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WESTERN AUSTRALIA-JAPAN MINING CO-OPERATION: AN HISTORICAL OVERVIEW

by

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Introduction

The relationship between Western Australia and Japan, especially in relation to the iron-ore industry, has been one that has seen a shift from hostility in trade in the 1930s to immense expansion in trade since the 1960s. Japan is relatively poorly endowed with mining resources, as compared with Australia with its immense deposits of minerals. Therefore, Australia and Japan have a natural economic complementarity. While Japan had an insatiable appetite for raw materials for industry, Australia needed to import finished industrial goods from Japan. This complementary relationship has allowed both countries to enjoy substantial economic growth over the past few decades. Australia and Japan, and in particular Western Australia and Japan, are important trading partners. In 2007/08 Japan was Australia's principal export destination and Japan ranked 3rd as one of Australia's principal import sources. Australia's main exports to Japan are raw materials with the top exports being coal worth \$A10,946 million; iron ore and concentrates, \$A4,904 million and aluminium, \$A1,820 million. Beef, at \$A1,858 million, is also a major export. The main imports from Japan are industrial goods, with the top imports being passenger motor vehicles worth \$A6,957 million; goods vehicles, \$A1,695 million; refined petroleum, \$A1,059 million and civil engineering equipment and parts \$A829 million.¹ Australia's exports to Japan have risen steadily from \$US12,567 million in 2000 to \$US23,865 million in 2006. Imports from Japan have also been increasing from \$US8,897 million in 2000 to \$US12,752 million in 2006.² In 2007 Australia was ranked 12th among Japan's principal export destinations with a share of 2% and was ranked 5th among Japan's principal import sources with a share of 5%.³

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From the above, it is easy to observe how trade with Japan is very important to Western Australia. Western Australia produces 37.3% of Australia's exports to Japan but has its share of 15.1% of total Japanese imports to Australia. Since 2006, Japan has been ranked as the number two principal export destination for Western Australian products and was the principal export destination from 2003 to 2006 before being overtaken by China. While its ranking may have slipped, the value of Western Australian exports to Japan has continued to increase from \$A6,937 million in 2003/04 to \$A12,904 million in 2007/08. Imports have increased from \$A8,252.6 million in 2003-04 to \$A2,969.8 million in 2007/08.⁴

Resources, especially mining materials, are the mainstay of Western Australian economy. In 2006/07 output from mining comprised 3.4% of Western Australia's overall growth rate of 6.3%, the highest growth rate in the country.⁵ Within the mining sector Australia's iron ore exports grew steadily from 2000 when they stood at 157.4 million tonnes, to 266.9 million tonnes in 2007.⁶ Western Australia contributed 40% of Australia's merchandise exports in 2007/08 and 83% of these consisted of minerals and petroleum. Of this total, valued at \$20.5 billion, just over 36% consisted of iron ore, by far the largest export commodity. It should be noted that Western Australia's merchandise exports to Japan represented 18% of total Australian merchandise exports in 2007.⁷

Australia's iron ore exports to Japan in 2000 stood at 69,262 thousand tonnes. In 2007 exports were up to 77,310 thousand tonnes, down from a peak of 80,314 thousand tonnes in 2004. Japan was the largest export destination for Australian iron ore until overtaken by China in 2005. Nevertheless, Japan still makes up a considerable proportion of Australian iron ore exports and continues to be ranked as the second largest export destination.⁸ As seen in Table 1, iron ore is by far the largest export from Western Australia, and has been for some time. The composition of Western Australia's exports has change significantly from the 1960s when agricultural products such as wheat and wool made up the vast majority and iron ore was ranked third. By the 1970s iron ore was the largest export and has maintained that position throughout the period, with other resources also gaining prominence, as agricultural products declined. In 2006/07 mineral resources made up over 50% of Western Australia's exports, while agricultural products such as wheat only contributed a small

amount. While iron ore was the largest export to Japan from Western Australia in 2007/08, other exports were also resources based, including petroleum, LNG and small amounts of gold, nickel and mineral sands.⁹

