM MALAYA AND SINGAPORE - 1953 TO 1963



GRADED AND UNGRADED SAWN TIMBER EXPORTS FROM MALAYA AND SINGAPORE - 1953 TO 1963



Source: The Malayan Forester, April Issues, 1954-64.

Thailand, producing mainly Teak, which is used in limited fields because of its increasing costliness. One can also discern from the trends of timber trade a switch in the direction of export flow to nearer markets particularly Oceania. And there is an increase in timber exports to North America. This change in the direction and pattern of timber exports tends to relieve the country of the heavy dependence on Western Europe as its main outlet.

Although the present trend is thus encouraging, the situation is still tense. Competition from rival countries has been stepped up. There is a danger of losing our ground in the British market which was so assiduously built during the past years. The Commonwealth preference gave Malaya an immense advantage over other countries in establishing a market for her timber produce. But this is a story of the past. The United Kingdom has removed tariffs on logs and roughly sawn wood for 35 tropical countries from 1st January 1964[3]. Previously tariffs ranging from 6% to 20% on both logs and sawn timbers were imposed to give preference to Commonwealth countries. The removal of this tariff wall exposes Malayan timbers to keener competition in the British market.

Moreover, there has been a general move among African nations to process their timbers before exporting-which means Malayan sawn Hardwood trade in the European markets might well suffer a set-back owing to African competition.

Timber export trade is subject to great fluctuations induced by external influences on the demand side. But past experience has shown that demand for Malayan timbers overseas is more or less stable, the trend being upward. Fluctuations in the exports reflect not an unsteady demand but largely mis-judgement and speculation by importers and exporters leading to overstocking abroad in one year and over-production at home in another with subsequent depressing effects on the export trade.

The export trade is open to all in Malaya although there are government regulations regarding timber marketing overseas. These so-called regulations refer to

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[3] U.N. "Prospects For Expanding Forest Product-Exports from Developing Countries", 1964.

qualitative restrictions imposed by grading rules which exporters have to abide by. Export of all logs was prohibited until 1959 when logs of White Meranti and Meraawa were allowed to be marketed abroad. The ban on the export of these two species as waived because the equipment in the Malayan sawmills could not handle these species which are said to blunt the sawblades. Malaya's policy has been to restrict log exports to protect the interest of the growing Malayan sawmilling industry. It is known that when facilities in Malaya begin to exist for processing them the ban may be reimposed. Japan is the largest buyer of these logs for use in her plywood factories. It is also known that Kempas too is now allowed to be marketed abroad in log form since early 1965 owing to poor local demand for this specie. Table 9 below shows log exports in 1963.

TABLE 9

LOGS GRADED IN & SHIPPED FROM MALAYA & SINGAPORE, 1963
(in cu.ft. True Volume)

...cies	Japan	Israel	China	Australia	Italy	Formosa	Denmark	Belgium	U.K.	Total
...nwa	649,000	107,000	-	2,000	21,000	-	1,000	-	-	780,000
...te ...nti	518,000	7,000	34,000	27,000	6,000	13,000	9,000	3,000	1,700	619,000
...tal	1,167,000	114,000	34,000	29,000	27,000	13,000	10,000	3,000	1,700	1,399,000

Source: The Malayan Forester, April, 1964

Freight plays an important role in the marketing of timber abroad. Timber is bulky and voluminous and timber freight overseas claims about 30% of the export value of the timber. Heavy freight costs weakens one's competitive position; a lower freight costs tends to boost the timber trade. A "Bangkok Freight War", in fact, began in December, 1957 when fantastic freight discounts to Europe were offered at Bangkok thereby giving the Siamese timber exports a clear advantage over the Malayan timbers in the European markets where Malayan Meruing was rapidly

replaced by the Siamese Yang which became relatively cheaper. When the 'war' was over and conditions were normalised, Malayan timber exports to Europe recovered speedily.

Overseas marketing of Malayan timbers is facilitated by the presence of good Malayan ports including Singapore. Most of the timbers exported are shipped from Port Swettenham which handles about 87% of the Malayan graded timber export traffic, or about 64% of the Pan-Malayan graded timber export traffic. Singapore too plays an important part, accounting for about 27% of the Pan-Malayan graded timber exports. But Singapore handles a large volume of ungraded timber exports, and should we include these, Singapore's share becomes approximately 40% of the total Pan-Malayan timber exports. Penang's importance regarding timber exports has been markedly reduced the traffic being diverted to Port Swettenham as shown in Table 10 below.

TABLE 10

GRADED TIMBER EXPORTS PASSING THROUGH MALAYAN PORTS
(in Tons of 50 cu. ft., Sawn)

Ports	1959	1960	1961
Port Swettenham	87,380	151,510	123,610
Singapore+	20,100	25,870	16,540
Penang	3,490	2,440	1,420
Kuala Trengganu	120	1,040	350
Dungun	-	220	20
Kuantan	60	60	50
Malacca	220	-	10
Total	111,370	181,140	142,000

+The Singapore figures refer to graded Malayan

timbers that cross the causeway to Singapore to be eventually exported overseas from Singapore. Such overseas exports are considered those of Malaya and would not be included in any group classified as graded in and shipped from Singapore. For example, in 1961, Singapore's graded sawn timber exports amounted to 51,240 tons which excludes 16,540 tons shown in the Table.

Source: Records kept by Utilisation Office of the Forestry Department, Kuala Lumpur.

Marketing Re-examined

As we have already seen, the composition of Malayan timber exports is rather lopsided, certain species being heavily emphasised while others are more or less ignored. This lopsidedness only reflects poor marketing. By correcting this lopsidedness and diversifying the timber trade, the timber industry in Malaya will be able to make a maximum exploitation of Malayan resources. Heavy reliance on a few species must be overcome by promoting other species. Greater utilisation of Malayan species can be achieved by improving timber marketing.

At present, marketeers face three types of risks: risk of physical loss as through fire, insects and decay; risk of financial loss as through price declines or the delinquency of debtors; and risk of technical misjudgements as in measurement and grading. Of these, the third type can be minimised if care is taken, while the first two are beyond one's control. The risks of the first category mentioned above are of special significance in the timber trade. There is no insurance to cover such risks. This also affects the exports trade. The Adelaide port authorities once turned down the entire cargo just because a few pieces of timbers were found insect-attacked. Now, there is a clause called Fumigation Clause available in some insurance companies to cover the cost of fumigation process to which such affected timber are put in the Australian Port. But the premium for this insurance is very high and this is resorted to only in the case of some species which are more susceptible to insects.

Where risks are high marketing agencies tend to reduce their stocks, shorten their production period and pull in their planning horizons. Artificial regulations of supply by storing surplus in times of a fall in demand and releasing stocks in times of a rise in demand are almost impossible in the industry. The Malayan timber supply

is, therefore, highly rigid owing o heavy storage costs and risks of insect attacks and other natural deformation. The adverse effects of all those are the price swings, the control of which is helplessly beyond the scope of the marketeers.

Of course a great deal can be done to bring things under control. Restrictive licencing to eradicate the nuisance of fly-by-night exporters[4], whose activities aggravate the problems of the industry, should be imposed. This will help to stabilise the export trade to some extent.

Long-term planning becomes difficult when activities are separated. Vertical integration could overcome this shortcoming and supply can be manipulated more efficiently according to market conditions than when activities are kept separate because of poor co-ordination between these units.

The best way to boost up the timber industry, especially the export trade, is to step up promotion. Absence of popularity of our timbers is due to poor publicity. Only by means of promotions could the trade widen its scope and diversify itself. But promotion is an integral part of the marketing process. As a matter of cold reality the emphasis within the industry will have to be changed from production to marketing, if we are to utilise fully the capacity available to us and if the industry is to grow and develop along economic and durable lines.

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[4] See Chapter VIII

CHAPTER VII

PRICING

The Method

The prices of timber, like those of other commodities depend on supply and demand conditions: larger the supply and smaller the demand, the lower the price; smaller the supply and larger the demand, the higher the price. The supply of Malayan timbers is more or less inelastic[1] so much so that it is the force of the demand that largely regulates the timber price level.

