

## THE FUTURE OF IRON-ORE MINING

Estimated Known Reserves and the Rate of Mining

In January 1964, known reserves of iron-ore were estimated at about 62,000,000 tons. Of this total, 39,000,000 tons was the reserves of companies operating on 1st January of that year. The remaining 23,000,000 tons belonged to either mines which have in the past operated but which were now dormant, or potential mines which would be producing for the first time in the near future.

The distribution of known ore reserves by states shows that Pahang is by far the richest state in the country (Table 3.1). In terms of total estimated known reserves, Pahang has four times as large a reserve as the second richest state which is Johore. It can also be seen that many of the west coast states have not very many years of mining life left unless hitherto undetected reserves are discovered.

Annual iron-ore output for the last five years has been on the average, around 6,000,000 tons. This is obtained by averaging yearly production figures from 1959 to 1963. Therefore assuming that this rate of mining is maintained, mining of the estimated known reserves will only last for about another eight years.

Factors Affecting the Future of the Industry

The future of the iron mining industry must be viewed in the light of several major factors:

- 1) The iron-ore reserves. The future of this industry must always be seen in relation with the ore reserves in the country. As it has been mentioned earlier, the estimated lifespan of the iron mining industry is only about eight years more, if the average rate of production for the last five years is maintained on the estimated known reserves. However, equally important in determining the life of this industry is the discovery of new reserves. In Malaya, the probability of finding new reserves does not seem to be promising. Most miners and the people connected with the mining industry are in the opinion that Malayan iron-ore has been heavily exploited and the main likely areas left where workable

## ESTIMATES OF KNOWN ORE RESERVES AS OF 1st JANUARY 1964 BY STATES (IN TONS)

State	Present	Forward and Potential	Total
Kedah	520,000	110,000	630,000
Perak	1,735,000	110,000	1,845,000
Selangor	290,000	225,000	515,000
Johore	1,215,000	9,290,000	10,505,000
Pahang	30,110,000	10,900,000	41,010,000
Terengganu	1,510,000	1,750,000	6,260,000
Kelantan	700,000	200,000	900,000
Total	39,080,000	22,585,000	61,665,000

Source: Federation of Malaya, Department of Mines, Unpublished Statistics.

deposits of ore remain are in the East Coast. In Perak, for example, the industry is a dying one.<sup>1</sup> In Kedah, almost a similar situation prevails.<sup>2</sup> In 1963, out of the six mines that closed down during the year, five of them were listed as either 'worked out' or having ore of too low a grade to be profitably operated.<sup>3</sup> Of the eight mines that came into operation only four were new mines. The rest were working on land which had been worked before. The likelihood of finding new workable deposits is becoming less and less probable so that old mining grounds have to be reworked. Another factor which can be used to indicate that much of Malaya's iron-ore has been exhausted is the fact that miners are now more conscious of the possibility of reworking the tailings, recovering the ore previously discarded. The increased interest in reworking tailings can be seen by the fact that an increasing number of samples have been sent to the Research Division of the Department of Mines for ore processing investigations. In the light of results of prospecting done by some miners, and from the opinion of some of the miners, it would not be too pessimistic to say that iron mining in Malaya will not last beyond another 15 years.

11) Foreign Competition. Keen competition for the Japanese market arises from near as well as distant countries (Table 3.2). Competition from the South American countries, the Philippines and Gos is increasing while older suppliers like India are still of great threat. However, in addition to these existing competitors, potential competitors must also be recognized. Competition that may well alter the future for the iron mining industry in Malaya is likely to come from China and Australia. Mainland China, up to 1940 was the second largest supplier of iron-ore to Japan

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<sup>1</sup> See Federation of Malaya, Department of Mines Research Division. 'The Iron Mines of Perak'. Introduction by S. Pakianathan, 1962.

<sup>2</sup> The major iron mining company in this state, the South Island Mining Co., Ltd., is expected to exhaust its reserves in 2 years and then shift its operation to some other state, probably Johore.

<sup>3</sup> See Federation of Malaya, Department of Mines unpublished statistics on registration of opening and closing of mines.

