

BUMIPUTRA INTERESTS AND RECENT TRENDS IN THE TIN MINING INDUSTRY IN PENINSULAR MALAYSIA

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Tin mining is the oldest primary industry in Malaysia which has contributed a lot to the income of the country. However its performance has been fluctuating. After the Second World War, its production level improved to reach the second highest peak in 1972 but since then it has been declining. Lately the industry has lost its importance as reserves have depleted and prices are very low. It was during this decline that Malaysia under its New Economic Policy (1971-90) attempted to increase Bumiputra participation in the industry, particularly in the ownership of mines and mining companies. In the initial stage, the efforts of the government proved successful as the number of mines owned by Bumiputras increased, but such an increase could not be sustained. As world tin trade in 1980s and early 1990s did not improve and kept on declining, most of the tin mines in Malaysia including those which were Bumiputra-owned had to close down. Mines that are left working are operating poorly. Some mines such as those owned by Malaysian Mining Corporation (MMC) are incurring losses. Thus, the efforts by the government to increase Bumiputra participation in the industry have not materialised well following the falling trend of the industry.

Perlombongan bijih timah adalah industri utama yang tertua sekali di Malaysia yang telah memberi sumbangan yang besar kepada pendapatan negara. Prestasi industri ini turun naik – tahap pengeluarannya meningkat sejak awal Perang Dunia Kedua sampai ke tahap kedua tertinggi pada tahun 1972 tetapi selepas itu prestasinya terus menurun. Kebelakangan ini, industri ini telah hilang kepentingannya disebabkan kekurangan rezab dan harga bijih yang rendah. Pada arah industri yang menurun ini kerajaan Malaysia melaksanakan Dasar Ekonomi Baru bagi meningkatkan penyertaan Bumiputra dalam industri ini dari segi penambahan bilangan pemilikan lombong-lombong dan syarikat-syarikat perlombongan. Pada awalnya usaha-usaha kerajaan ini berjaya dengan meningkatnya bilangan lombong-lombong Bumiputra tetapi peningkatan ini tidak bertahan lama. Apabila perdagangan bijih timah dunia pada tahun-tahun 1980an dan awal 1990an tidak meningkat dan terus menurun, banyak lombong termasuklah lombong-lombong Bumiputra terpaksa ditutup. Lombong-lombong yang masih beroperasi tidak meningkat maju dan sebahagian dari lombong-lombong itu seperti lombong-lombong MMC telah kerugian. Dengan ini usaha-usaha pihak kerajaan tidak menunjukkan kenyataan berikutan arah kejatuhan industri perlombongan ini.

Malaysia has a long history of tin ore production. Until the discovery of tin in Banka (Indonesia), Malaya was the main source of the metal in the Malay Archipelago (Crawford 1820, as cited in Wong 1965, p. 3); its presence had for centuries drawn merchants to the Malayan ports. Malayan tin found a ready market in India and China, while its exports to Europe began in the seventeenth century by the Dutch to aid the production of alloyed metals such as brass and pewter. It has been estimated that between 45 and 181 tonnes of tin ore were exported annually to Europe through Malacca (Lewis 1969, p. 55). Indeed, Malaysia is still one of the world's main producers of tin ore.

Before the introduction of rubber, tin was Malaya's main income earner and source of employment. From 1910 rubber, together with tin, accounted for over 55% of the total value of exports until as late as 1965 (Malaysia 1966, p. 4). Since then instability in the world tin trade, and emphasis on the diversification of the economy, has reduced the financial importance of the tin industry. In 1990, tin ore represented only 1.1% of the total exports of Malaysia (Malaysia 1991, p. 8).

Ethnic participation in the industry particularly in ownership of mines or mining companies, varied temporarily following the development of the industry. Bumiputras particularly the Malays were pioneers of the industry, but they lost their status to the Chinese and the European miners as the industry developed. Lately, under the New Economic Policy (1971-90) there were efforts to revive the Bumiputra participation in the industry but the industry is currently not stable. The process of reviving the Bumiputra participation particularly in increasing the number of Bumiputra miners and Bumiputra-owned tin mines has been affected. Thus, in order to look into the interests of Bumiputras in the industry under the New Economic Policy, we have to focus on some of the general features of the industry itself particularly the general trend of the Malaysian and the world tin trade.