Table 1: Western Australian Major Exports

	Export	Value (\$'000)	Percentage of Total WA Exports
1966-67	Wheat	126,914	30.12
	Wool (Greasy)	109,058	25.88
	Iron Ore	44,827	10.64
	Crayfish Tails	13,871	3.29
	Petroleum and Petroleum Products	12,251	2.91
	Total Exports	421,325	
1976-77	Iron Ore	843,104	32.48
	Wheat	316,257	12.18
	Wool (Greasy)	289,030	11.13
	Iron and Steel	56,986	2.2
	Unmilled Barley	54,414	2.1
	Total Exports	2,596,110	
1986-87	Iron Ore	1,701,851	25.52
	Wheat	697,557	10.46
	Wool (Greasy)	573,486	8.6
	Gold Bullion	479,790	7.2
	Petroleum and Petroleum Products	174,772	2.62
	Total Exports	6,667,949	
1996-97	Iron Ore	3,148,735	16.29
	Gold Bullion	2,936,116	15.19
	Petroleum and Petroleum Products	2,594,104	13.42
	Natural and Manufactured Gas	1,681,755	8.7
	Wheat	1,616,329	8.36
	Total Exports	19,325,794	
2006-07	Iron Ore	15,351,000	25.37
	Gold Bullion	10,431,000	17.24
	Petroleum and Petroleum Products	7,484,000	12.37
	Natural and Manufactured Gas	4,709,000	7.78
	Wheat	1,696,000	2.8
	Total Exports	60,509,000	

Sources: Australian Bureau of Statistics, Department of Industry and Resources

Japan's demand for raw materials has been a key factor in the economic growth of Australia, whilst these exports have fuelled Japan's industrial growth. Australia and Japan have been particularly involved in the mining trade, notably iron ore, since the 1960s. It is the modest attempt of this paper to examine the historical relationship between the Western Australian mining sector and the Japanese economy. Because of the huge impact of iron ore on Western Australia-Japan trade, the paper will look specifically at iron ore mining cooperation.

Western Australia-Japan mining co-operation: an historical overview

The demand for iron ore has always existed world-wide since industrialisation. However, Western Australia's huge iron ore deposits were not fully discovered until the mid-1960s. A second factor that inhibited the exploitation of iron ore deposits was the embargo from Canberra on the export of iron ore until 1959.

Since the rise of Japan as the major customer for this primary product, trade has expanded to encompass Europe, the United States and China and whilst today China has become the largest importer of Australian iron ore, Japan continues to be an important trading partner. In more recent years, Japan has also imported other commodities from Western Australia, but it is iron ore that started, and has been the mainstay of, the trade relationship.

Imports from Japan have also been significant for Western Australia. The top five imports from Japan to Western Australia are industrial goods, as shown in Table 2. The trade relationship between Western Australia and Japan is a classic example of complementarity. Japan demands raw materials from Western Australia, while Western Australia buys semi-processed and finished goods from Japan. In the boom period of Western Australia's iron ore exports to Japan in the 1960s and 1970s, finished iron and steel products were the dominant import from Japan. While Western Australia had a trade surplus with Japan, imports from Japan have continued to grow since the 1960s.

Mining cooperation between Western Australia and Japan can be looked at through various time periods. From 1937 to 1939, the relationship floundered due to

government intervention. After this very little occurred due to war, general global instability and insecurity and the collapse of Japan's economy.

Table 2: Western Australian Major Imports from Japan

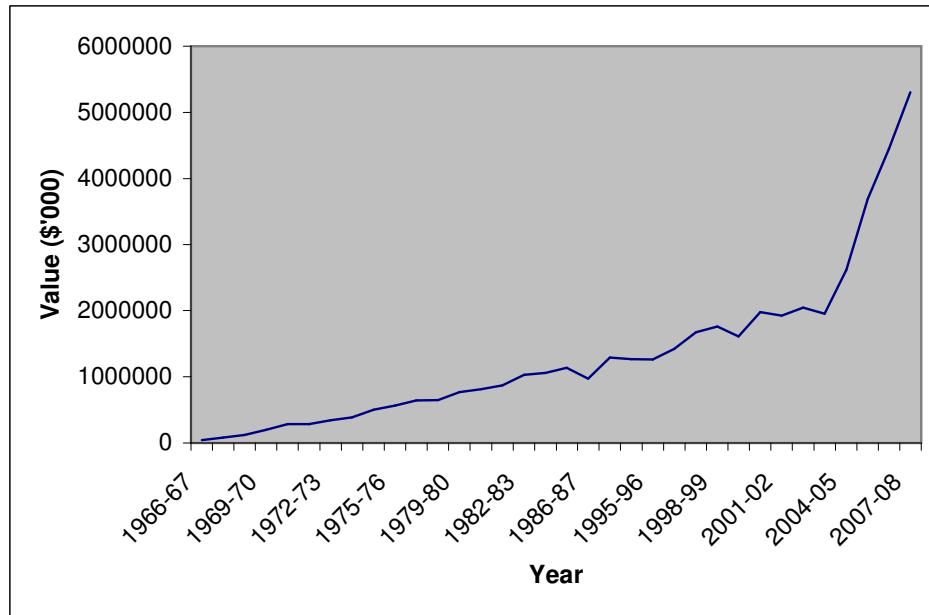
	Import	Value (\$'000)
1966-67	Road Motor Vehicles	3,100
	Railway and Tramway Vehicles	1,577
	Inorganic Chemical Elements and Compounds	1,501
	Fabrics	1,352
	Iron and Steel	1,333
	Total Imports from Japan	16,605
1976-77	Transport Equipment	47,238
	Non-electric Machinery	24,776
	Electric Machinery	15,728
	Iron and Steel	11,444
	Rubber Manufactures	7,055
	Total Imports from Japan	138,600
1986-87	Road Vehicles	114,465
	General Industrial Machinery and Equipment	71,161
	Iron and Steel	45,781
	Machinery Specialised for Particular Industries	34,681
	Electrical Machinery	30,148
	Total Imports from Japan	448,663
1996-97	Machinery Specialised for Particular Industries	60,343
	General Industrial Machinery and Equipment	43,076
	Transport Equipment	10,104
	Non Metallic Mineral Manufactures	9,459
	Manufactures of Metal	6,768
	Total Imports from Japan	882,389
2006-07	Motor Vehicles principally designed for transport of persons	797,100
	Non Monetary Gold	747,200
	Motor Vehicles for transport of goods	224,500
	Civil Engineering Plant and Equipment	157,600
	Petroleum Oils, oils from bituminous minerals	143,100
	Total Imports from Japan	2,601,000