Year

Country	1937	1940	1945	1950	1955	1957	1958	1959	1960	1963
Japan	512	1,123	1,035	852	625	1,110	1,120	1,186	1,302	1,180
Malaya	1,171	2,041	-	521	1,302	2,672	2,387	3,756	5,354	6,480
China	1,262	1,222	78	72	-	-	-	-	-	-
Korea	142	138	-	4	35	15	207	221	242	500
Hongkong	-	-	-	149	118	102	113	124	129	120
Philippines	291	1,209	-	586	1,016	1,631	1,152	1,295	1,262	1,440
India	12	21	-	36	659	1,235	1,566	1,877	2,442	2,400
Burma	-	-	-	60	362	1,291	792	1,604	1,967	4,130
America	-	-	-	-	220	1,065	847	59	625	2,000
Canada	3	-	-	-	437	1,111	532	677	1,064	1,600
Peru	-	-	-	-	-	362	126	103	103	1,300
Chile	-	-	-	-	-	13	15	70	249	3,910
Brazil	-	-	-	-	-	102	47	156	355	450
Africa	-	-	-	-	-	-	-	-	-	1,000
Thailand	-	-	-	-	-	-	-	-	-	300
Others	330	167	-	17	-	40	5	173	348	1,900
<b>Total</b>	<b>3,840</b>	<b>5,129</b>	<b>76</b>	<b>1,425</b>	<b>5,458</b>	<b>9,381</b>	<b>7,595</b>	<b>10,386</b>	<b>14,861</b>	<b>20,090</b>

Notes: Figures for Malaya are not similar to those found in Statistical Bulletin published by the Department of Mines, Federation of Malaya. Minor differences exist for every year. The writer attributes the difference in 1963 due to the fact that Japanese figures are not actual import figures but estimated scheduled import figures. The same reason probably applies to the other earlier years. However, the writer has used the Japanese figures here for the purpose of comparison since figures for all countries are subjected to the same condition.

Sources: 1937 to 1949: Economic Department of Malaya and Singapore.  
 Institute of Asian Economic Affairs, Japan.  
 Edited by Professor Hiroshi Matsui  
 1950 to 1962 figures not available  
 1963 figures, 'Stat News', Printed by Nippon Baiy Industries, February 1964.

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TABLE 3.3

## JAPAN'S CONSUMPTION OF PIG IRON AND SCRAP IN CARBON STEELMAKING (IN THOUSAND TONS)

	Year						
	1954	1955	1956	1957	1958	1959	1960
Pig Iron	3,774	4,511	5,432	6,209	6,407	8,535	11,494
Iron and Steel Scraps	4,650	5,693	6,733	7,397	6,603	9,624	12,683
Total	8,424	10,204	11,075	13,606	12,010	18,159	24,177

Source: Commonwealth Economic Committee, Intelligence Branch. Iron and Steel Alloys  
Metals, No. 1, 1962

but due to political reasons China's supply to Japan was cut off. However, recently trade volume has been on the increase and it is in the writer's opinion that in the near future Japan will once more use China's iron-ore. Chinese iron-ore will undoubtedly have the advantage of being geographically nearer to Japan thereby benefiting from lower transport costs, one of the most important cost items.

The entrance of Australia as a competitor is only a matter of time. Already a Japanese mission has been sent to Australia with the intention of buying Australian ore in the foreseeable future. According to a Japanese iron-ore exporter in Malaya, Australia will probably export iron-ore to Japan in less than five years time. The increase in competition has also led to Japan being more critical about the quality of iron-ore exported from Malaya. One example of this is that in the near future Japan intends to raise the minimum quality of the ore by reducing the allowance for tin impurities in iron-ore from 0.05 to 0.02%.

iii) The use of scrap iron and scrap steel. The effect which the use of scrap iron and scrap steel has on the Malayan iron mining industry should also be taken into account. Since both iron-ore and scraps are generally satisfying the same needs i.e. being raw materials for the making of pig iron and steel, they are therefore rival commodities. As such the increasing use of scrap iron and scrap steel means either a decreasing use of iron-ore or a relatively smaller increase.

The United States has been the chief exporter of scraps and the bulk of the shipments normally go to Japan which also happens to be one of the main importers of scraps from many other countries as well. In 1960, excluding the Soviet Union, Japan was the fourth largest consumer of iron and steel scraps. In fact, Table 3.3 shows that between 1954 and 1960, the usage of scraps nearly trebled and increased faster than any other consumer. Japan is in fact one of the few countries in 1960 to use more scraps than pig iron for making crude steel. This can be attributed to the lack of coal in Japan. Thus, as far as scrap iron and scrap steel provide a good alternative to our iron-ore, the iron mining industry of Malaya will, without doubt, be affected by Japan's import of those commodities.