GENERAL FEATURES OF THE MALAYSIAN TIN MINING INDUSTRY

Mining of tin ore is a primary industry - concerning natural resource exploitation which has many features typical to the industry as a whole. Generally the industry is influenced by many factors which determined its past, present and future performance. Resource reserves and location; demand and supply; and market prices are some of the most important factors. These same factors are found to determine the performance of the tin mining industry in Malaysia.

MALAYSIAN TIN BELTS AND RESERVES

Tin ore is not distributed evenly in the country, although the metal can be found in traces in almost every state (Wong 1965; Willbourn 1946; Scrivenor 1927). The alluvial tin deposits of Malaysia occur mainly in zones parallel to the Main Range, and on its western side. This zone begins in Kedah and stretches southward through the Taiping and Kinta valleys, across the Bidor mining fields in Central Perak, and further south again through Ulu Selangor, Kuala Lumpur and western Negeri Sembilan; it terminates near Port Dickson in Negeri Sembilan and Kuala Linggi on the Malaccan Coast. The ore occurs in lodes or veins but the alluvial deposits are still, as in the past, the most important sources of mineral (Wong 1965, p. 2). On the eastern side of the Main Range, the tin deposits spread from the Kelantan valley in the north through Western Pahang, particularly in the vicinity of Bentong, to the area around Mersing in Johore. These deposits have been comparatively neglected, mainly due to the difficulty of transportation. Further eastward from the Main Range, closer to the sea, there is the last range of granitic rocks which runs through Trengganu into Pahang. It is among these rocks that valuable veins of tin ore to be found. In the early days of mining activity in Peninsular Malaysia (1890s), there were several important centres such as Lukut and Sungai Ujung in Negeri Sembilan. Mining also occurred in the Klang Valley in Selangor, the Larut and Kinta Valleys in Perak, as well as in parts of what are now the states of Kedah, Trengganu and Pahang (Wong 1965, p. 18-19). In the Klang Valley mining activity took place especially at the present site of Kuala Lumpur City and a few other areas such as Petaling, Serdang and Bernam District. In the Kinta Valley the principal areas were around the sites of Ipoh City, Batu Gajah, Gopeng, Kampar, Bidor, Chemor and Sungai Siput. However, the most notable tin producing areas until today are the Kinta and Klang Valleys.

Another factor is the size of tin reserves which determines the future of the industry. Historically, Malaysia has accounted for between 30% and 55% of the world's annual tin production - yet there is no official estimate of tin reserves for the country (Jaafar 1977, p. 141). Statistics for reserves are mainly those given by the International Tin Council and U.S. Bureau of Mines, and have usually been underestimated. For example, the U.S. Parley Commission's 1952 estimate of 1.36 million tonnes for Peninsular Malaysia would have been exhausted by 1976 at the then prevailing rates of extraction. In 1960s W.C. Robertson (commissioned by ITC to prepare a 'Report of the World Tin Position with Projections for 1965 and 1970') put Malaysia's reserves at 914,000 tonnes in 1965 and 609,600 tonnes in 1970. With an output of 60,960 tonnes of concentrate a year, Malaysia would have exhausted this reserve by 1980 (Jaafar 1977, p. 142).

The Malaysian Geological Department, however, maintains that Malaysia has much larger reserves than that discussed above. At Pelepah Kanan in the state of

Johore, there is a large deposit of complex tin-iron mineralization estimated at 5.6 million tonnes of ore, with an average tin content of 0.45%; another reserve at Bukit Besi contains about 1.27 million tonnes at 0.5% tin. Should there be a breakthrough in technology allowing separation of these fine ores, Malaysian production could again be enhanced (Jaafar 1977, p. 143). Furthermore, a geological survey has confirmed that there is a good prospect of mining offshore tin in the Straits of Malacca.

However, not only reserves need to be considered but also the questions of Malaysia's competitiveness and the reserves of the other major tin producers must also be considered. At present, the industry is very competitive because there is large production from several other countries that are capable of producing more cheaply than Malaysia. Brazil is now a major tin producer as correctly predicted by Robertson in 1982. China's ability to produce 20,000 tonnes of tin in concentrate and 20,000 tonnes of metal must also be considered because of her known capability to produce cheaply (Thoburn 1981, p. 34). However, the latest reports on world tin production cause great concern to Malaysia. Since 1988, Brazil and Indonesia have overtaken Malaysia's position as the main world producer of tin (Abdul Ghani and Abdul Sukor 1989:2; Jomo 1990). Malaysia's rank in tin production fell to the third position (producing 18% of world output) after Indonesia, and Brazil has become the world's main producer of tin ore. In 1990, Brazil produced 45,600 tonnes of tin-in-concentrates compared to Malaysia's 28,468 tonnes (*Malaysian Tin Bulletin*, April 1991). Under the supply rationalisation scheme of the Association Tin Producing Countries for the year 1991, Malaysia has been allocated only 8,556 tonnes compared with 28,376 tonnes for Indonesia and 39,010 tonnes for Brazil (*Malaysian Tin Bulletin*, April 1991). For these reasons, the future of the tin mining industry in Malaysia looks quite gloomy.