Sources: Australian Bureau of Statistics, Department of Industry and Resources

The recovery and rebuilding of Japan's economy and the start of the iron ore trade between Western Australia and Japan began in the early 1960s. This was the boom period for Western Australian and Japanese mining cooperation, and corresponds to the boom in the Japanese economy. From 1973 to 1991 the global slowdown in the steel and iron ore industry affected exports and caused the relationship between Western Australian and Japanese mining companies to change. After 1991 Japan

battled recession and growth was low. This continued until the early 2000s when demand started to pick up again. The changing scenario is illustrated in Fig. 1 below. Exports from Western Australia grew steadily in the 1960s and early 1970s before growth slowed in the 1980s and 1990s. Since the early 2000s exports have again started to steadily increase in value.

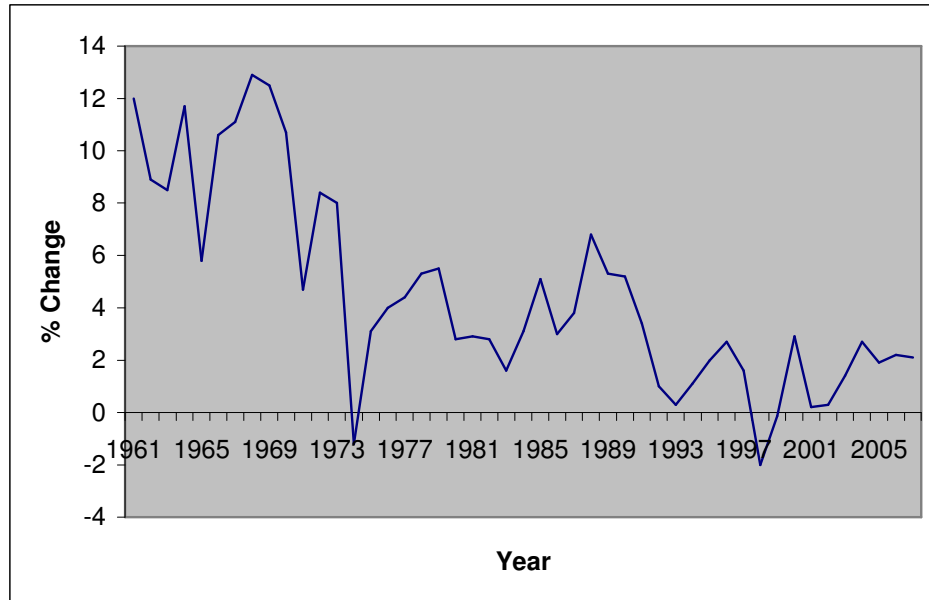
Figure 1: Western Australian Iron Ore Exports to Japan 1966 – 2007



Sources: Australian Bureau of Statistics, Department of Industry and Resources

Western Australia’s iron ore exports have been closely linked to Japan’s economic growth. The growth in Japan’s GDP from 1961-2007 is shown in Figure 2. The boom times from Western Australia’s iron ore exports having corresponded with the boom times for the Japanese economy. The start of the trading relationship between Western Australia and Japan corresponds with extremely high economic growth in Japan. Along with high economic growth came high export growth as Japan focussed on an export driven economic recovery. Japan’s export growth from 1961-2005 can be seen in Figure 3. Figure 4 shows the quantity of Japan’s steel exports from 1961 to 2007, the main driver of demand for Japanese bound Western Australian iron ore. The high growth period for Japan’s steel exports was in the 1960s and early 1970s before growth tapered off and slowed down, picking up again in the early 2000s.

