

The Amazing Success Story of Rubberwood

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Hevea Brasiliensis (Euphorbiaceae) has many names, Kayu Getah, Yang Phara, Pokok Getah Para, Kausuu, Jaang, Kyetpaung, Katoh and Cao Su, but it is most commonly known as Rubberwood. This timber becomes available when agricultural plantation rubber trees are felled. Replanting of rubber trees is carried out every 20 to 25 years when the trees no longer yield adequate latex which is the primary product harvested.

Hevea Brasiliensis species was originally native to the Amazon Basin in South America. Latex up until the end of the 19th century could only be sourced from Brazil. The process of vulcanisation of latex to produce rubber was invented by Charles Goodyear in 1839 after which the demand for latex increased significantly primarily for the production of tyres required by the fledgling automobile industry. The wealth generated in the Manaus province of Brazil became legendary as demand for this unique commodity flourished. In 1876 Sir Henry Wickham smuggled *Hevea* seedlings out of Brazil to the UK, then transferred the plantlets to the Singapore Botanical Gardens. These plantlets became the planting stock for the first rubber plantations in the State of Perak and eventually for the whole of present day Malaysia and other South East Asian countries. The important point to make here is that *Hevea Brasiliensis* was planted as an agricultural crop primarily for the harvesting of latex.

Up until recently, the felled *Hevea* trees considered a waste material were either burnt openly or used as fuel for brick kilns, latex curing, cooking, and charcoal and to fuel locomotive engines! It really wasn't until the 1970's that rubberwood started to be used as a timber material as opposed to a worthless by-product of latex production. By the early 2000's rubberwood had become the most extensively used timber in South East Asia. Within this relatively short space of time rubberwood had replaced many traditional hardwoods for the production of furniture, flooring, and joinery and became the raw material of choice for the production of Medium Density Fibreboards (MDF) and Particleboards (PB).

Research has always been instrumental in the initiation and development of new technologies for industry. Rubberwood processing and utilisation was no exception. Pioneer industrialists together with the Forest Research Institute Malaysia (FRIM), and the Rubber Research Institute of Malaysia (RRIM) all contributed in overcoming the problems associated with the processing and usages of rubberwood. Some of the key factors that have made rubberwood so successful include its relatively low costs since it is an agricultural by-product and its abundance within the South East Asian region. This coincided at the time when manufacturing jobs such as furniture production was migrating from developed to developing economies.

To demonstrate this (Table 1) the export of rubberwood furniture was RM36 million in 1990 and by 2018 this had increased to RM6.23 billion.

Since the 1990's the use of rubberwood for the production of Particleboard and MDF also increased tremendously peaking in Malaysia in 2007 when the export earnings of MDF and Particleboard reached nearly USD500 million.

An additional asset of rubberwood is its "green" credentials, coming from Rubber Plantations that are grown as an agricultural crop on sustainable plantations. In hindsight, this timber should have been certified and promoted as a more sustainable source

Table 1: Export Value Contribution of the Malaysian Rubberwood Sub-sector (RM Million)