Related to the tin reserves is the tin ore grade in the ground which has to be considered. In the past Malaysia has been known for its higher grades of tin. But recovery of such high grades has declined from 0.15 kg. of tin per cubic metre of earth in 1939-40 to 0.12 kg. in 1950-1 (Yip 1969, p. 4); in 1970s grades have come down to as low as 0.08 kg. in Perak. Only tremendous improvements in mining techniques will make it possible for the extraction of such low grades (see Hew 1985 for details). Remining of mined land is also common in Malaysia today. Mined areas have become so marginal that 90% of gravel pump mines in Perak (and 65% in Selangor) are now working in areas which have been previously mined or mined on mine tailings (Mohd Salleh and Chue 1977, p. 12, Hew 1985). In terms of ground grades, Malaysian mines generally compare unfavourably with those of neighbouring countries particularly Indonesia and Thailand (Redzwan 1985, p. 96, table 6.2).

Malaysia is no longer in a favourable situation in terms of tin grade, as tin prices kept falling following the collapse of tin trading in October 1985. Most

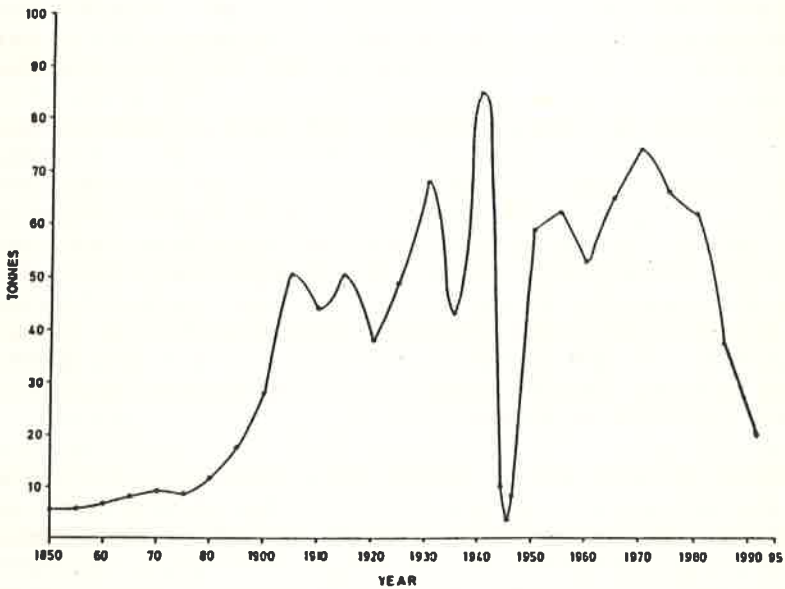
Malaysian tin miners could not produce tin ore at much lower prices than \$14.00 in 1991 and early 1992. Many mines, therefore closed down. However, Brazil, Indonesia and China are still able to produce tin ore despite the low tin prices. This shows that Malaysian inland tin reserves are in a vastly depleted stage and the reserves only contained tin of lower grade which resulted in higher costs of operation and are not feasible to be mined at the time of low tin prices.