The sawmiller has his capital sunk into equipment and employs a large labour force to operate the mill thus incurring a heavy overhead cost. The implication here is that when there is a substantial fall in prices, the chances are that the sawmiller will continue to operate without reducing output to any great extent. Heavy overhead cost often sets a limit to reduction of production when prices are falling.

Quick turnover seems to be the main concern of most sawmillers and a slight reduction in prices to achieve this does not bother them to any great extent. Most millers experience financial problems and the nature of financial assistance has an important bearing upon the prices charged. Price concessions to exporters who are willing to assist the sawmillers financially by advancing large sums, is the rule rather than the exception.

The pricing of logs by loggers does not differ much from that of sawn timber by sawmillers except, perhaps, that log supplies are relatively more elastic and consequently by regulating the quantity supplied prices of logs can be manipulated to some extent. (The loggers can stop felling and extraction when the market is depressed and resume operation when demand shows signs of

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[1] See Chapter IV.

recovery). One must, however, be warned not to attach much importance to the latter point since most loggers too have appreciable capital sunk in the form of premises and equipment and employ many workers under a contractor - which necessitate continuous operation without prolonged breaks.

As a rough generalisation, it may be stated that loggers, sawmillers and exporters all commonly adopt a "cost-plus" approach to pricing, that is adding a profit margin, the rate of which may vary between firms, to the total costs of production thereby making the costs as the floor for price variations, the ceiling being adjusted according to demand conditions.

Pricing Export Supplies

There is a world of difference between pricing of domestic supplies of timber and that of export supplies of timber. Malayan timbers fetch higher prices abroad than at home. This wide disparity between external and internal timber prices is not surprising if we consider the quality differences between timbers distributed abroad and those distributed locally.

Higher prices charged for exportable sawn timbers are justifiable on the ground that only selected species of first-class quality are especially chosen for exports. Moreover, in measurement some allowance is given for probable shrinkages: for every 1 inch thickness of wood measured an additional $\frac{1}{8}$ inch thickness of wood is allowed such that the importer gets more wood volume than that he pays for. For every ton of wood purchased, the importer gets $\frac{1}{8}$ tons of wood.[2]

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[2] In the timber trade measurement of tonnage is done in such a way that 50 cubic feet of wood is equated with 1 ton-which may not mathematically be accurate. The measurement goes as follows:

$$\frac{\text{Thickness (in inches)}}{12} \times \frac{\text{Width (in inches)}}{12} \times \text{Length (in ft.)} \times \frac{1}{50} = x \text{ tons}$$

For example, a piece of sawn wood measuring $\frac{1" \times 6" \times 20'}{12 \times 12 \times 50}$ will yield $\frac{1}{50}$ ton and 60 pieces of the same size will measure 1 ton.

When thickness is allowed for every 1" thickness for probable shrinkage, and when 60 such pieces are involved the total tonnage of wood so allowed will amount to:

$$\frac{\frac{1}{8}" \times 6" \times 20'}{12 \times 12 \times 50} \times 60 = \frac{1}{8} \text{ tons}$$

The sawmiller is willing to be 'generous' in measurement not only because the importer pays more than the local buyer, but also because sawn timber for export are in the form of larger pieces (which are to be resawn in the importing countries according specific needs) which means that sawing is made on sawmilling cost and that sawdust wastes are minimised.

The method of fixing export prices of timber is rather simple. The sawmiller normally quotes a price which covers the cost of production including a reasonable profit margin. To this the exporter adds a mark-up for himself and other charges such as freight and grading costs and then cables the broker the c.i.f. value of the timber that can be supplied. In so doing the competitive condition within the industry is, of course, taken into account. Whether or not the quoted price is accepted by the importer depends on the nature of overseas demand and on the intensity of competition from the competing species from other countries.

Pricing Domestic Supplies

That lower prices are charged for local supplies should not mislead one to think that sawmillers' profit is reduced or lost. It is either the surplus of the best quality timbers after exporting or the second-rate timbers considered unsuitable for exports that are released to the local consumers. Besides, the local consumers get timbers with $\frac{1}{7}$ ton of wood less for each ton purchased since $\frac{7}{8}$ inch thickness of wood is taken to represent 1 inch thickness. This deliberate undermeasurement does not amount to 'foul play' but is considered as a compensation for the loss of wood in the form of saw dusts during sawmilling in which $\frac{1}{8}$" wide saw blades are used. The latter point is of great importance to the cost-conscious sawmiller who incurs a higher sawmilling cost since local market requires small pieces of sawn timber for direct use. (Cutting into smaller pieces mean additional costs and greater saw dust wastes which can be saved when pieces are larger as in the case of export timber). The sawmiller, therefore, does not lose when he charges a lower price for the same specie for the local market than for the overseas market. He makes up for this lower prices by selling low quality timber or by outright undermeasurement as shown above.

The prices charged by the Timber Depots in

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[3] See Footnote 2, Chapter VII.

Kuala Lumpur and Ipoh are slightly higher than those charged by the independent sawmillers. The Timber Depots add $29/- per ton for seasoning and 10% of the cost of timber for standard sizes, or 15% in the case of non-standard sizes, to the cost of timbers purchased from the sawmillers. The discriminating public prefers this source since sawn timbers bought here are guaranteed as to species, quality, measurement etc. although higher prices have to be paid.

Price Trends

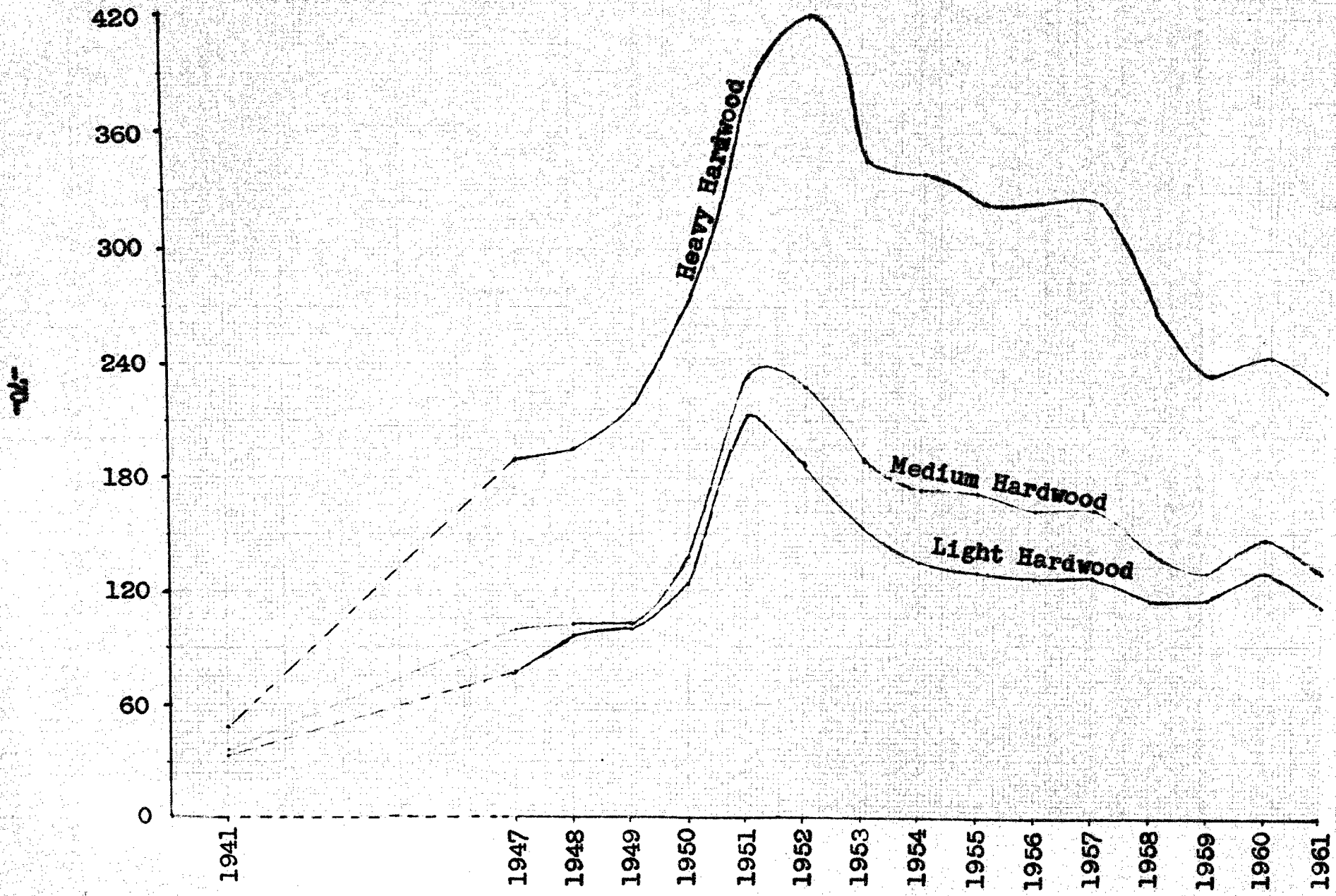
Like most commodities in the world market, timber too is subject to great price fluctuations. The export prices of timber in particular displays this tendency to fluctuate. One might expect keen internal competition among exporters and international competition on the world market to stabilise prices of timber. This however does not happen since demand conditions themselves vary from time to time. Supply being rather inelastic it is changes in demand which causes changes in prices.

