BUILDING PROSPERITY

The Australian iron ore industry in the 21st century

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Commissioned by

Rio Tinto Iron Ore

May 2006

ISBN 0-9775420-0-9

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Cover design by Mirrabooka Marketing and Design
Printed in Australia by CPP

FOREWORD

The Pilbara iron ore industry is in one of the remotest parts of Australia. Few Australians have ever been there. Yet this world-class industry generates enormous prosperity for all Australians.

The climate, terrain and logistics make working in the Pilbara difficult. And the world market for iron ore is competitive — Australia has both lost and regained market share. Increasing market share in the 1990s had less to do with the grade of iron ore deposits since iron is a commonly found mineral. Rather, it had more to do with better reliability of supply and a secure investment climate for the billions of dollars invested in efficient road, rail and port infrastructure underpinned by a policy setting that has, until now, recognised the property rights of investors.

This story of response to challenges is an important one since world-class industries do not emerge overnight. But because the Pilbara is off the beaten track for most Australians, Rio Tinto Iron Ore asked Malcolm Gray of Analytic Outcomes Pty Ltd to bring this message home. Malcolm has worked extensively on the issues surrounding the Pilbara industry for over 10 years and Rio Tinto is proud to support the publication of this book to bring this story of the Pilbara iron ore industry to all Australians.

Sam Walsh
Chief Executive
Rio Tinto Iron Ore

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ACKNOWLEDGMENTS

Over the past decade and more, many people have helped me to understand the complexities of the Pilbara iron ore industry and the global market that it supplies. My memory is not good enough to allow me to thank them all individually. There are, however, two old friends at Rio Tinto, Phil Mitchell and Pas Perazzelli, with whom I have had very many hours of instructive conversation over the years about the issues surrounding the industry. I thank them both.

In preparing this publication, I have benefited greatly from the constructive criticism of Tim Duncan. We may not always have agreed but I always benefited from our discussions.

The book was prepared for publication by Lyall Howard of Rio Tinto and by the Centre for International Economics. The publication would not appear as it does without the cover design of Julie Hamilton, Mirabooka Marketing and Design, and the report production of Anna Bieler.

Finally, the funding support from Rio Tinto to make publication of this book possible is gratefully acknowledged.

Malcolm Gray
Director
Analytic Outcomes Pty Ltd

1 THE PILBARA IRON ORE INDUSTRY AT A WATERSHED

The development of the iron ore industry in Western Australia is a great Australian success story. Over four decades this industry has become the world's leading exporter of iron ore. Through this period it has shown a remarkable capacity to deal with shocks.

This success was no accident. A combination of natural advantages and sound policy settings provided an environment that encouraged the industry to grow. But it now confronts a shock already more substantial than any it has previously faced.

The rapid rise of China to become the world's largest steel producer and largest importer of iron ore poses unique challenges to the industry in both scale and complexity. It presents the industry with an opportunity to grow at a rate and to a scale not contemplated before 2000. By meeting those challenges and grasping those opportunities the industry can further advance the substantial benefits it already delivers to the Australian community.

Delivering those benefits requires two things — first, a thorough understanding of the factors that have enabled the industry to achieve its current level of performance and, second, giving the industry the best chance of maintaining, indeed surpassing, its remarkable track record. This publication is about developing that understanding and charting the future of the Pilbara iron ore industry at the opening of the 21st century.

The balance of this chapter charts the history that has brought the industry to the present watershed. Chapter 2 looks at the nature of the global iron ore market and delves deeper into the prerequisites for success as a major supplier. Chapter 3 focuses on the key role played by the policy framework within which the industry operates, particularly on what is required to ensure the industry continues to be a great Australian success story. Chapter 4 offers some conclusions about the kind of Pilbara iron ore industry that may emerge as the 21st century unfolds.

An Australian success story

Exporting iron ore has been one of Australia's great industrial success stories. Since the 1960s iron ore trade has linked Australia to the industrial centres of North-East Asia. The industry emerged as a major pillar of the relationship between Japan and Australia and later between Australia and South Korea, Taiwan and China.

The performance of Australia's iron ore producers has been remarkable. In the 10 years to 2005, Australian iron ore production grew 80 per cent faster than total world production, while Australian exports grew 25 per cent faster than total world exports of iron ore.