PRODUCTION TREND OF TIN ORE

Historically, the performance of the Malaysian tin mining industry viewed in terms of production of tin ore, has been showing a fluctuating trend over the past century (Figure 1) due to the interplay of demand and supply of the metal. When the world market is over supplied with tin ore, prices will fall leading to a lowering of production. Only when demand for the metal is high will miners be encouraged to increase their production. However, other factors such as wars, economic recession and International Tin Agreements (ITA) are also known to have influenced the production feature of the industry. This fluctuation in tin ore production is evident in Figure 1. In the early years of mining industry in Peninsular Malaysia, prior to the discovery of the Larut tin fields in the middle of 19th century, due to low demand for the metal and poor mining techniques, production increased slowly from around 3,000 tonnes to 9,000 tonnes in 60 years. After the establishment of British control in the Malay States, the discovery of Larut tin fields led to a steady increase in production, establishing a first peak of 52,564 tonnes in 1904. The increase in production was also triggered by the introduction of mining techniques such as the gravel pump and dredge, as well as by the industrialisation of the United States and Europe. Since then until 1970, tin production has fluctuated establishing several crests or peaks and troughs or the lowest points of production; the highest level was in 1940 with annual production of 85,000 tonnes. After that production fell drastically due to the Second World War to the lowest level of 3,000 tonnes in 1945 but as the world economy improved after the war, tin production rose but still fluctuated and peaked in 1972 with total annual production of 76,831 tonnes. Since then, annual production kept on sliding down to the lowest level of 20,710 tonnes in 1991. Emergence of 1992 does not show any sign of improvement in tin production as the monthly output of tin in early 1992 keeps on falling from 2,162 tonnes in January to 1,433 tonnes in February.

This trend of fluctuation in tin ore production is a typical feature of the industry throughout the world. In fact, production of other metals such as iron, copper and aluminium is no different. Many measures have been implemented at international level to avoid the fluctuation in production and to establish a balance between supply and demand of the metal. These measures have some bearings on the Malaysian tin mining industry. Malaysian tin output kept on fluctuating and sometimes with big differences between the highest and the lowest output.

Figure 1 : TREND IN MALAYSIAN TIN PRODUCTION 1850-1991



(Source: Department of Mines Malaysia, Annual Report 1953-1991)

Figure 1

The first international measure to protect the tin mining industry from the fall in demand was the Bandung Pool in 1921-1923. Prior to 1921, Peninsular Malaysia was in the period of tremendous increase in her tin ore production from being around 12,000 tonnes in 1880 to about 52,000 tonnes in 1915. However, growth was interrupted by a fall in prices that reached its lowest level in 1921. To avoid the great fall in production, during 1919-20, the government of the Federated Malay States started unsuccessfully to buy tin as a price-support measure; in 1921 it cooperated with the government of the Netherlands East Indies to organise the Bandung Pool by purchasing 17,000 tonnes (one-sixth of world production); this was sufficient to improve prices to encourage increase in production until the pool was liquidated in 1927 (Redzwan 1985, p. 3).

The world economic depression of the 1930s - which began in 1929 - caused the market to be oversupplied as consumption declined and prices of tin fell. This situation led to the formation of the International Tin Council (ITC) in 1930. Encouraged by the success of the Bandung Pool, ITC formed its first International Tin Agreement (ITA1) in 1931 (Burke 1990, p. 48). ITA1 consisted of Britain (for Malaya and Nigeria), Holland (for the Netherlands East Indies), Bolivia (which accounted for 87% of world tin output of 169,200 tonnes) and Thailand (joined in 1932). ITA1 curbed the over-supply of tin on the world market by export cuts of between 22.3% to 34.5% (Redzwan 1985, p. 4). Export restrictions continued throughout the next two agreements which were ended in 1939 and Malaysian output reached its ever highest peak in 1940 with a total production of 81,991 tonnes. However, this large output could not last long. During the Japanese occupation which began in late 1941, the industry was badly affected despite Japanese attempts to revive it. From 1942 to 1946, production averaged only 11,365 tonnes a year with the lowest level of output in 1945 with only 3.15 tonnes (Figure 1).

After World War II, the industry revived in 1956 to an output peak of 56,514 tonnes but this fell again to a new low of 34,042 tonnes in 1959 (Figure 1). After the war Malaysia was plagued by communist insurgency, which resulted in a state of Emergency which lasted between 1948 and 1960; European mines were particularly badly affected. After the war, the previous problem of oversupply on world markets returned. ITA was renewed every five years from 1956 with output cut from producer countries. In all these Agreements, buffer stocks and export controls were maintained. However, the Sixth ITA, which began in 1982, was in big trouble and the problem was prolonged until it was interrupted by the suspension of tin trading in October 1985. The problem began when consumer members of the ITC rejected demand for higher tin prices by tin producers in July 1981. This situation led Malaysia to retaliate on the pretext of protecting its interests as the world's biggest tin producer by secretly buying tin through its company - Maminco Sdn. Bhd. until early 1982 to raise the prices which it did to a record level of £8,970 per tonne in February 1982 (Jomo 1990). However, its effort backfired as it was cornered by the London Metal