Year	Sawntimber	Furniture	Mouldings	MDF	Chipboard	Builders' Carpentry & Joinery	Wooden Frames	Total
2000	0.00	3,535.20	313.20	823.00	160.00	269.00	0.00	5,100.40
2001	87.30	3,022.90	224.30	873.30	134.00	243.40	0.00	4,585.20
2002	91.57	3,339.43	228.77	866.84	115.73	260.97	0.00	4,903.31
2003	60.30	3,735.80	208.10	978.60	102.20	281.30	0.00	5,366.30
2004	137.10	4,350.80	646.50	1,020.90	195.80	109.50	11.60	6,472.20
2005	386.16	4,665.30	698.12	1,106.66	266.73	116.17	12.69	7,251.83
2006	69.77	5,127.40	796.32	1,144.89	266.97	102.66	12.23	7,520.24
2007	55.16	5,331.91	915.31	1,180.92	364.98	101.76	13.22	7,963.26
2008	27.06	5,536.87	744.10	1,156.13	391.69	100.52	12.38	7,968.75
2009	34.32	4,998.57	686.41	1,033.44	250.15	98.78	10.52	7,112.19
2010	95.60	5,217.32	715.86	1,202.15	288.59	95.47	12.38	7,627.37
2011	114.86	4,961.20	757.01	1,128.77	337.87	100.66	13.13	7,413.50
2012	89.62	5,223.01	711.91	1,149.05	339.20	99.31	14.24	7,626.34
2013	146.89	4,589.80	619.13	1,027.21	335.60	94.96	12.36	6,825.95
2014	209.17	5,090.70	361.02	740.80	239.03	503.90	62.04	7,206.66
2015	202.83	5,828.85	415.97	793.34	259.81	559.24	64.28	8,124.32
2016	221.37	6,049.45	410.38	828.31	279.75	609.70	63.10	8,462.06
2017	310.91	6,448.43	424.57	811.06	306.15	595.64	62.67	8,959.44
2018	279.44	6,228.99	437.01	830.44	337.89	530.04	61.88	8,705.69

Source: Malaysian Timber Industry Board (MTIB) / Lembaga Getah Malaysia (LGM)

of Tropical Hardwoods, which could have ensured higher valuations and a premium placement within environmentally conscious customers.

Regretfully in Malaysia the availability of Rubber Plantation Areas has been in decline from 1990 until the present day (Table 2).

The reasons for the rapid decline of Rubberwood Plantations in Malaysia is due to the declining prices for natural latex and the increasing labour costs associated with tapping the latex. This has meant that rubber tree plantation land has been converted to the more profitable Oil Palms which can thrive in similar soil conditions, are less labour dependant for harvesting and meets the growing global market for edible oils and Bio Fuels.

Malaysia now has only a fraction of its former planted area of Rubber Trees (1990 = 1.53 million hectares. 2018 = 0.76 million hectares),

resulting in a significant slowdown in the related industries and a complete cessation of new investments in panel production. The fear is that the furniture industry in Malaysia may also experience a reversal of fortunes as a result.

Hevea Brasiliensis (Rubberwood), was the primary driving force which enabled Malaysia to become in the mid 2000's the World's #2 producer of Natural Latex, and Rubberwood Mouldings, together with being the World's 4th largest exporter of Wooden Furniture and Medium Density Fibreboards.

In the last publication, my article detailed the issues related to the current 'Over Capacity' problems facing the MDF and PB industries that have disrupted the Supply v Demand balance for wooden panels and have adversely affected margins and the profitability of these businesses. Another critical situation for the industry to consider is the Supply v Demand balance for our main raw material – Rubberwood. We have been tracking rubberwood prices for more than 15 years and generally speaking have found that as latex prices rise and fall so does the price of rubberwood. Since mid-2015 we have observed a disconnect from this trend. Although the latex prices have been dropping, the price of rubberwood has remained stubbornly high. This can only mean that we have reached the 'tipping' point where the demand for rubberwood (even under a subdued economic environment) has equalled or exceeded the supply. My fear is that this imbalance could only deteriorate further, resulting in higher prices and a real threat of shortages of rubberwood required for our related industries in Malaysia. As a caveat, I believe that Thailand will experience a similar scenario as new saw mills, Particleboard and MDF lines commence operation.

The economic benefits and multiplier effect Hevea Brasiliensis has had on Malaysia has been extremely positive ever since the inauguration of the first plantation in Kuala Kangsar nearly 150 years ago. But like all good things, they must eventually come to an end. Ironically the plantation crop that replaced the vast acreage of rubberwood has itself come under negative environmental and economic scrutiny. The question is – can Oil Palm (*Elaeis Guineensis*) ever give back to our economy what Hevea Brasiliensis, the humble Rubber Tree, has done over the past 100 years?

For Malaysia the immediate challenge is to find a commercially viable replacement raw material for rubberwood to ensure the sustainable continuity of our wood panel and furniture manufacturing businesses in Malaysia.