As a result, Australia's share of world iron ore production in 2005 was about 17 per cent, up from about 14 per cent 10 years previously. More importantly, Australia's share of world exports grew from 34 per cent in 1995 to 37 per cent in 2005. This increase was secured in a period when world exports as a share of world production grew from 39 to 42 per cent. While Australia's iron ore production is equivalent to only about 87 per cent of production in Brazil, its leading competitor, its exports are 105 per cent of those of Brazil, which is a significant user of its own production.

An industry resilient to shocks

Unsurprisingly, over its 40-year history, the industry has been subject to a number of shocks. These have arisen in part from unexpected events and in part from known issues building to a crisis. An example of the former is the discovery in the 1960s and subsequent exploitation of the huge iron ore reserves at Carajas in Brazil by Companhia Vale do Rio Doce (CVRD). An example of the latter is the concern in the early 1980s about the reliability of supply by the Pilbara iron ore producers.

Carajas — an external shock

The presence of iron ore at Carajas was confirmed in 1967. Following a lengthy gestation, the mine made its first shipment in 1986. For Brazil, which had long been Australia's principal competitor in the seaborne iron ore trade, Carajas substantially increased the export potential of its iron ore industry. At the end of 2002, Carajas held about a quarter of the proven and probable reserves of iron ore owned by CVRD, which dominates the Brazilian iron ore industry.[1] Moreover, unlike the longer established mines in the southern part of Brazil, which also service the domestic steel industry, Carajas is focused almost exclusively on exports. It offers very high quality ore, highly sought in the global trade.

The opening of Carajas presented Australia's iron ore producers with a very strong challenge. As can be seen in chart 1, Australia's exports fell in 1986 and in the following

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1 Based on a presentation given by CVRD at the New York Stock Exchange in 2005 <www.cvrd.com.br/cvrd/media/CVRDDay_2005.pdf>.

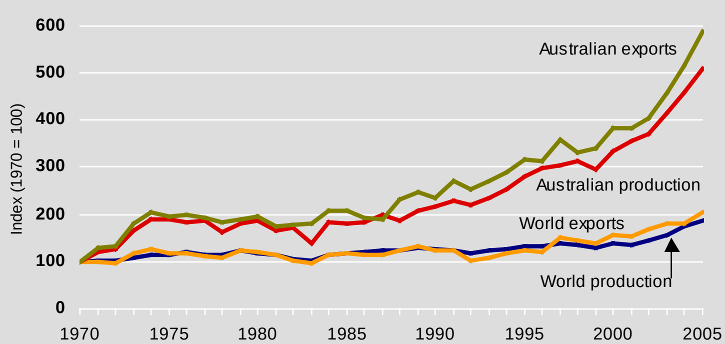
year.[2] They recovered strongly in 1988, however, and resumed the strong upward trend that has enabled Australia to steadily build its share of world iron ore exports. This illustrates a key point to which we return later — namely, the world iron ore market is competitive.

Reliability — an internal crisis

The Carajas mine came on line at a difficult time for the global steel and iron ore industries. Demand was muted, and excess capacity was depressing prices. Consequently, relations between iron ore customers and suppliers were strained. In Australia, these tensions manifested in increasing concern by the industry's customers about the reliability of supply from Australia. The *force majeure* clauses in supply contracts were being invoked to deal with matters that, as customers saw it, could have been avoided by better management.

The Pilbara producers responded to this challenge by thoroughly overhauling management practices to ensure

1 A record of success: indexes of iron ore production and exports



Data source: ABARE, *Australian commodity statistics 1998* and *2005*, Canberra.

[2] Here and in subsequent charts, data for 2005 have been drawn from various national and international sources and may be subject to revision.

best use was made of the capabilities of their workforces. This produced both immediate and ongoing benefits, with labour disputes deleted as an element in the *force majeure* clauses in 1998.

Success — no accident

Australia's leadership as an iron ore exporter did not just happen. It came about because producers pursued sustained technical innovation and overcame their reputations as unreliable suppliers through workplace change. Numerous organisational innovations have been made, so that the production processes of the modern industry now more closely resemble the continuous production lines of manufacturing than the relatively discrete processes of traditional mining.