Exchange and Malaysia lost M\$660 million for its effort. The higher prices it had created led to the tremendous increase in world tin output leading to falling in prices. Because of the large output the Buffer Stock Manager (BSM) had been unable to finance further purchases of tin in order to maintain floor prices and this led to the downfall of tin market in October 1985. Malaysia was blamed for its effort to corner the tin market (Jomo 1990; Burke 1990). However, in addition to that problem created by Malaysia there were the problems of currency fluctuations and ITC member countries' refusal to extend financial support to ITC which forced it to default (see Jomo 1990 for further details - especially p. 20-21). The phenomenal increase in tin supply by Brazil which produced tin cheaply in the 1980s forced BSM to buy an increasing volume of tin for stockpile to maintain the floor price which fastly depleted the Buffer Stock fund. With no financial help BSM could not afford to keep up its activity (Jomo 1990, p. 21). Since the collapse of the tin market in October 1985, Malaysian tin output which had peaked in 1972 (although lower than 1940) fell drastically until at present (June 1992).

Malaysian production has since then kept on declining. The industry has not recovered to its 1972 level and in 1988 the production of tin was still low, as the price was also low at about M\$18.00 per kilogramme; this is said to be below the cost of production (interview with tin miners). This situation has forced the miners to cut costs in order to be in production. However, the fall in prices has continued to drop. The Kuala Lumpur Tin Market recorded an average price of \$14.87 per kilogramme in February 1991. It improved slightly, recovered to an average of \$15.51 in June 1991 (*Malaysian Tin Bulletin*, July 1991:Appendix 4). This low price level has not encouraged miners to reopen their mines and the number of mines in operation remains low with 92 mines only (December 1991). The coming of 1992 does not promise a better future to the industry. The tin price slipped further to \$14.20 per kilogramme on 27th January 1992, the lowest since it hit \$14.15 on October 16, 1985 (*Star*, 28th Jan. 1992). This situation will encourage further closer of tin mines. In February 1992 only 84 mines were in operation. This elaboration shows that the future of the tin industry in Malaysia remains gloomy with uncertainty of its recovery. It could be the signal of the end of the industry.

BUMIPUTRA INTERESTS IN THE TIN MINING INDUSTRY

Following the elaboration on the general trend of tin mining industry in Peninsular Malaysia, we can now look at the revival of Bumiputra interests in the tin mining industry from their pattern of ownership and how the general trend of the industry has affected that revival.

Much has been written on the patterns of ownership in the Malaysian tin mining industry in the past especially before the New Economic Policy which need not be discussed further. Since the start of mining industry in Malaysia, there have been several changes in the pattern of control and ownership in the

industry. Yip (1969) identifies two main changes up to 1960. These were: (i) the position before independence, and (ii) after independence but before the New Economic Policy. However, a lot has happened since Yip's study, and we may add a third stage of ownership change, that is, after the New Economic Policy.

This third phase of ownership change in the tin mining industry in Malaysia is the period of reemergence of the Bumiputra interests in the industry. With independence (1957), Bumiputras particularly the Malays became more conscious of their weak position in the modern commercial economy including tin mining industry. Although the Malaysian government encouraged Bumiputras to involve themselves in the mining industry, the participation level was comparatively very low compared with the other ethnic groups because the improvement was very slow. In 1964, Malay shareholding was only 3% in tin dredging, mostly in Selangor Limited and even less in gravel pump mining (Yip 1969). Thus the development of the Bumiputra economy in secondary and tertiary industries was further emphasised in the New Economic Policy (NEP) beginning in 1971 and coinciding with the Second Malaysia Development Plan. Under this NEP various strategies have been implemented to revive the Bumiputra position in the mining industry. The strategies had been carried out by both federal and state governments. Some of the strategies carried out were: Bumiputra companies were encouraged to mine Malay Reserve land; the Mineral Investigation Drilling Unit helped to prospect in Malay Reserve areas; and, to overcome the shortage of capital and expertise, the government had formed several government agencies or unit trust agencies to carry out mining on behalf of the Bumiputra. All these strategies had for a long time been awaited by Bumiputras. However, despite the elaborated efforts by the Malaysian government, these efforts will depend not only on the Bumiputras alone but also on the vagaries of world tin trade. As explained earlier, the tin market had been favourable with high demand for tin ore since the the Second World War and the high demand peaked in 1972 but since then the demand had been progressively declining. These developments will obviously have some bearings on those government efforts. Although the New Economic Policy began in 1971, it took sometime for it to be implemented, especially in the tin mining industry where bureaucratic procedure took up to two or three years for the miners to get approval to start mining. Thus licences approved as early as 1971 were only permitted to start mining by late 1972 or early 1973 and by that time world tin market had already been in the downtrend position. That downtrend position has also been on a fluctuating basis. Thus the efforts to encourage Bumiputra participation in tin mining industry will also depend on the fluctuation in the world demand for tin.