Statistics are not readily available regarding the ups and downs of export timber prices and we have, therefore, to be contended with a few examples to indicate the nature of fluctuation. Between 1960 and 1965 the prices of Light Red Meranti (Standard and Better) fluctuated tremendously from $135 to $230 per ton. And within the same period the prices of Dark Red Meranti (Select and Better) fell as low as $195 per ton and rose as high as $280 per ton. The price of the latter fell during the last six months from $280 to $210 per ton (prevailing price in the third week of April, 1965) for reasons which become obvious towards the end of this chapter.

The degree of local timber price fluctuations depends very much on the intensity of export timber price fluctuations. During the boom of the early 1950's when there was a great demand for Malayan timbers from overseas, the local timber prices shot up to a level never achieved ever before or ever since as can be seen in Figure 9.

Fluctuations in the supply of timber at home, of course, will have repercussions on timber prices as has been evinced by experience during the monsoons when logging activities almost come to a standstill. The significance of its effect on timber prices is however, dwindled by the fact that most sawmillers strive to keep a good stock of logs in order to keep the mill in motion

AVERAGE LOG[illegible] PRICES, MALAYA, 1941-1961
(per ton of 50 cu. ft. sawnwood)



Source: Reports on Forest Administration, Malaya, 1941 - 1961.

during the season. Importers, who are aware of this seasonal rhythm, usually import large quantities to counteract seasonal shortages. Last year, however, something unusual happened. The northeast monsoon in the east coast failed to display its usual ferocity and as a result logging continued almost unhindered. Consequently there was overproduction at home and, more still, overseas demand slackened because of over stocking. All these have, at the moment, adversely affected export prices and local prices as well.

This downward trend is expected to be checked in the near future and the prospect of price recovery is said to be not too far away.

CHAPTER VIII

PROBLEMS

Short-sightedness

No doubt Malaya still has large reserves of forested lands. Deforestation proceeds in Malaya at a rate, which is perhaps the highest in Southeast Asia. In 1954 the Malayan forests accounted for 60% of the total area whereas in 1964 it was reduced to 67%. A substantial portion of these consists of areas which either are inaccessible or contain little economic timbers. At the present rate of exploitation, it has been estimated, Malayan reserves can last for about 130 more years after which the potential timber supply in Malaya would be completely used up. In other words, Malaya's present position as a timber exporter owing to the large surplus available after meeting local demand, cannot last for a long time. Malaya's exports of timber may have to be curtailed in about 15 years' time and exports may even cease and imports may begin to make up the defecit at home by the end of the present century.[1] These estimates are based on the assumption of static demand for timber. The danger can be more imminent since the trend is towards increased consumption of timber both at home and abroad.

Fortunately, in the timber resources of Malaya, unlike tin, we have a replaceable asset. But unless we stop being selfish and start giving due attention to this replacement project to protect the interests of posterity, there are going to be severe shortages of timber which may have serious economic repercussions. The greatest hallmark of the industry, to my mind, is its short-sightedness.

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[1] The working Party which submitted the National Forest Policy to the Parliament estimates that timber imports into Malaya may amount to $145 million by 2020.

Private individuals are interested in direct timber exploitation, not in forestry which is a long-term business. Long-term outlook is deplorably deficient in the industry. It is extremely difficult to make these people, whose profit or livelihood depends very much on timber extraction and processing, appreciate the depth of the problem confronting the Forest Department which is concerned with ensuring continuous timber supply.

Conflicting interests of the Forest Department and the timber traders frustrate attempts to preserve the timber resources. The layman is, of course, completely disinterested. There is also an antagonism between the conservation of forest resources and land development. Land hunger demands transfer of Forest Reserves to farming projects. We do not deny that land development projects are of equal or may be of greater importance, but an optimum balance between these two diverging aims must be achieved.

Insecurity

Insecurity all around inhibits the industry. If tree farming is to be a success and programme for sustained yield is to be realised there must be security of tenure. Incessant excisions of regenerated forest reserves for short-term projects will merely thwart such targets. This is a pressing problem for the Forest Department at the moment.

Time and again the need to mechanise along modern lines logging and sawmilling has been stressed. But such arguments will be of no avail unless security of tenure is guaranteed to loggers. There is a suspecision of long-term concessions within the Forest Department, mainly as a result of several ill-considered leases in various territories in the earlier years of this century. Short-term leases, however, discourage heavy investments in road construction and equipment, thus preventing possible reductions in the costs of extraction.

The sawmillers too face insecurity regarding log supplies the regularity of which is an essential precondition for large scale investments. They are also haunted by the fear of attacks by natural agents including fungi and insects to which some of our species are very vulnerable and the tragic point is that such risks are not insurable. This precludes the maintenance of large stocks of timber against possibilities of log shortages as during

the monsoon and also against price falls. Such artificial regulation of supplies of sawn timber is necessary for a healthy and stable industry. Resort to this means is possible in the case of rubber and tin, but not for timber.

Low Productivity

Malayan forests are not 'dense' in useful timber. Productivity is very low compared to European and American forests. The Pacific coast of N. . America carry as much as 300 tons (of 50 cu.ft) of logs to the acre;[1] the European coniferous forests yield about 100 tons of logs per acre. The State Land Forests of Malaya produce only 10 tons to the acre while the Malayan Forest Reserves have a slightly higher productivity - about 12 tons to an acre.[2] This low productivity enhances extraction costs per ton.

The productivity of the Malayan sawmills is not high, either. Although the number of sawmills had increased during the post war years, the average productivity of the sawmills had deteriorated with ups and downs throughout these years. In 1937 the average outturn of the sawmills was 1,564 tons; the 1950 figure shows 1,302 tons; and in 1958 it further declined to 1,242 tons. Fortunately this downward trend was checked before it became worse and in 1962 the average outturn of the Malayan sawmills rose to 1,836 tons which, however, pales in comparison with that of the American and European sawmills. Efficiency of conversion at the sawmills is far below the desired standard, for only 45% of the log is utilised, the remaining 55% being wasted as off-cuts, sawdust, branchwood etc.[3] Low productivity means high costs of production and weakens Malaya's competitive strategy in the world market.

Restrictions

Restrictions of various kinds, although essential for long-term programming, have tightening effects on the industry. Restrictions as regards leasing of land for logging purposes and charging of high premiums and removing of all timbers, whether wanted or not, in the Forest Reserves have been bitterly resented by local loggers and sawmillers though the Forest Department is justified in so doing

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[1] A.B. Walton, "Land Planning and Forestry," The Malayan Forester, October, 1 51, p. 216.

[2] Lim Chong Yah, op. cit.