Figure 2: Japan GDP Growth 1961 – 2007

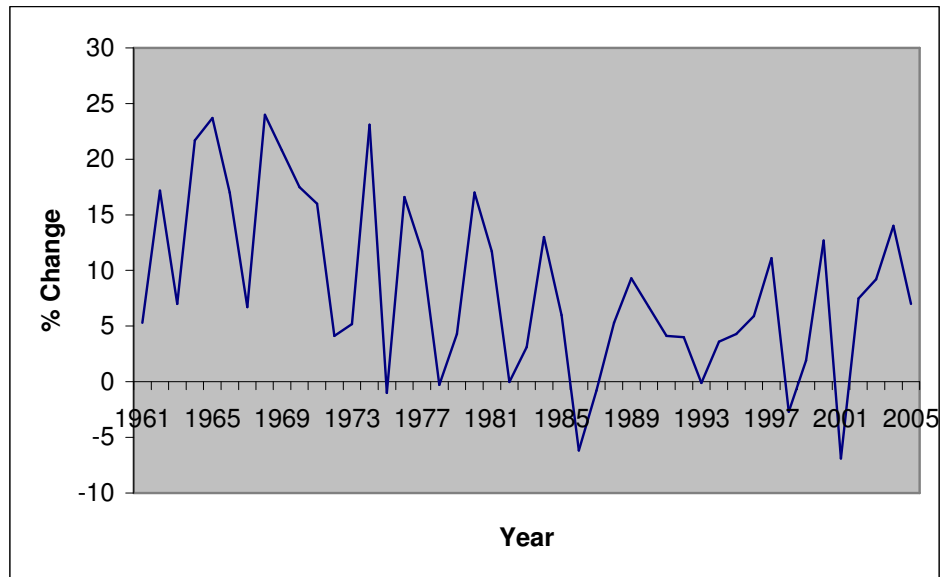


Source: World Bank World Development Indicators

Prior to 1937, mining trade between Western Australia and Japan was virtually non-existent. Australia-Japan mining co-operation got off to an inauspicious start in 1937. A British company, H.A. Brassert & Co. Ltd. was granted a lease for Koolan Island in Yampi Sound in Western Australia, with the intention of mining iron ore. It was financed by the Nippon Mining Company of Japan, with output to be sold to them.¹⁰ The Australian government was averse to selling iron ore to the Japanese, due to Japan being at war in China. The Australian government believed that Australia was possibly under threat from Japan and did not seek to invite interest in north-west Australia. A survey of Australia's iron ore reserves was undertaken, with the conclusion that Australia did not have enough iron ore to export¹¹, having reserves of only 264 million tonnes.¹² Australia's government then instituted an embargo on the export of iron ore that came into effect in 1938, although the true reason behind the embargo was only thinly veiled.¹³ The embargo caused the Nippon Mining Company to lose around £500,000 and caused much discontent to both the company and Japan as a whole.¹⁴ The Japanese government protested, but was unsuccessful and the embargo remained in place.¹⁵ This put an end to most trade with Japan, and to the mining and exploration of iron ore in Western Australia. BHP continued with a small amount of iron ore mining for the domestic market whilst continuing to export pig

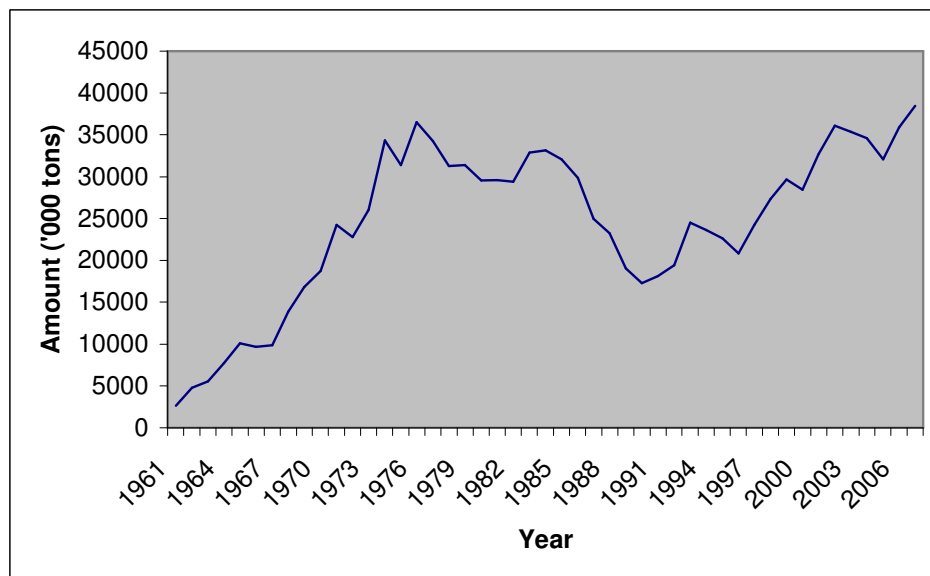
iron to Japan. For this BHP received widespread condemnation, with workers refusing to load the pig iron for shipment, bringing the exportation to an end.¹⁶