Competitive strengths

For the past four decades, the performance of Australia's iron ore producers reflects their competitive strengths:

- natural advantages
- policy environment
- industry performance.

The first is the foundation of the industry. The second provided essential facilitation. The third took full advantage of the first two to build a world-class industry.

Natural advantages

Natural advantages include:

- vast reserves of premium Brockman ores able to be mined on a large scale, and
- closer proximity to the growing Asian markets than its competitors.

These advantages provided the opportunity to build a world-class iron ore industry in Western Australia. Those factors alone, however, did not guarantee that it would happen. India also has substantial reserves of quality ore and is relatively close to the key Asian markets. While it is an important exporter, accounting for almost 11 per cent of world exports, it has not developed a world-class iron ore industry like the one in the Pilbara.

Policy environment

In an industry as capital intensive as iron ore mining, the policy environment is crucial to the establishment and development of the industry. Particularly important for the development and growth of the Pilbara iron ore industry were:

- a clear and stable policy framework governing the development of the industry
- fair rules for sharing the benefits of developing the resource, and
- a policy framework that could accommodate change as the industry evolved.

Geopolitical risk factors loom large for mining companies contemplating the location of an investment that may run into billions of dollars and last several decades. Australia's political stability has always made it attractive from this perspective. There is no history of expropriation. Indeed the Australian constitution demands that the federal government offers just terms for any private property that it acquires.[3] At least until recently, a company could quite confidently invest in and operate facilities, subject to largely reasonable conditions in relation to, for example, safety and protection of the environment.

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3 *Constitution of the Commonwealth of Australia*, 'Part V - Powers of the Parliament', Section 51(xxxi).

For a resource project in Australia, some of the most important policies are set by state governments — for example, those that provide terms of access to the resource and set royalty rates. State Agreements have been the key instrument defining the relationship between the Western Australian Government and the Pilbara producers. These have provided clear title to land on terms that facilitated major commitments of capital to the development of the industry. The royalty rates have provided valuable revenue flows to the Western Australian Government without compromising the competitiveness of the industry.

As noted earlier, there have been substantial changes in the global iron ore industry over the past four decades that have demanded innovative responses from the Pilbara producers. The policy framework based on the State Agreements has largely accommodated those changes. For example, important changes were recently made in the State Agreements to facilitate the establishment of Pilbara Iron through an innovative agreement between Hamersley Iron and Robe River (known as 'Robe').[4]

Industry performance

As already noted, for the Pilbara industry to establish and maintain its position as the world's leading iron ore exporter has required sustained effort and constant innovation.

Global competition, particularly from Brazil, remains intense. CVRD was privatised in 1997 and this combined with reforms in the Brazilian rail sector have made it a formidable competitor.[5]

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4 Robe is a joint venture between Rio Tinto, which holds a majority interest, Mitsui, Sumitomo Metal Industries and Nippon Steel Corporation.

5 The privatisation of CVRD and the reform of Brazil's freight rail system are discussed in A Estache, A Goldstein and R Pittman, *Privatization and regulatory reform in Brazil: the case of freight railways*, 2001 <www.fazenda.gov.br/Seae/documentos/doctrabalho/doctrab09.PDF>.

Key elements of its performance have been:

- the efficiency of its infrastructure, primarily its rail systems
- steady and sustained improvements in productivity and reductions in costs, and
- a proven capacity to meet the needs of customers, even when these are fast changing.

The Pilbara iron ore rail systems are widely regarded as among the best, if not the best, heavy haul railways in the world.[6] They form a vital part of a closely integrated iron ore production process. The design of this process has been constantly refined. Innovations have included the introduction of the 'One Mine' integrated production process by Hamersley Iron, and the Pilbara Rail Company and now Pilbara Iron initiatives by Hamersley Iron and Robe to combine and, through integrated management, secure more efficient operation of their infrastructure assets. These innovations have underpinned the steady reductions in costs necessary to remain a force in the global iron ore market.

As recounted earlier, a key challenge met in the 1980s was to make the changes necessary to provide the reliability of supply demanded by customers. As described below, a key challenge in the early part of the 21st century is to meet the rapidly growing demand of China for imported iron ore. The industry has made an excellent start in responding to this challenge, but, as we will see, its capacity to sustain that response will be a critical determinant of the success the industry enjoys as the century unfolds.