[3] Baharuddin b.H. Ghazali, op.cit.

for silvicultural reasons. It is, however, essential that disparity of working conditions between loggers in Reserved Forests and State Lands be reduced to the minimum.

Restrictive licensing of sawmills have been introduced to control the number of sawmills in the country as it is believed that the number of existing mills exceed the need.[4] This also has the baneful effect of controlling the type of equipment used in sawmilling. Mills permitted to use 2 benches cannot use more; they are not allowed to alter the methods of operation or use cost-saving equipments or adopt better yielding techniques. Such restrictions may astonish a layman, but the Forest Department has a strong case for this strict measure; rapid improvement in all sawmills may necessitate greater lease of forest lands leading to rapid deforestation which the Department is endeavouring to avoid at all costs. A better solution might be the reduction of the number of small, marginal and undercapitalised mills without limiting the scope for betterment. But this is more easily said than done.

Bias

One of the major problems confronting the Malayan timber industry is the deep rooted bias which retards progress. The buying public still prefers well-known species. Although over 40 species are today exploited in the Forest Reserves only 25 are of some commercial value; and of these 25 scarcely a handful can be said to be fairly popular. In the overseas market this bias presents greater dangers because of the presence of competing species from neighbouring countries.

Even the sawmiller has not extricated himself from such bias. He is prejudiced against timber from some localities and has mysterious attractions for timber from certain states. Even the timbers of the same specie, botanically proved homogeneous and scientifically graded as being uniform are not the same in the eyes of the sawmillers who is willing to pay a few dimes more for certain species from certain areas. In the sawmilling circle, timbers from Pahang have celebrated reputation

This prejudice prevailing in the market and within the industry hinders maximum utilisation of Malayan timber resources and hampers the growth of the industry itself.

Finance

Finance is, indeed, indispensable for any undertaking

[4] In Singapore no such restrictions are in effect.

and the lack of it is the major stumbling block in the industry. It is the logger with capital who can build roads and bridges and use machine for his operation; it is the mills which offer financial assistance to independent loggers which get regular supplies of desired logs for sawmilling; it is the exporter with sound financial foundation who manages to have favourable dealings with sawmillers. The tragic point is that only a very few of the members of the trade could handle finance in such a way to their advantage, the rest being manipulated to their disadvantage.

Resort to banks for credit is unusual. Most Chinese sawmillers have more than one business, many acting as Government contractors and contractors in the construction industries and few doing transport service carrying timber, with their own lorries. Thus they can often manage to ease the financial tension by buggling money from one field to another.

Ordinarily credit from specialised lending institutions flow rather readily to the large firms with attractive collateral and a good life expectancy, but it is out of the reach of many sawmillers. Most loggers are virtually financed by sawmillers who by this means obtain desired species at concession rates which often more than cover the interest rates. Smaller mills likewise depend commonly on financial asistance from the market agencies, the exporters. Such "merchant credit" is looked down upon in the sawmilling and logging circles since such financial assistence usually has strings attached.

The exporters look for reliable source of timber supplies and are willing to pay lump-sum advance to the sawmiller whereby the latter is obliged to supply timbers of good quality at special prices. The sawmiller accepts this arrangement since he is normally in financial trouble and since he has to pay the logger in a likewise manner to ensure prompt supplies of desired species. The sawmiller can assist the logger only if he himself is assisted by the exporter.

Such financial arrangements often create undesirable obligations which bind the members of the industry in a manner which is not beneficial to the industry in general.

Instability

Instability in the industry is becoming more and more acute, which arises from poor arrangements prevailing in the industry. Irregularity of log supplies, and of sawn timber for exports and violent fluctuations in the timber prices in the overseas market all exacerbate the instability. Complaints from overseas of non-fulfilment of contract due to time lapse, delays in shipment, disputes regarding quality of timber supplied are but some of the ill-effects of this instability which does damage to the good name of the trade and spoils its future prospects. The unstable nature of the Malayan timber industry is closely connected to the unhealthy competition which is highly detrimental.

Unhealthy Internal Competition

There are at present more sawmills than actually needed to process the logs extracted. Most of these are small mills whose existence is largely responsible for the industry's inefficiency. Under-cutting one another has become the fashion of the trade. Blind contracts are entered into but are hardly fulfilled. The exporters generally complain that sawmillers often fail to comply with contracts made regarding supplies for exports, thus putting them in a very embarrassing situation. Consequently, when contract with importers is breached the reputation of the exporters is damaged, whereby the image and prestige of the export trade is defaced in the world market.

In the recent years, there has been an increase in the number of part-time exporters and mala-fide traders whose primary aim being quick gains without any regard for the long-run welfare of the timber export trade. Their role in the trade is only that of over-indulgence in unscrupulous practices such as making unrealistic quotations without any consideration for the local costs of production. They try to undercut the major exporters by giving quotations which are far below that of the major exporters especially when the prices are declining, but often failing to meet their obligations. Such malicious practices tend to depress the export trade, causing violent price fluctuations and irrepairable dislocations which disturb the stability of the trade.

Thus there is a dire necessity for setting the trade on a firm footing by eliminating mushroom exporters

and marginal sawmillers, without at the same time obstructing the entry of desirable new-comers to the trade.

Lack of Co-operation

The industry is torn into fragments, each concerned with its own well-being even if it means impinging upon the well-being of another. Sense of unity or unanimity is regretably missing in the industry. The leader of the industry are definitely not lacking in individuality or initiative. Attemps have been made to achieve this unity without success. The nation-wide trade associations are often hampered in their activities by parochial influences which are difficult to overcome and by that well-known suspecision common in all dealings with one's commercial rivals. Unanimity is the most important ingredient for a successful aggregate. Through unity a loosely knit organisation may be able to achieve some of the powers wielded by the large centrally managed concerns. By unity we do not mean identical action on the part of every unit of the combination; we mean identity of purpose and such actions as suited thereto.

External Threats

In the overseas market Malayan species are exposed to tough competition from those of neighbouring countries, especially Thailand and Philippines, although the Malayan share of the world market has increased in the recent years. Comparatively speaking, Malayan timbers are said to be less popular in the foreign markets, and promotion and publicity works must be stepped up to popularise our species to increase the volume of exports and to enlarge the range of species sold on the overseas market. Whatever publicity that prevails in the overseas market is due to the efforts of timber brokers and it is a folly to be contended with the existing arrangements. Of course, the Government cannot act as a promotional body, but governmental assistance should be given to private efforts directed at overseas promotion, lest the timber export trade may be relegated from the fifth position it is presently occupying in the Malayan total exports.

CHAPTER IX

ROLE OF THE GOVERNMENT

Forestry in Malaya

Forestry is a long-term business which involves a time period too long for private enterprise to give any attention, and therefore, the role of the Government in this field becomes as much inevitable as it is essential.

Forestry in Malaya, as elsewhere, serves two fundamental purposes - protective and productive roles. Protective role includes prevention of erosion, silting, flooding, maintenance of water supplies and preservation of climatic conditions, especially rainfall - The Second purpose is to ensure for the people an adequate and permanent supply of cheap timber, firewood and other forest produce through the medium of Productive Forests.

All forests are government-owned. Seeding and growing of timber are undertaken by government. It is only when timber is ripe for harvesting that private firms or individuals enter into the picture through leasing or licensing. The Government acts through the Forestry Department which plays a vital role in the conservation and development of forest reserves through silvicultural and other means.

Direct contributions of the Forestry Department to the timber industry in particular include the setting up of a Timber Utilisation Section in 1955 to purchase timber for Government Departments and assist other consumers in getting correct types of timber for different purposes; to advise the timber traders, both at home and abroad, on the suitability of various local timbers for various uses and on seasoning, grading, preservation and marketing of local timber; to provide a grading service for both local and export trades and to train and certify graders employed by the timber industry in Malaya.

The Timber Research Institute at Kepong also

endeavours to widen the scope of the industry by promoting a fuller utilisation of Malayan timber resources. The Forest Engineering Section of the Forestry Department holds such responsibilities as building construction, road construction, advising on log extraction and conversion, advocating the more widespread and economic uses of timber and the design of timber structures, etc.