Figure 3: Japan Export Growth 1961 – 2005



Source: World Bank World Development Indicators

Figure 4: Japanese Steel exports 1961 – 2007



Source: Japan Iron and Steel Federation

Following the end of the 2nd World War, the San Francisco Peace Treaty between the Allied Powers and Japan was signed by 48 nations on 8 September 1951. This can be seen as the start of Japan's economic reconstruction. Japanese industry received large amounts of capital investment from the Japanese government and from the United States¹⁷, which viewed Japan as a bulwark against Communist expansion. Not much was done about iron ore mining and the embargo in Australia until the 1950s, when significant ore deposits were discovered. It was beginning to become clear that the embargo was unnecessary and was causing undue harm to the Western Australian and Australian economy. Towards the end of the 1950s, pressure on the government to lift the ban became stronger.¹⁸

There were also other factors that coincided with the discovery of iron ore deposits which increased the potential value of the deposits. Japan's economy was booming and their demand for iron ore increasing rapidly, while supply was stagnating. Technological improvements in shipping meant that it was becoming more economical to ship large quantities of ore. Australia also had the advantage over other potential suppliers to Japan in that its proximity greatly reduced shipping costs.¹⁹ By 1960 pressure continued to grow, whilst the fact that the embargo was unjustified and damaging to the economy became clear. On 1 December 1960 an export license was granted to Mineral Mining and Exports (WA) Pty Ltd, allowing it to export 500 tonnes of iron ore. Two days later it was announced that the embargo would be relaxed.²⁰ This set the stage for the beginning of a prosperous trading relationship between Australia and Japan.

The real mining co-operation between Australia and Japan began in the 1960s. By the 1960s Japan was experiencing very impressive economic growth. The average growth rate for 1961-1973 was 9.7%. Much of this was fuelled by industrial production and exports. Japan's rate of growth of exports from 1961 to 1973 was 14.3%.²¹ In the early 1960s more and more iron ore deposits were identified with the Japanese increasingly interested in importing it from Australia. The combination of the discovery of vast iron ore deposits in Western Australia and the rapid expansion of the Japanese economy led to the opportunity and realisation of an extremely profitable trading relationship between Western Australia and Japan.

In the early 1960s Rio Tinto held significant reserves and encouraged interest from Japan. One of the first Japanese companies to inspect Rio Tinto's reserves was Marubeni-Iida. After visiting the reserves their chief geologist was extremely impressed and contributed £70,000 towards exploration expenses.²² Hamersley Iron was formed in 1962 by Conzinc Rio Tinto of Australia and Kaiser Steel Corporation of California.²³ Hamersley targeted the Japanese market from the beginning with the first Hamersley mission to Japan leaving Melbourne in November 1962, before they even held the title for the Mt. Tom Price deposit. The Japanese then sent a mission to the Pilbara in 1964 to inspect the reserves. In Japan Marubeni-Iida and Mitsubishi Shoji acted as introducers and communicators on behalf of Hamersley.²⁴ The Japanese steel mills worked in consortium and closely observed rigid government guidelines. This consortium was formed in 1952 and is currently headed by the largest manufacturer, Nippon Steel.²⁵

In 1964 Hamersley submitted a tender to the Japanese steel mills with an offer to supply 65.5 million tonnes of ore over 16 years, with the first shipment to be in 1967. This date was later shortened to August 1966 and the offer was accepted with a letter of intent. The deal was worth £270 million and at the time was the largest sale ever written by an Australian operated company.²⁶ For the deal to work much co-operation was needed. Finance was provided mainly by United States banks and the Australian federal government and the Western Australian state government. These agencies worked together with the company to ensure deadlines could be met, whilst much of the important machinery and technology came from Japan. The schedule was met and the first shipment occurred within the deadline.²⁷