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6 The comparative performance of Australia's rail systems is discussed in House of Representatives Standing Committee on Communications, Transport and Microeconomic Reform, *Tracking Australia: an inquiry into the role of rail in the national transport network*, 1998, ch. 6.

Lesson to be learned

The lesson from all this is that, as past success was not guaranteed, neither will be future success. As changes in the industry are contemplated, the importance of identifying and preserving those factors that allowed opportunity to be translated into sustained world-class performance cannot be overstated.

The challenge of China

Japan — a stable base

A principal thread in the story of the first thirty years of the Pilbara iron ore industry is the relationship with the steel industry of Japan. Throughout that period the Japanese steel industry provided the largest and most important market for ore in the region.

Contracts with Japanese steel mills underpinned the initial investment in the Pilbara industry and, even after the emergence of South Korea, Taiwan and China as important markets, the relationship with the Japanese steel mills continued to play a central role in the Pilbara industry. It provided a degree of stability and predictability absent from many other commodity markets. For the Pilbara producers, it played a key role in managing the risks inherent in the large-scale investments required to develop the industry.

China's rise

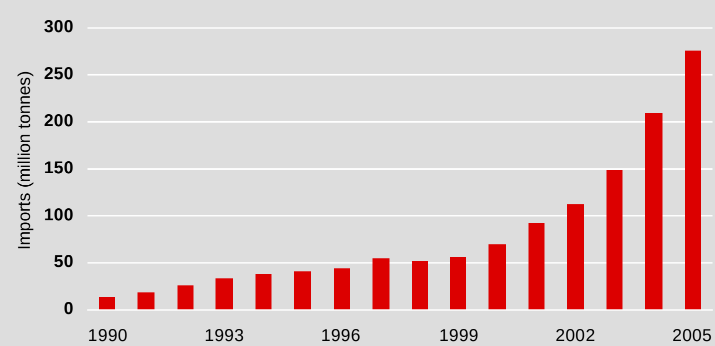
China's potential importance as a market began to be apparent in the latter part of the 1980s. The path-breaking joint venture mine at Channar opened in 1990.[7] From a low

[7] The Channar joint venture (Hamersley Iron 60 per cent and a subsidiary of Sinosteel Trading Co, formerly known as China Iron & Steel Industry and Trade Group Corporation, 40 per cent) opened the mine in 1990. It resulted from Hamersley Iron's pioneering initiative in exporting iron ore to China in 1973.

base, China's iron ore imports grew rapidly through the 1990s. As can be seen in chart 2, however, that growth accelerated sharply in the early years of the 21st century as China became the world's largest steel producer and largest market for iron ore exports.[8]

The pace and unexpectedness of this recent growth spurt are without precedent in the history of the Pilbara industry. Continuing growth, even at the more modest pace of the late 1990s, off the higher base that has now been established offers the opportunity of substantially faster growth for the industry in the Pilbara. Some have seen this as repeating, in many respects, the experience of the 1960s and 1970s when the establishment of the Pilbara industry was based on the rebuilding of the Japanese steel industry. China today is not, however, the Japan of 40 years ago.

2 The challenge of China's iron ore imports



Data source: ABARE, *Australian commodity statistics 1998* and *2005*, Canberra.

[8] China became the world's largest steel producer in 1996 when its output reached 101 million tonnes and the world's largest iron ore importer in 2003 when its imports reached 148 million tonnes.

China poses new challenges

The land area of China is almost 25 times that of Japan. Japan's population is 128 million; China's is 1.31 billion. Japan was a great industrial power before the Second World War; China is now industrialising. The potential of the market in China is far greater, but the uncertainty about the time path of development is also greater.

The rapid emergence of China as the dominant influence on the future of the global iron ore market is a far greater shock for the industry than those described earlier. It promises great opportunities but also great challenges. The Pilbara iron ore industry of the 21st century must be one that can take advantage of the opportunities flowing from the potential size of the market while meeting the challenges of the greater uncertainty surrounding the development path of that market.

Where to now?

As the decades of Japan being the industry's principal customer give way to a future where all eyes are on China, many are asking: where to now for the Pilbara iron ore industry? This is a weighty question.