Forestry and Finance

Forestry in Malaya has always shown a 'profit' for many years except for the very limited loss recorded during the slump years of 1931-33, the surplus revenue rising since 1946 from $230,064 to $12,548,119 in 1962.[1] A financial statement for the year 1962 is presented below.

Forestry Revenue and Expenditure, 1962

Revenue:

Timber and Fuel	$17,798,385
Minor Forest Produce	371,400
Other Sources	1,853,120
Gross Revenue	20,022,905

Expenditure:

Personal Emoluments	$4,274,709	
Administration & Transport	772,510	
Research	218,860	
Silviculture	1,190,476	
Exploitation	202,399	
Buildings	459,639	
Miscellaneous	356,193	7,474,786
Surplus		$12,548,119

Source: Report on Forest Administration, Federation of Malaya, 1962.

The Forestry Department has already done considerable research into conservation and production problems and has a large-scale scheme to advance along these lines with emphasis on silviculture, botany of forest trees, entomology and pathology as well as studies of timber mechanics, durability, preservation, technology and chemistry. The programme also includes investigation into uses of Malayan timber for pulping and fibre-board manufacture, improved means of timber extraction and better methods of milling.

[1] See Appendix H.

Such an ambitious programme should obviously entail large sum of money which can be met from the forestry revenue itself, if the Government is willing to dispense with a large portion of its revenue from this source. The current actual expenditure on research and silviculture amounts to only about 7% of the Gross revenue from forests.

The Forestry Department estimates that an expenditure of about $1.5 million a year is necessary to maintain a satisfactory rate of forest regenerations in relation to current rate of exploitation. The Second Five-year Plan 1961-1965 includes a plan for expansion of research facilities and reclamation of degraded soil at a capital cost of $5 million (para 122) and a silvicultural project with a capital outlay of $4.6 million. By such treatment the yield of the new crop at maturity is expected to be 3 to 5 times that from existing forests and the area to be so treated is designed to be 50,000 to 70,000 acres a year (para 123).

National Forest Policy

Forests are controlled by State Governments and this divided control miserably lacks uniformity in management and deprives the Forestry Department of security of tenure as regards Forest Estates as we have already seen in the previous chapter. The danger of timber shortage in the near future has been brought to public notice time and again. For effective control and efficient management of forests authority should, therefore, be centralised. The main hall-mark of forestry in Malaya is the absence of a national forest policy.

The Forestry Department has endeavoured to persuade the Government to adopt the national policy which has not been approved yet. Recently the matter was taken up by the National Development and Planning Committee which convened several meetings and currently the matter is being pushed up to Cabinet level for approval.

We are fortunate to have access to the confidential report in which several recommendations have been made regarding the policy. First, that the country must reserve a further 4,400 sq. miles of productive forest bringing the total to 12,500 sq. miles;[2] Second, that this

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[2] We want approximately 5,600,000 tons of round timber to meet the local demand for seventy years hence. The 12,500 sq. miles of productive forests are expected to produce, upon intensive silvicultural treatment, approximately 5,700,000 tons - just for self-sufficiency.

additional area must be found largely with low-land forest below 1,000 ft. contour.[1] Third, that Forest Reserves must be worked in preference to State Lands to facilitate long-term programming so that forest estates may be regenerated at the earliest opportunity thus increasing the proportion of valuable species and so bringing higher yielding crops into bearing. Fourth, that adequate steps must be taken to finance the silvicultural work undertaken by the Forestry Department. The cost of regeneration, upon acceleration, is expected to rise to $2,800,000 by 1970, a figure which excludes costs of supervision and subsequent tending. In addition, an annual cost of $770,000 is estimated to wipe out in 10 years the backlog left during the Emergency. Fifth, that the National Forest Policy should consist of two parts: (i) a short-term policy of providing for the improvement of forest reserves on a scale commensurate with the national needs. The cost of new silvicultural work (mentioned above) should be a charge on the Federal Funds, while the clearance of backlogs (mentioned above) should be a charge on the State Funds, and (ii) a long-term policy embracing the other ingredients of the main policy some of which will obviously take years to take shape.

By these means, the present annual coupe of about 60,000 acres of forest reserves is expected to be expanded to 114,000 acres and by 2049 exploitation is expected to begin in the newly regenerated forest estates.

Trade Associations

Mention has been made in the previous chapter regarding lack of unity within the industry, thus leading to a lack of representation by the industry of its opinions. Thus there is always a risk that their voices may not be heard and that their interests may not be appreciated.

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[1] Total area below 1,000 ft. contour amounts to 38,880 sq. miles consisting of:

Permanently unproductive land	750	sq. miles.
Alienated land	10,630	" "
Other land	27,500	" "
Total	38,880	" "

There is a general complaint in the industry that the Government acts in a high-handed manner. Internal inconsistency and disunity prevents such a representation of the industry at large. Many ills could be remedied by a strong Association provided it has sufficient fund to boost the trade through wider publicity and able advice on economic management of the business. Co-operative sales, transport, kiln-drying, treatment plants, storage and loading at ports could be organised. The existing Timber Exporters' Associations and Sawmillers' Associations fall far short of these ideals.

The Working Party was appointed on 2nd June, 1960 by the Ministry of Commerce and Industry to (i) look into the problems of the timber trade (ii) examine the organisation of Timber Exporters' Association with a view to improving liason between the Government and the industry, and (iii) set up a Malayan Timber Export Board "to control all exports of graded timber and to make recommendations on its compositions, functions, jurisdiction and legislation necessary for its establishment."

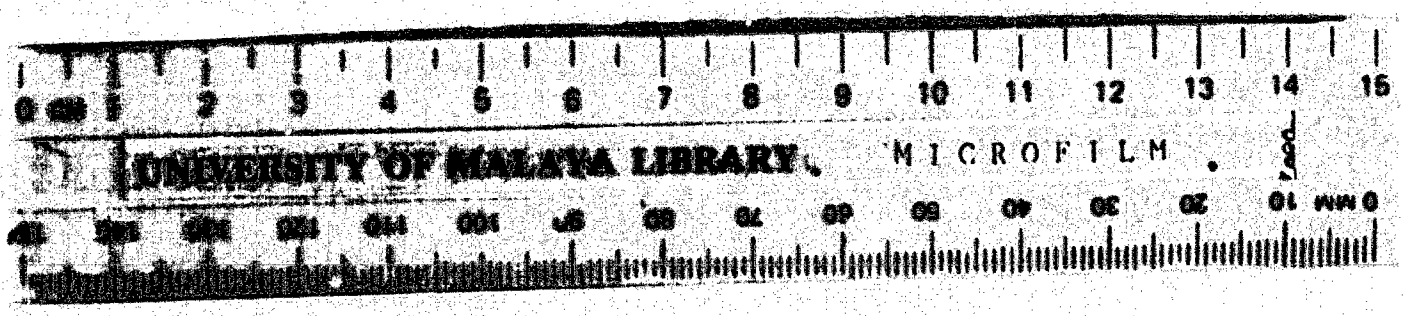
On this suggestion of the Ministry of Commerce and Industry several meetings were held by the timber traders in Malaya and the decision was fully endorsed and finalised and sent to the Ministry for action on 21st June 1962 for Government acceptance and action. It is sad to note that nothing has since been heard from the Ministry regarding this matter.

Indirect Incentives

In a world of free enterprise the role of the Government is often minimised to a level where its activities are limited to indirect interventions. The Government can indirectly help the industry in many ways. Longer lease of logging areas must be allowed to enable long-term programming and to encourage large-scale investments to increase productivity. The Government could also attempt to minimise the gap between working conditions in the State Lands and Forest Reserves to attain a certain degree of uniformity. Steps must be taken to weed out the uneconomical, undercapitalised, submarginal units in the industry at the same time encouraging the larger and efficient new entrants. The present fixed royalty system has adverse effects on both the timber traders and the Treasury due to price fluctuations. It is felt that royalties should, therefore, be based on prevailing prices of the different species of timber so as to bring the mode of assessment in line with

most other industries.