In 1965, another large (16-year) contract was signed with Mt. Goldsworthy mining for 16.5 million tonnes of ore²⁸, with the first shipment occurring in 1966.²⁹ Another major company involved in the start up of the iron ore industry and export to Japan was Mt. Newman Mining Co. Pty. Ltd which was operated by BHP and partially owned by the Japanese company Mitsui-C. Itoh Pty Ltd.³⁰ Mt. Newman Mining developed the Mt. Whaleback site which had been discovered in 1956.³¹ This was the start of an incredible mining boom in Western Australia, which would not have been possible without Japan's demand. In Japan, Australia's imports were providing the fuel for economic growth. The first shipments of iron ore to Japan began in 1966 and

by 1970 Japan had almost doubled their annual steel output, from 47.7 million tonnes to 93.3 million tonnes, producing 119.3 million tonnes by 1973. By 1975 Australia was supplying 48% of Japan's iron ore requirements.³² Japan's demand for iron ore grew, on average, by 16.9% per annum from 1960 to 1965, and 19.1% per annum from 1965 to 1970.³³ Meanwhile Western Australia's iron ore production increased rapidly from a value of \$1 million in 1960 to \$446 million in 1973. In 1973 Japan purchased 84% of Western Australia's iron ore exports, which supplied around 45% of Japan's requirements.³⁴

While the Australian federal government had little direct involvement in the development of the iron ore industry, they did give extensive tax concessions to the mining companies, increasing the feasibility of many developments.³⁵ The Western Australian state government, however, was very involved. Each iron ore project was negotiated separately between the company and the government. Each act generally required that the company provide most of the facilities at the mine site and export point, including company towns, railways and ports. Royalties, rates and other charges were to be paid to the state government.³⁶ While towns built and operated by the companies were a great expense for the companies, the government allowed them to be completely deductible for tax purposes.³⁷ Thus both the state and federal governments were important to the financial feasibility of the iron ore industry.

The long term Japanese contracts made the projects feasible for West Australian producers, allowing them to finance, operate and expand the mines. As well as exporting the ore to Japan, they were able to competitively export to other markets including Britain, Europe and the United States.³⁸ Japan, however, remained by far the biggest export destination.

In 1971 Japan's economy began to slow down, leaving companies such as Hamersley exposed. Hamersley eventually agreed to a cut back exports to the Japanese steel mills and while in 1971 they recorded a record breaking \$29 million profit, they also had to forecast a substantial fall in profits. Along with the slowdown came a consistently appreciating Australian dollar, eroding the value of the contracts. This caused strains within the relationship as the Japanese mills were reluctant to initially help out

Hamersley, however, it became apparent that it was in the best interest of both sides to continue to maintain a healthy relationship.³⁹

By 1973 it seemed things were starting to look up. Hamersley established its own company to represent itself in Tokyo, having previously been represented by Rio Tinto. Hamersley Japan Limited was incorporated in September 1973 and it was only the second time that a wholly owned subsidiary had been established by a foreign company in Japan. Also in 1973, the Japanese steel mills upped their imports, again taking the amount that they were contractually obliged to, and allowed for an increase in prices by 15 percent to compensate for the rising Australian dollar. However, the 1973 oil shock hit Japanese steel producers hard. The high economic growth that Japan had been experiencing came to an end exposing a steel industry with excess capacity.⁴⁰ By 1975 the world economy was contracting and the steel industry entering recession. By 1977/78 the Japanese steel industry was producing at only 67% of capacity. They again reduced imports from Australia and by 1978 were purchasing only 75.1% of contracted iron ore imports. The second oil shock in 1979 again affected Japan with the steel industry now in long term recession and attempting to make further cutbacks on contractual obligations.⁴¹ Growth in the period from 1974-1991 averaged only 3.7%, much lower than the 9.7% experienced in the previous phase, while export growth slowed to 6.9%.⁴²

In the 1980s there were growing difficulties in Australia-Japan trade. Ongoing industrial disputes in Australia tainted relations and Japan's trust in Australian companies. Many cutbacks and closures occurred in the mid-1980s including cutbacks at Hamersley Iron. From a capacity of 46 million tonnes only 29 million tonnes were shipped by Hamersley in 1981 and 28.3 million in 1982. Similar cutbacks occurred for other companies, and iron ore pellet plants were closed completely.⁴³ Industry-wide, production of iron ore was around 20-30 percent below capacity.⁴⁴ Four major price reductions of iron ore occurred in the 1980s in 1983, 1984, 1986 and 1987. The overall decrease in the price of ore was around 30%. A depreciating Australian dollar fortunately offset some of the decrease for Australian producers.⁴⁵ From the late 1980s through to the early 1990s an increase in Japanese steel production as well as lower world iron ore supply led to a recovery of the Australian iron ore industry, with exports increasing both to Japan and other countries.⁴⁶ While it

would appear the rapid growth and profits of the 1960s and early 1970s were unlikely to be seen again, the profitability for iron ore producers returned and remained strong. Whilst large gains were made in the late 1960s and early 1970s, the rise in the value of the exports now steadily increased until the mid-1980s.