The industry has made a substantial contribution to the economies of Western Australia in particular and Australia generally, and has been part of the bedrock of our trade relationships in the Asian region. Australia and particularly Western Australia have enjoyed a substantial flow of benefits from the industry. The continuing prosperity of the industry holds the promise of continuing and expanding that flow. On the other hand, a wrong turn now could severely diminish it.

Key questions

Against the background that has been sketched out, there are two key questions to be answered.

- How should the iron ore industry in the Pilbara be structured in the coming decades to maximise the benefits it delivers to the people of Western Australia and to Australia generally?
- What policy framework is best suited to delivering that structure?

Alternative answers to these questions are now being offered. Some are arguing that the concentration of the industry is adversely affecting its capacity to deliver benefits to the Australian people. Some question the policy framework in which infrastructure investment takes place, arguing for easier access to existing industry infrastructure by third parties. The resolution of these and other issues will determine the future of the Pilbara iron ore industry in the 21st century.

Risks must be recognised

In answering these questions it is important to recognise that the iron ore industry now faces as many perils as it does opportunities. Over the past four decades, a world-class iron ore industry, arguably the best in the world, has been built in Australia. That industry has proved to be extraordinarily resilient. It has established rational industrial relations and put Australia's reputation as a reliable supplier beyond question. It has developed innovative production systems that have allowed it to reduce costs, expand global market share and accommodate the increases in demand from China now being seen.

Achieving this performance and securing these benefits have required the commitment of substantial resources by the companies involved. In today's competitive international market for highly mobile capital, no country or region can assume that a future flow of resources is guaranteed. As many countries can attest, a misstep in policy development can have dire consequences.[9] In contemplating the future of the Pilbara iron ore industry, it is important that these lessons not be forgotten.

Change will come

No one can look at the history of the Pilbara iron ore industry and expect the future to be like the past. Change will come. The history of the industry is a story of almost constant change. That change allowed the industry to grow stronger, to continue to perform in an increasingly competitive global market and to deliver steadily increasing benefits to the people of Western Australia as well as the rest of Australia.

The task now is to ensure that the change to come builds on those strengths to further increase the benefits. Care and effort are required to lay foundations for the industry's development in the early decades of the 21st century that will see that task accomplished.

9 Two extreme examples that illustrate the point are Chile under Allende in the early 1970s and Indonesia following the Asian financial crisis and the end of the Soeharto regime in the late 1990s.

2 UNDERSTANDING THE IRON ORE INDUSTRY

A proper understanding of the Pilbara iron ore industry must be grounded on the essential fact that it is deeply enmeshed in a global market. Failure to appreciate this fact will lead to a misunderstanding of many of the important issues in the industry. In the worst case it may lead to the implementation of flawed and seriously damaging policy initiatives. This chapter, therefore, begins by outlining the key features of the global industry.

The global iron ore industry has grown and played an important role in supporting the development or redevelopment of some of the most important economies in our region. The next section briefly charts that history.

An industry of the scale of the Pilbara iron ore industry has naturally provided important benefits to the nation, Western Australia and local communities. The last section in this chapter outlines some of these.

The global iron ore industry

The seaborne trade

Currently around 1500 million tonnes of iron ore are mined globally in a year. About 60 per cent of this is used in the country of origin or transported relatively short distances over land. The remaining 40 per cent is shipped much greater distances and constitutes the seaborne trade.[10]

The seaborne trade services two principal regions: Europe and Asia. In Europe the principal customers are the countries of the European Union; in Asia they are China, Japan and South Korea. Some of these customers — for example, Japan and South Korea — have practically no domestic sources of iron ore and so are totally dependent on the seaborne trade to supply their substantial steel-making industries. Others — for example, the European Union and China — produce iron ore domestically, but in quantities that fall far short of the requirements of their steel-making industries.

Suppliers to the seaborne trade

The seaborne trade is supplied from a range of sources, principally Brazil, Australia, India, the countries of the former Soviet Union and South Africa. Supplying companies vary greatly in size from the huge scale of CVRD in Brazil to tiny, family-based enterprises in India.