Government has already done, through the Forestry Department, a great deal to widen the range of economic species and to maximise the utilisation of Malayan timbers through years of research and publicity. Publicity, in particular, is markedly lacking in the industry and widespread bias still prevails at home and abroad. Needless to say, promotional efforts are essential to overcome these hurdles. The Government, of course, cannot act as a promotional body, but it can encourage such efforts on the part of private firms by helping to set up a board to look into this and by taking part in international exhibitions. Greater responsibilities must, however, rest with the private traders. It is only when private enterprise has done its utmost, is there a real reason to approach the Government with hat in hand.



CHAPTER X

PROSPECTS

Supply Outlook

The future timber supplies in Malaya seem to be well secured and the Forestry Department has creditably directed its efforts to ensure this. This optimistic view, however, should not blur our realistic vision of the industry in the years ahead since the current rate of exploitation of the commercially valuable species causes uneasiness to those concerned about the future status of the industry. No one can deny the possibility of timber shortages in the future and the timely realisation of this danger itself is encouraging long-term progressing. It may, however, take years before the significance of artificial regeneration by silvicultural means is fully appreciated since long-term expensive afforestation projects are neither popular nor readily understood. This is especially so in a country like Malaya where there is and will be a surplus of timber for some years to come.[1]

Special attention should be focussed on enlarging the number of species commercially used and at the same time greater effort should be taken to grow species which are in popular demand. It is only by these means that maximum utilisation of Malayan timber resources can be attained. Tribute must be paid to the Forestry Department for its efforts to introduce on to the Malayan soil new species which are in great demand and in short supply. Teak is one of them and it has been successfully planted on experimentation basis in Mata Ayer Forest Reserve in Perlis. Results are said to be very encouraging.

Thus, with proper planning and efficient administration Malaya should not face the fear of timber shortage. Productivity in the forests can be improved by scientific means. Trees in Malaya cannot be grown too

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[1] See Appendix J.

close together as those in temperate climates, but the Malayan species are ripe for felling much sooner and timber yields can, therefore, approach the European standard of about 80 tons an acre every 130 years or so.[2]

As regards processing of timber, sawmilling, much has already been said and the future of sawmilling as an industry by itself is rather rosy. The problem, however, is that there are too many small, inefficient units in existence. This tends to inflate costs of sawmilling and weaken the competitive position of our species in the international market. Fortunately, Government attention is now directed towards this issue and restrictive measures are being taken regarding new issues of sawmill licenses without obstructing the entry to efficient large units. In certain states, as in Perak, however, state legislations are harsh in that sawmill licenses cannot be issued except to Malay enterprises.[3] Although it is not the intension of this paper to criticise the policy of the Government, it should be stressed that such restrictions on racial basis will retard progress for the simple reason that Malays do not possess large capital to set up large, efficient mills. Such practices will only encourage the growth of mushroom small undercapitalised units and aggrave the problem. Prospects should be brighter if due steps are taken to eliminate the sub-marginal sawmills and encourage capital-intensive undertakings to promote an integrated wood-using industry in Malaya.

Demand Outlook

There is no fear of a fall in demand for timber in the world market. Demand for timber seems to be positively correlated to economic development. The position of soft-wood is certainly far better off than that of the hardwood whose uses are rather limited to a few fields.

The demand for the Malayan wood in particular,

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[2] A.B. Walton, "Land Planning and Forestry," The Malayan Forester, October, 1951.

[3] The Straits Times, 23rd June, 1965.

Moreover, world demand depends on the competitive price level and the supply conditions of the rival species from Siam, Philippines and Indonesia. All these point demand for the Malayan species has been on the increase and the present state of the market holds a continuous increase in demand although foreign competition may well be stepped up. The F.A.O. foresees an increasing deficit of industrial wood supply in the Asia-Pacific region, with only a few territories - Malaya being one of them - possessing the potentialities of being net exporters of timber and our big customer, Australia, is one of the deficit countries.[4] The message, thus, is rather clear that we need not fear lack of markets for our timber.

Domestic demand is expected to rise and by 1975 local consumption of sawn timber is estimated to approximate 656,000 tons.[5] The present per capita consumption of 2.75 cu. ft. of sawn timber may well exceed 5 cu. ft. in the foreseeable future, but the trend is towards increased consumption of well-known species at the expense of less popular ones. Concerted effort must be directed towards popularising a greater variety of species to win over the public, the architect and the engineer.

The range of uses to which our species are put could be widened.[6] Slow but steady changes are taking place at home in the pattern of timber consumption, and a larger number of species are nowadays applied to a greater range of uses. The local construction industry uses more timber than previously, but still the bias against our own timber is deeply ingrained. Many godowns, markets, factories, work-shops have roof of trusses of steel or aluminium instead of timber. In England, the home of steel where most of her timber requirements are imported, thousands of roof trusses are built not of steel but of timber! When timber grows in our own backyard why must we use imported steel always?

The growing wood-using industries in Malaya represent a large outlet for our timber. The plywood and

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[4] Timber Trends and Prospects in the Asia-Pacific Region, The F.A.O. and the U.N., Geneva, 1961.

[5] See Appendix J.

[6] See Appendix I.

fibre-board industries are expanding and their timber inputs have shown substantial improvement. But the Malayan species are unsuited to paper manufacturing[7] and research is carried on to advance along these lines. Possibility of using our species in paper and pulp manufacture will give a tremendous fillip and spur to the Malayan timber industry.

Conclusion

The timber industry in Malaya has been undergoing tremendous expansion during the post-war years although it is still overshadowed by the rubber and tin industries. The timber industry possesses large potentialities and its status may be enhanced considerably in the near future.

Timber is likely to play a more important role in the Malayan economy not only as a foreign exchange-earner but also as a raw material for allied domestic industries. So far it has not been necessary to restrict imports of building materials because of Malaya's favourable trade balance. However, in times of war and of shortages of foreign exchange timber would constitute a fine reserve.

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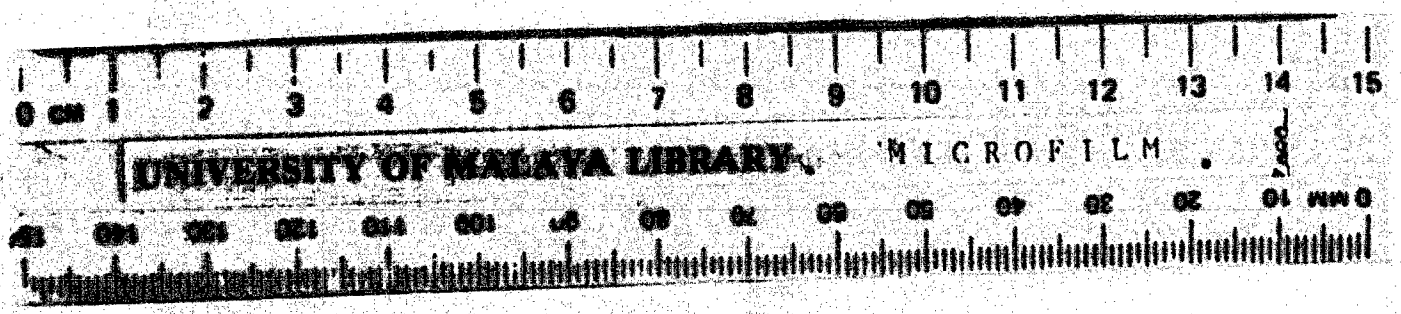
[7] In pre-war years some Chinese groups made paper by hand from straw and lalang. The Japanese erected a mill at Bungsar, Kuala Lumpur, and this plant prepared rubberwood mechanical pulp or bamboo or sisal hemp chemical pulp. Output was 7-10 tons per day on a 72-inch trim Fourdrinier which was later sold and exported to India.

A small factory at Bentong existed in 1948 making paper by hand from pulp, using simple but ingenious machinery. (Shrubshall, "A Paper Factory", The Malayan Forester, Vol. XI).

There is only one mill making paper in Malaya producing a variety of products including boxes, wrapping paper, toilet paper and joss paper and using several raw-materials, principally waste paper with an output of less than 300 tons a year.