The federal government implemented the strategies through its economic development agencies that were purposely created under the New Economic Policy. One of the major agencies involved is Perbadanan Nasional Berhad (PERNAS). PERNAS through New Tradewind, one of PERNAS's many

subsidiaries acquired Charter's Consolidated (a British company with large mining interests in Malaysia) and changed its name to the Malaysian Mining Corporation (MMC); this later bought the London Tin Corporation, the largest tin mining company operating in Malaysia (Davenport 1977, p. 36; Thoburn 1981, p. 82-83). MMC became the world's largest tin corporation, responsible for 30% of Malaysia's tin output and 15% of the world's output. In 1982, Permodalan Nasional Berhad (PNB) acquired MMC to make it a Bumiputra interest. By doing so it has increased the Bumiputra participation particularly in ownership in the Malaysian mining industry. MMC inherited the British mining interest and thus has a broad-based activity in tin mining industry – vertically integrated from mining to smelting and to tin plate making as well as trading and marketing (see Jomo 1990, p. 47; Davenport 1977, chart on Pemas Tin Group - p. 38).

At the state level, state governments started to involve in mining activities, particularly in Selangor and Perak – the two main tin producing states in Malaysia. The state government of Selangor has formed a state mining corporation (Kumpulan Peransang Selangor – KPS) and made it a policy that no leases over 500 acres (202.3 ha) would be granted to the private sector. However, KPS could form a joint venture with any company to undertake such leases while holding 51% equity with local companies and 70% with foreign companies. KPS also entered mining directly through its own dredging company, Timah Langat; initially 80% was owned by KPS but reduced it to 56% with the rest of the equity sold to local Malays in its strategy to encourage individual Bumiputra to participate more in the tin mining industry.

In Perak, the Perak State Economic Development Corporation (PSEDC) formed a 100% owned subsidiary company called Maju Timah to undertake mining activities. Mining leases over already-mined land, and new areas, have been given to PSEDC; this organisation then either issues mining permits to small mining companies or enters into joint-venture operations with Bumiputra and non-Bumiputra (as well as foreign) companies. PSEDC is also engaged in a joint-venture with MMC and Chinese Companies in tin dredging in the Kampar area using a mining lease belonging to PSEDC; it also has joint-venture operations with Bumiputra miners in four other companies – Maju Penawar Sdn. Bhd., Syarikat Galian Kledang, Syarikat Lombong Senggang and Syarikat Kaksa Sdn. Bhd. Non-Bumiputra companies working on PSEDC leases pay a royalty of between 5% and 12% of output. In addition, PSEDC sometimes sells its shares in various companies to Bumiputra miners in order to encourage individual Bumiputra participation in the mining sector.

As seen above, the efforts implemented were immense but the question is how successful are the efforts and to what extent has the result of the efforts been sustained in view of the unfavourable features of the world tin market.