To be worth the cost of shipping, iron ore for the seaborne trade must be of high quality, with a grade of better than about 60 per cent iron by weight. Large-scale concentrations of economically recoverable iron ore of this quality are, however, relatively uncommon. The largest concentrations occur in Brazil and Australia and these two countries together account for about 70 per cent of the supply to the seaborne trade in roughly equal shares.[11]

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[10] Based on data from ABARE, *Australian commodity statistics*, Canberra, 2005, and International Iron and Steel Institute, *Steel statistical yearbook 2003*, 2005.

[11] Based on data from International Iron and Steel Institute.

The industry in the major producing countries

A capital-intensive industry

The industry in the two major producing countries is characterised by large, open cut mine sites typically some hundreds of kilometres from the nearest port, often in remote locations. Exploiting such resources requires substantial commitments of capital to provide the infrastructure required, which may include the mine site, a rail system and a port. Even a brown field development may require significant expansion of each element of this infrastructure and therefore constitute a substantial investment.

Generating the returns to justify such investments requires that the mining, processing and railing of the ore be carried out with maximum efficiency to minimise costs.

Economies of scale dominate

Unsurprisingly, the economics of such an industry favours large companies. And this is the case in both Brazil and Australia. Moreover, in both countries, the industry has experienced significant concentration in recent years. In Brazil CVRD dominates, accounting for more than 78 per cent of Brazil's iron ore production in 2004. In Australia the two major producers, Rio Tinto's Iron Ore group and BHP Billiton Iron Ore, together account for over 90 per cent of production.[12] In both countries there is a small number of much smaller companies also producing and exporting iron ore. The three large producers together supply over two-thirds of the tonnages carried by the seaborne trade.

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[12] Company production reports; ABARE.

Industry concentration and competition

The industry concentration naturally raises the issue of whether the major players enjoy some degree of market power. In a global market context, this issue has been thoroughly investigated by the European Union, which found the global market to be competitive.[13] This finding is supported by an examination of iron ore prices and base metal prices. In Australia these findings and their relevance are often not well understood, but even an examination of the patterns of industry development in the Pilbara lends weight to the conclusion that, in spite of its apparent concentration, the industry is highly competitive.

A competitive global market

A casual examination of the sources of exports to the world's two great iron ore consuming regions in the Atlantic and Pacific basins shows that this is a global market. Although Australia and Brazil supply the bulk of exports, a number of other countries participate in the trade.[14] Such casual observation is confirmed by the more detailed analytical work undertaken by the European Union in response to the concentration in the Brazilian industry. This work, involving detailed examination of the commercial practices of the global industry's leading participants, concluded clearly that the market is global and competitive. Even a casual examination of the activities and priorities of the world's principal producers, particularly the attention they give to driving down costs and aggressively marketing their products, strongly suggests that they believe they are operating in a competitive market.

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[13] See Commission of the European Communities, Mitsui/CVRD/Caemi (Merger) - COMP/M.242 [2001] ECComm 103, 30 October 2001, and CVRD/CAEMI(Merger) - COMP/M.316 [2003] ECComm 38, 18 July 2003.

[14] These include India, countries of the former Soviet Union, South Africa, Canada, Sweden, Mauritania and Venezuela.

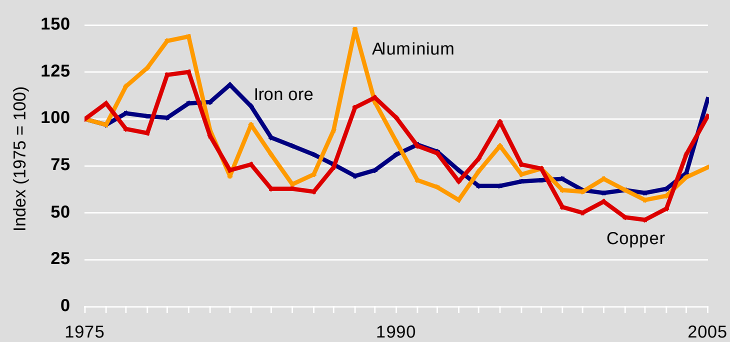
Operation of the global market

If a few large players were exercising market power to restrict supply to the global iron ore market in order to hold up prices, we would expect to see iron ore prices behaving differently from the prices of other commodities. We might expect this to be clearest in a comparison with those markets where arrangements have developed in a way that makes the interplay of supply and demand more obvious. Leading examples of such markets are provided by the contracts traded, through open outcry, on the London Metals Exchange. The two most heavily traded metals on that exchange are aluminium and copper.