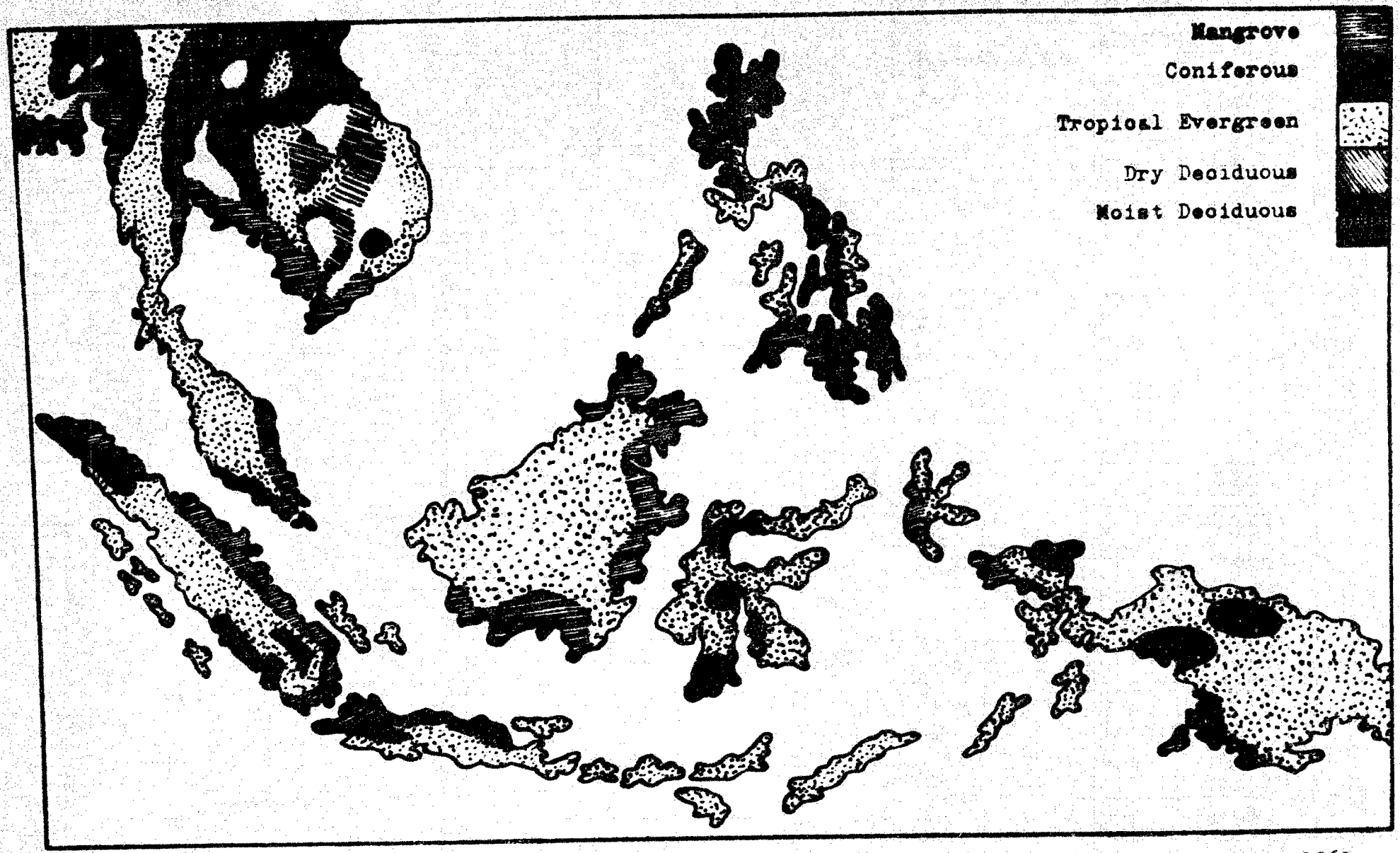
To recapitulate, it may be said that Malayan timber resources are huge and both the home and abroad demand is already great and is increasing steadily. In addition, there is a shortage of timber in many parts of the world and this shortage is expected to grow. Hence, West Germany, Taiwan and Japan are increasingly resorting to tropical timbers to meet their industrial requirements. With expanding market, flourishing local wood-using industries and growing labour force, the scene is therefore set for Malaya to make the best use of her vast timber resources.



APPENDIX A

MAP II

DISTRIBUTION OF MAIN FOREST TYPES IN SOUTHEAST ASIA



Source: U.N. and F.A.O., Timber Trends and Prospects in the Asia-Pacific Region, Geneva, 1961.

APPENDIX B

FORESTED LAND AS AT [illegible], 1962 (in square miles)

Territory	Area	Forested Land				Percentage to whole area		
		Reserved Forests	Wild Life & other reserves	Crown or State Land	Total	Reserved Forests	State Land Forests	Other Land
Johore	7,300	1,900	360	900	3,140	25.9	16.9	57.2
Kedah	3,700	1,340	20	600	1,960	36.5	16.8	46.7
Kelantan	5,800	970	550	2,660	4,180	16.9	55.8	27.3
Malacca	600	50	-	10	60	7.8	2.0	90.2
Negri Sembilan	2,600	1,040	-	180	1,220	40.7	7.0	52.3
Pahang	13,900	3,400	1,320	7,630	12,350	24.5	64.3	11.2
Penang	400	20	-	-	20	5.7	1.6	92.7
Perak	8,000	2,010	-	2,400	5,410	37.6	30.1	32.2
Perlis	300	80	-	20	100	25.5	13.7	60.8
Selangor	3,200	810	20	290	1,120	25.5	9.4	65.1
Trengganu	5,000	720	330	3,140	4,190	14.7	74.8	10.5
Total	50,800	13,360	2,568	16,130	34,050	26.3	40.8	32.9

Source: Report on Forest Administration, Federation of Malaya, 1962 (unpublished)

APPENDIX C

OUTPUT OF FOREST PRODUCE (in solid cubic feet), 1962

	Heavy Hardwoods round	Other Hardwoods round	Total Timber	Poles	Firewood	Charcoal
Johore	1,430,000	20,367,000	21,797,000	158,000	1,726,000	1,070,000
Kedah	654,000	4,349,000	5,003,000	167,000	118,000	511,000
Kelantan	303,000	1,818,000	2,121,000	8,000	81,000	175,000
Malacca	5,000	304,000	309,000	5,000	8,000	19,000
Negri Sembilan	818,000	9,105,000	9,923,000	134,000	9,000	243,000
Pahang	2,819,000	21,137,000	23,156,000	46,000	256,000	233,000
Penang	1,000	3,000	4,000	1,000	2,000	-
Perak	1,698,000	9,823,000	11,521,000	1,170,000	1,497,000	7,638,000
Perlis	25,000	97,000	122,000	116,000	28,000	63,000
Selangor	161,000	3,844,000	4,005,000	739,000	2,598,000	105,000
Trengganu	503,000	3,161,000	3,664,000	59,000	369,000	144,000
Total	7,617,000	74,668,000	82,625,000	2,543,000	6,660,000	10,281,000

Source: Branch on Forest Administration, Federation of Malaya, 1962 (unpublished)

[illegible] B

[illegible] OF [illegible] IN MALAYA 1946-1962

[illegible]	1946	1948	1950	1952	1954	1956	1958	1960	1962
Perak	28	40	46	76	82	89	86	87	86
Selangor	29	40	45	50	60	69	71	68	70
Johore	22	36	40	41	42	40	45	40	41
Pahang	6	11	13	26	34	47	49	53	63
Trengganu	2	7	7	10	12	14	15	17	16
Kedah & Perlis	5	16	18	28	33	35	34	36	35
Negri Sembilan & Malacca	10	15	19	35	40	43	42	43	43
Penang	7	8	12	16	16	31	36	28	31
Kelantan	1	4	6	12	18	19	22	25	26
Total Number of Mills	110	179	206	294	336	387	404	397	411
Horse power in 1000s.	7.6	11.5	12.6	23	25.2	28	30.1	33.6	37.9
Output in 1000 tons	85	186	272	362	390	534	521	707	735
Average output in tons	772	1,039	1,302	1,231	1,127	1,380	1,242	1,821	1,806

Source: Reports on Forest Administration, Malaya.