Through the involvement of PSEDC in mining, the Perak State government has been able to encourage Bumiputra participation in mining industry. The State also has a direct stake through PSEDC in profits from mining - in the past it could only benefit from land leases and taxes from the sale of tin produced in the State. Looking at the mines themselves, there was a big increase in tin mines owned and operated by Bumiputras (Table 1 - column A) from 32 mines in 1973 to 39 mines in 1974 - an increased of 17 mines; joint-venture mines between Bumiputra and non-Bumiputra (column B) only increase slightly from 13 to 17 (Table 1). There is a big reduction in group C mines (Bumiputra licensee but operated by non-Bumiputra) because such joint-ventures of sleeping Bumiputra partners was discouraged - thus group C mines dropped in numbers from 20 in 1973 to nine in 1974. However, since then as world demand for tin ore fell followed by a fall in tin prices, many of the Bumiputra mines particularly the small mines closed down. The same happened to the small non-Bumiputra mines. The total number of mines operating in the state of Perak was also declining gradually. However the number of Bumiputra mines operated by individual Bumiputras increased to 38 in 1980 as world tin demand and prices improved. The number of Bumiputra mines including joint-ventures with non-Bumiputra (Table 1 columns A+B+D(i)+E(i)) suddenly increased with a big number - from 48 to 115 in 1980. This was as a result of PSEDC involvement in mining through its Maju Timah joint-venture with non-Bumiputra companies and also the involvement of MMC mining activities in Perak. However, 1980 was the peak of the success of the Bumiputra mining activities. Since when the total number of Bumiputra mines including the joint ventures (A+B+D(i)+E(i)) began to decline. By 1984 the number of Bumiputra mines (A+B+D(i)+E(i)) in operation was 88, by the year 1985 - the year of the tin market crashed - the number was 47 and reduced to 29 in 1986 - a year after the crash. In 1987 as the world demand of tin improved with better prices, the number of Bumiputra mines (A+B+D(i)+E(i)) increased to 47 in 1987 (the number before the 1985 crash), to 56 in 1988 and peaked in 1989 with 62 mines but since then fell again to 37 in 1990 and 29 in 1992. The number of individual Bumiputra mines also fell from 12 mines in 1988 and 1989 to four in 1990 and three in 1991. The fall in the number of Bumiputra mines (both individually owned or in joint ventures) could not be blamed on the Bumiputras themselves because similar features appeared in the non-Bumiputra mines. In fact, Bumiputra mines performed slightly better as their numbers increased during the 1980-84 period compared to non-Bumiputra mines which had been declining regularly without any intermittent significant increase. However, the intermittent increase in the number of Bumiputra mines was only found in the joint-venture mines as most of the mines were bigger mines that were not badly affected by the fall in world tin demand compared with the smaller mines. Individual Bumiputra mines had never increased in numbers since 1974. Thus, by looking at the performance of the Bumiputra mines in the state of Perak we could see the effect of the fluctuating and the declining trend of the world tin demand.

TABLE 1
CLASSIFICATION OF TIN MINING OWNERSHIP IN PERAK

Year	Type of ownership					E	F	G	Total	A+B
	A	B	C	D	(termasuk jenis E)					
1973	22	13	20	600					655	35
1974	39	17	9	561		56			682	56
1975	38	12	5	520		63			638	50
1976	16	12	21	434		57			540	28
1977	16	12	21	434		57			540	28
1978	22	9	25	-		11	464	22	553	31
										A+B+D(i) +E(i)
1979	23	9	-	(i) 5	(ii) 11	(i) 40	246	-	533	48
1980	38	3	14	24	15	50	172	-	549	115
1981	26	3	-	22	12	50	123	-	446	101
1982	22	1	-	20	6	59	97	-	376	102
1983	22	1	-	20	6	59	97	-	376	102
1984	15	1	-	17	3	55	77	-	300	88
1985	6	1	-	19	3	21	29	-	169	47
1986	6	-	-	16	1	7	18	-	124	29
1987	8	-	-	17	-	22	30	-	148	47
1988	12	-	-	21	5	23	25	-	149	56
1989	12	-	-	25	-	25	36	-	178	62
1990	4	-	-	18	-	15	14	-	96	37
1991	3	-	-	17	-	9	3	-	55	29

COLUMN REFERENCES TO TABLE 1:

- A: Mines whose licences are issued to Bumiputra and which are operated by Bumiputra.
- B: Mines whose licences are issued to Bumiputra or jointly with non-Bumiputra and which are operated by Bumiputra or with non-Bumiputra.
- C: Mines whose licences are issued to Bumiputra or jointly with non-Bumiputra but which are operated by non-Bumiputra.
- D: Mines whose licences are issued to non-Bumiputra and operated by non-Bumiputra
- E: Mines owned and operated by non-Malaysian.

Since 1978 mines classification was slightly modified:

- Classes A and B were retained;
- Class C was reworded as: mines owned by Bumiputra but operated by non-Bumiputra - public companies or companies under Malaysian Mining Corporation (MMC).
- Class D: mines owned and operated by companies under MMC.
- Class E: mines owned and operated by public companies or companies in which Bumiputra has shares.
- Class F: mines owned and operated by non-Bumiputra Malaysian.
- Class G: mines owned and operated by non-Malaysian (including companies not classified above).

Since 1979, mines classification was further modified to:

- A: Bumiputra.
- B: Bumiputra joint-venture with non-Bumiputra.
- C: Semi-government bodies.
- Class D applied to Public Companies: (i) with Bumiputra or Semi-government bodies having shares in its capital; and (ii) with no shares from Bumiputra or Semi-government bodies.
- E: Private Limited Companies: (i) with Bumiputra or Semi-government bodies holding shares in the capital; and (ii) with no shares from Bumiputra or Semi-government bodies.
- F: Non-Bumiputra.