Low economic growth both in Japan and worldwide during the 1990s meant that the Japanese steel industry went into decline in the mid-1990s and demand for Australian iron ore again decreased. As well as low economic growth there had been a shift in Japan's industrial policy, with a move from heavy industry to knowledge based industry. This was combined with an increase in the value of the Japanese yen, making Japanese exports more expensive.⁴⁷ From 1992 to 1999 Japan's average economic growth rate was only 0.82% per year whilst export growth also slowed considerably to 3.5%.⁴⁸ The value of Western Australia's iron ore exports to Japan, however, remained steady from 1993 to 1996 and started increasing by 1997.⁴⁹

By the early 2000s things were starting to pick up again for Australian iron ore exporters. Japan's economy recovered slightly, to an average growth rate of 1.6% for 2000-2005, and export growth increased to 7.3%.⁵⁰ While Japan remained a major export partner, Chinese demand rapidly increased. The pressure of Chinese demand raised prices dramatically. Australian iron ore producers negotiated a 9% rise in iron ore prices with Japanese steel mills in 2003, a 16.7% rise in 2004 and incredibly a 72.5% rise in 2005.⁵¹ Due to the increase in prices the value of Australian exports to Japan has increased significantly in the 2000s as seen in Figure 1. Japan remained the top ranked export destination for Australian iron ore until 2005 when China took over, but Japan remains an extremely significant trading partner and is firmly ranked as the second largest export destination.⁵²

Forces affecting economic cooperation

Australia and Japan's trade relationship started with trade in iron ore in the early 1960s. Before this there was little significant trade between the two countries.⁵³ Japan–Australia trade has been important for economic growth in both countries, with much of Australia's growth being fuelled by mining and resources, and Japan's by industrial production.⁵⁴ For Western Australia in particular, Japan's demand for iron

ore initiated the industry and the development of the north west of the state. Western Australia's iron ore exports were non-existent in 1960 but by 2007/08 were worth \$20.5 billion, illustrating the vital role played by the development of trade with Japan.⁵⁵

Prior to the 1960s all deposits in Western Australia were reserved by the Crown and were therefore not available for pegging by individuals or companies.⁵⁶ This changed after the lifting of the embargo 1961??? when the profitability of exploiting the resources became apparent. On the 28 March 19?? the government announced a change of policy and no longer maintained complete control over all iron ore found in the state. The government divided deposits into three categories. The first category was for known high grade deposits, for which the government invited tenders. The second category was for known deposits of medium and low grade ore that still required investigation and again tenders were called. The third category was for deposits still to be discovered. Applications for exploration permits for the third category allowed for exploration in temporary reserves. If deposits were found and that satisfied certain criteria their finders could be granted mineral leases. There were 87 successful applicants for temporary reserves in 1961.⁵⁷

As mentioned previously the Western Australian government negotiated projects with each company separately. As well as making provisions for the building of towns and facilities they also set out terms for royalty payments. The Western Australian government heavily supported the mining industry in the state and was rewarded with royalty payments that became an extremely important source of revenue. Most iron ore contracts in Western Australia were calculated on a 7.5% f.o.b. value of production type basis. That is, the rate was levied on the unit value of extraction, not taking into account transport costs. The value of royalties was dependent on world export prices. From 1968-1972, iron ore companies in Western Australia paid an effective royalty rate of between 7.8% and 8.6%. This was based on the total royalties paid divided by the difference between total production value and total salaries and wages costs. The government thus received a large amount of revenue from the development of the iron ore industry in Western Australia.⁵⁸

There were a number of factors that made iron ore trade between Western Australia and Japan such a success. The first, and possibly the most important, was the enormous growth that the Japanese steel industry experienced in the 1960s. This was coupled with a decrease in the ability of Japan to meet their requirements from their existing suppliers, forcing them to look elsewhere to fuel their growth. New technology for mining and shipping around this time also made large scale operations much more feasible. Meanwhile, Australia was a particularly attractive import location for the Japanese companies due to a favourable political climate and geographical proximity.⁵⁹ Japanese mills had been paying more for their iron ore than mills in Europe due to the longer distance, and shipping costs from Western Australia were almost half of those from Brazil. Importing ore from Australia meant not only could they keep up with demand, but they could make significant cost savings.⁶⁰