APPENDIX E

SAWMILLS IN MALAYA & SINGAPORE, 1962

Territory	No. of Mills	Total Horse Power	Labour				Input 1000 tons of 50 cu.ft	Output 1000 tons of 50 cu.ft
			Chinese	Malays	Indians	Others		
Johore	41	6,000	972	172	22	-	224	181
Kedah	31	1,600	312	214	15	15	89	60
Kelantan	26	1,800	77	292	2	-	40	32
Malacca	21	800	117	38	-	-	38	19
Negri Sembilan	32	4,300	997	137	29	-	138	79
Pahang	63	7,000	1,087	211	8	-	180	123
Penang	31	1,200	227	13	-	15	46	27
Perak	86	6,800	943	95	31	2	180	115
Perlis	4	200	19	6	-	1	3	2
Selangor	70	6,000	972	150	36	4	259	153
Trengganu	26	2,000	275	234	7	5	62	33
Total, Malaya only	411	37,700	5,438	1,382	140	42	1,236	754
Singapore	43	6,000	1,525	11	3	-	-	206
Grand Total	454	43,700	6,963	1,393	143	42	1,236	960

Source: Report on Forest Administration, Federation of Malaya, 1962 (unpublished)

APPENDIX F

PLYWOOD FACTORIES, 1962

Territory	Owners	Input Cu.ft.	Output Sq. ft.
Johore	Chan Wah Lee	80	182,000
	Johore Plywood	1,970	1,612,000
Negri Sembilan	United Plywood & Sawmills	2,630	4,979,000
Perak	Ming Ying	1,590	2,198,000
	Yeng Fong	900	1,486,000
Selangor	Ng Tsung Kiat	1,140	1,741,000
Total, Malaya only		7,890	11,438,000
Singapore	Singapore Plywood Co. Ltd.	8,690	10,300,000
Total, Malaya & Singapore		16,580	11,738,000

Source: Report on Forest Administration, Federation of Malaya, 1962 (unpublished)

APPENDIX 6

RAW RUBBER EXPORTS FROM THE STATES OF MALAYA AND SINGAPORE (in 1000 tons of 90 cm. %)

Exported to	1962			1963		
	Graded	Ungraded	Total	Graded	Ungraded	Total
Aden	6.2	12.7	12.9	0.9	13.2	14.1
Arabia	-	3.8	3.8	-	10.5	10.5
Australia	76.4	-	76.4	78.4	-	78.4
Bahrein	-	13.3	13.3	-	13.4	13.4
Belgium	16.1	-	16.1	17.0	-	17.0
Canada	1.3	-	1.3	1.1	-	1.1
France	6.9	-	6.9	16.1	-	16.1
French possessions in Africa	-	4.0	4.0	-	13.2	13.2
Germany, West	8.6	-	8.6	9.4	-	9.4
Hongkong	-	3.2	-	-	1.6	1.6
Indonesia	-	2.8	2.8	-	1.5	1.5
Iraq	17.7	8.0	25.7	7.7	5.0	12.7
Italy	2.9	-	2.9	4.1	-	4.1
Kuwait, Qatar, Dubai	0.4	9.6	10.0	0.2	13.3	13.5
Mauritius	0.6	4.2	4.8	0.3	4.3	4.6
Netherlands	2.2	-	2.2	3.6	-	3.6
New Zealand	3.2	-	3.2	3.5	-	3.5
Pakistan	1.0	2.9	3.9	0.4	1.3	1.7
Rhodesia	3.5	-	3.5	2.6	-	2.6
South Africa	29.0	-	29.0	52.8	-	52.8
United Kingdom	51.3	-	51.3	68.3	-	68.3
U.S.A.	9.6	-	9.6	13.7	-	13.7
Yemen	-	-	-	-	3.1	3.1
Others	5.5	1.1	6.6	9.9	1.5	11.4
Total	236.4	66.7	303.1	290.0	81.9	371.9
Approximate f.o.b. value		$47,674,000			$62,323,000	

Source: The Malayan Economist, April, 1964.

APPENDIX H

NET REVENUE FROM THE FORESTS: 1947-1962
(in million $)

Year	Revenue	Expenditure	Surplus
1947	2.98	1.67	1.31
1948	4.31	2.61	2.30
1949	4.66	2.09	2.57
1950	5.74	1.84	3.90
1951	6.50	2.38	4.12
1952	8.43	5.04	3.39
1953	10.60	5.13	5.47
1954	10.84	4.80	6.04
1955	12.96	5.35	7.61
1956	14.64	5.66	8.98
1957	14.44	6.17	8.27
1958	14.28	6.54	7.74
1959	14.27	6.53	7.64
1960	18.32	6.97	11.35
1961	19.09	7.19	11.90
1962	20.00	7.47	12.33

Source: <u>Reports on Forest Administration</u>, Malaya.

APPENDIX I

PROJECTED DEMAND FOR TIMBER IN THE ASIA-PACIFIC REGION

End-use	Sawnwood				Roundwood			
	1953-1955 Consumption		1975 Demand		1953-1955 Consumption		1975 Demand	
	1,000 Cubic meter round	as % of total	1,000 Cubic meter round	as % of total	1,000 Cubic meter round	as % of total	1,000 Cubic meter round	as % of total
Housing	24,550	46	40,160	46	5,978	31	9,083	31
Non-residential Constructions	7,670	14	12,150	13	2,131	11	2,781	9
Rural uses	1,270	2	2,090	2	5,970	31	9,555	33
Packaging	9,600	18	24,800	28	-	-	-	-
Mining	660	1	1,200	1	3,250	17	4,500	15
Transport and Communication	4,200	8	6,310	7	1,145	6	1,721	6
Furniture making	2,260	4	3,990	4	-	-	-	-
Other uses	3,540	7	7,970	9	840	4	1,690	6
	53,500	100	90,700	100	19,314	100	29,540	99

Source: U.N. and F.A.O., *Timber Trends and Prospects in the Asia-Pacific Region*, Geneva, 1961.

APPENDIX J

MALAYSIA TIMBER EXPORT SURPLUS, 1966-1975
(1000 tons of 50 cu.ft., sawn timber)

Year	SOURCES OF SUPPLY									Total Output	Domestic Consumption	Surplus for Export
	STATE LAND					FOREST RESERVES						
	Through Alienation Acreage	Through Alienation Output	Without Alienation Acreage	Without Alienation Output	Yield per acre	Acreage Felled	Output	Yield per acre				
1966	63.5	317.5	22.1	110.5	.005	80	480	.006		908	462	446
1967	63.5	317.5	2.9	14.5	.005	90	540	.006		872	496	376
1968	63.5	317.5	0.9	4.5	.005	90	540	.006		862	521	341
1969	63.5	317.5	-	-	.005	100	600	.006		917	535	382
1970	63.5	317.5	-	-	.005	100	625	.00625		942	566	376
1971	63.5	317.5	-	-	.005	100	650	.0065		967	582	385
1972	63.5	317.5	-	-	.005	100	675	.00675		992	600	392
1973	63.5	317.5	-	-	.005	100	700	.007		1018	618	400
1974	63.5	317.5	-	-	.005	100	725	.00725		1043	637	406
1975	63.5	317.5	-	-	.005	100	750	.0075		1068	656	412

Source: Lim Chong Yah, "[illegible] Timber Exports", [illegible] Projected to 1975, University of Malaya, 1964.

APPENDIX X

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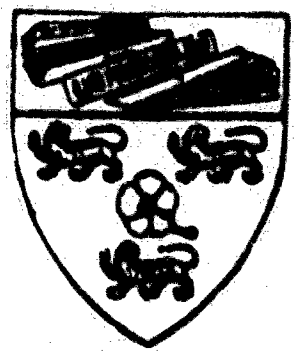

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