(Source: *Perak State Mines Department Annual Reports 1973-1991*)

The same problem could also be seen in the performance of mining subsidiaries of the state governments particularly in Perak and Selangor and also the MMC at present (1991-92). PSEDC was badly affected by the fall in tin demand in 1980s and early 1992. PSEDC joint-ventures with many comparatively smaller mines all had closed down. Most of the mines stopped temporarily in late 1985 until they restarted operation in 1987 but the operations could not last long - only up to 1990 and finally they closed down. Mining activities undertaken by its subsidiary, Maju Timah, also could not operate any longer and had just closed down (June 1992). Only two gravel pump mines under joint-venture (with majority stake) with Gopeng Berhad are still in operation in the Kota Baru - Perak area.

In Selangor, Kumpulan Peransang Selangor Berhad (KPSB) which undertook mining activities also faced the same problem as that of PSEDC. In early 1992 KPSB had to sell all its shares in Peransang Tin Consolidated and Peransang Rio Tinto to Worldwide Holdings Berhad (by June 1992, the two mines had closed down). Kuala Langat Mining Sdn. Bhd., is still owned by KPSB (65%) and still in operation (June 1992) but KPSB had negotiated with MMC to sell major part of its shares to MMC to become a minority holder only.

From the explanation above, PSEDC and SSEDG could no longer withstand the downtrend feature of world demand for tin and had to reduce their mining activities. These state agencies since early 1980s had already started to diversify into other sectors such as construction, commerce and manufacturing as their main activities. Tin mining is no longer their main activity.

After looking at tin mining activities at the state level, let us turn to a much bigger level of tin mining activities that is at MMC itself on how it faced the current mining situation. MMC was also affected and since 1980 it had embarked on a diversification process into non-mining sector such as manufacturing, engineering and commerce. From its 1991 annual report MMC has become less dependent on tin even though mining still remains a core business of the Group. MMC Group organisation is now divided into six core activities namely mining, exploration, engineering, marketing, manufacturing and investment. MMC's strategy for tin mining would be to maintain the operation of viable units only. At the end of 1990 only 16 dredges out of a total of 38 were in operation compared with 21 units in 1989. The number of dredges on operation has further reduced to 12 units only in June 1992. The reduction in the number of operating dredges resulted in substantial decline in MMC's output of tin concentrate for the year ended 31st January, 1991. It fell by 23% to 7,481 tonnes from 9,663 tons achieved in the previous year (MMC 1991, p. 14). Consequently MMC and its subsidiaries incurred a mining loss of \$21.239 million. However, in the previous year MMC was still making a profit of \$24.973 million but it could not do so in the following year as the prices of tin ore fell further. However, in early July 1992, tin prices had improved greatly to

\$17.00 level per kilogramme of tin concentrate and if this price could improve further and be sustained for a long time, then the MMC mining sector could make profit. MMC's efforts in diversifying its mining operations had already actively involved it in exploring for gold both locally and overseas. In August 1990, MMC together with its subsidiary, Tronoh Mines Malaysia Berhad had started mining for gold and diamond in Australia. Thus MMC despite being badly affected by present fall in demand for tin, has not neglected its tin mining sector but at the same time diversified its mining sector into other minerals and also increased its activities in the non-mining sector. Thus, by looking at MMC, we can say that no major tin mining companies in Malaysia could withstand the impact of the downtrend feature of the 1980s world tin trade.

CONCLUSION

The general trends of Malaysian tin mining industry have been elaborated. It cannot be denied that the mining industry is the country's oldest industry that has shaped the country's history and economic development. However, the industry is now facing an uncertain future. It has lost its longtime dominance in the Malaysian economy. Consequently Malaysia is no longer the world's main producer of tin. Simultaneously, the hopes of the Bumiputra to increase their interests in the industry is also facing an uncertain future. The efforts by the Malaysian government to encourage Bumiputras to participate more in the industry in the initial stage looked promising as the share of Bumiputra ownership in the industry has increased. However, as the industry is declining, the number of Bumiputra participation is also declining. As individual Bumiputra miners and the States could not withstand the downfall of the industry, Bumiputra interests in the industry also fell. It is only MMC that is still involving itself in the industry but at a lesser degree. As long as MMC is still under the umbrella of PNB, then the Bumiputra interest in the industry is still maintained although at a much lesser degree.

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