Another important factor in the development of the iron ore industry in Western Australia was the use of long term contracts. Long term contracts were beneficial for both the Australian and Japanese companies. It provided the security for both sides to develop their industries. Export quantities were quantified for a long period of time at a fixed price, ensuring the profitability of resource developments and guaranteeing supplies to the Japanese mills. This allowed the mills to have a steady price for their raw materials, allowing them to remain competitive in steel production.⁶¹ These long term contracts also played an important role in obtaining the capital to finance the developments. Perhaps surprisingly, Japan played little role in providing capital to the projects.⁶² Australian companies did not look to Japan for capital in the early 1960s and the Japanese government enforced strict controls on capital outflows. Having long term contracts meant that it was much easier for the Australian companies to raise capital. Much of the capital came from overseas, mainly from the United States. Japanese firms were partners in only three of the six major projects undertaken in the 1960s and in only one case was the involvement as high as 50%.⁶³ For Hamersley Iron's first contract in 1965, they had to arrange with a consortium of United States banks for a loan of \$US 120 million. This was comprised of two-thirds of the capital required to set up the project, with the remaining one-third was to come from the parent companies; Conzinc Riot into and Kaiser Steel. In 1965 this was the largest amount of money that an Australian company had tried to borrow and it almost certainly would not have been able to be borrowed from Australian institutions.⁶⁴

The Japanese contributed significantly to the technology used at the mine sites. The first Hamersley Iron project relied on a number of Japanese technologies. Some of these items included the primary crushing equipment, made by Kobe Steel Co.; conveyor belting from Bando of Japan; the rail track, rolled by Japanese steel mills; rail rolling stock ore cars constructed by Nippon Sharyo; the rail car dumper, ship loader and slewing stacker, all made by Hitachi Heavy Industries.⁶⁵ Most of the machinery was assembled on site at Dampier under the supervision of the Japanese. The use of technology from Japan highlighted the co-operation between Western Australia and Japan, and assisted in getting the project running on time.⁶⁶

The development of an iron ore industry in the north-west saw some difficulty in obtaining workers. There was very little in the way of established towns in the area and living and working conditions were harsh. Experts for the Hamersley Iron project were employed from all over the world including mathematicians from Britain, harbour experts from Holland, technicians from Japan and engineers from Australia and the United States. It became necessary to provide comfortable living quarters to entice people to work in the area. The ability to earn much higher than average wages saw workers come from all over Australia whilst labour was also recruited from overseas, particularly from southern Europe.⁶⁷

Japan's general trading companies have been instrumental in establishing the bilateral trading relationship between Australia and Japan.⁶⁸ These trading companies, known as *sogo shush* has played an important role in procuring raw materials for Japan's industries. While most came to Australia initially to trade in wool, by the 1960s ores and metals gained importance. They have been a major part of Japan's post war economic success, and have an important role in bilateral trade between Australia and Japan. Since their arrival in Australia they have continued to grow and by 1997 the two of the largest trading houses Mitsui & Co. and Mitsubishi were ranked in the top 20 Australian companies. They account for over two-thirds of Australian exports to Japan and one-third of imports.⁶⁹ These trading houses have been particularly interested in Western Australia, notable for iron ore. Western Australia has by far received the most investment from the *sogo shosha*, in 1995 comprising 54% of their investment in Australia.⁷⁰

The co-operation between the Australian mining companies and Japanese steel mills and trading companies has been beneficial for companies in both countries, along with the governments and the economies as a whole. Japan's demand for iron ore encouraged development of a whole new industry in Western Australia, and one that has proved to be extremely profitable. Japan's demand transformed the economy of Western Australia and triggered a mining boom. Australia's ability to provide seemingly never ending supplies of iron ore allowed Japan to fuel much of its industrial growth. The success of the initial development of the industry relied on a number of cooperative relationships, including receiving the relevant technology from Japan, capital from the United States and land and support from the Western Australian state government. Australia and Japan have also benefited from developing this trading relationship through Australia's imports of Japanese industrial goods.

Conclusion

The trade relationship between Western Australia and Japan has been an extremely profitable one for both sides. Since getting off to a rocky start in the 1930s, Western Australian iron ore exports to Japan have proved to be a vital source of growth for the Western Australian economy. Japan's demand for iron ore initiated the Western Australian mining industry, which is now the most important sector in the state. On the other side of the coin, Western Australia's iron ore exports to Japan provided an essential fuel for their industry based economic development. These outcomes could possibly not have occurred without substantial co-operation between Western Australian mining companies, the Western Australian government and the Australian government with the Japanese steel mills and trading companies. Western Australia and Japan have also benefited from the importation of finished industrial goods from Japan to Western Australia, thus a complementary relationship showing the two-way nature of the demand-demand relationship.

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