The real prices of aluminium, copper and iron ore are set in US dollars on global markets and these can be seen in chart 3 as indexes. The prices of these three commodities have been on a similar downward trend in real terms. This trend in their real values is a well-known phenomenon, common to many commodities beyond those in the chart.

3 Iron ore, aluminium and copper prices behave similarly

Real price indexes for aluminium, copper and iron ore[a]



[a] The US implicit GDP deflator has been used to convert US money prices to real terms and each has been set to a value of 100 in 1975. This allows subsequent real price movements to be directly compared in proportionate terms.

Data sources: ABARE, *Australian commodity statistics 1998* and *2005*, Canberra; London Metals Exchange.

The three data series exhibit cycles. For aluminium and copper the cycles are closely correlated, while the cycle for iron ore lags the others somewhat. All are apparently responding to cycles in the level of global economic activity. The cycles for aluminium and copper are broadly similar in magnitude, while the cycles for iron ore are less pronounced.

Although the price-setting mechanisms are radically different, daily open outcry versus annual negotiations, the behaviour of the three price series is strikingly similar. The downward trend apparent in the real iron ore price is similar to that apparent in the two metals traded on the London Metals Exchange. The apparent lag in the iron ore price cycle could be the product of the wide spacing of the price negotiations (annual). The markedly less variation around trend displayed by the iron ore price suggests that the iron ore market has stayed closer to supply–demand balance than have the markets of aluminium and copper.

The lower volatility in the iron ore price makes investment in the industry less risky. And without unusually large fluctuations in demand, this will make supply more certain — an outcome of benefit to the customers of the global industry, as discussed below.

The comparison of the behaviour of iron ore, aluminium and copper prices provides no evidence that market power in the iron ore market exists or is significantly distorting market outcomes.

Competition in the Pilbara

In spite of the conclusion that the global iron ore market is competitive, the presence of two large companies in iron ore production in the Pilbara still gives rise to concerns that other viable players are somehow being excluded from the industry. While it is no doubt true that companies in any industry would rather have fewer players than more, the fact is that the global nature of the market in which the Pilbara iron ore producers compete means that they have practically no control over the extent of competition that they face and, therefore, little motivation to restrict their own output.

An objective review of the history of resource development in the Pilbara yields no evidence that the larger companies have attempted to restrict supply. The current reluctance of these companies to offer others the use of their production processes is much more readily explained in terms of its impact on their own operations.

No gain from restricting supply

In all but the most overheated market conditions, the extent of competition in the global market would mean that any attempt to restrict supply by either or both of the large Pilbara producers would simply result in forgone sales with little or no offsetting increase in price. It is difficult, therefore, to see why either of these producers would seek to engage in such behaviour.

Were the global iron ore market to be less competitive than it is, there might be some scope for Australian producers to secure higher prices by restricting supply. Were the extent of such market power great enough to increase the price received more than proportionately to sales forgone, revenues could be increased and the producers would have an incentive to engage in such behaviour. In these counterfactual circumstances, if the producers were to behave in this way it would be in the interests of Australians because it would increase the potential benefits that the industry might provide them.[15]

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[15] This important fact was clearly recognised a decade ago by the Industry Commission and more recently by the Prime Minister's task force. See Industry Commission, *Implementing the National Competition Policy: access and price regulation*, Canberra, 1995, and Exports and Infrastructure Taskforce, *Australia's export infrastructure: report to the Prime Minister*, 2005.

In reality, such a situation has never been observed. Market conditions over the past two years have been tighter than they have ever been, as evidenced by spot prices for iron ore fines of over US$100 a tonne in China.[16] In spite of this tightness, there has been no sign of either Australian producer attempting to restrict supply. On the contrary, there is every indication that both are running their production systems as hard as possible.

Competition for resources

While there is little reason to believe that there would be gains to the Pilbara iron ore producers from restricting the supply of ore, there could still be concern about an apparent lack of competition to exploit the iron ore resources of Western Australia.

Producer concentration in the iron ore industry is a global phenomenon driven by the economies of scale and scope that characterise the industry. It should also be noted that control over the development of the Pilbara resources is vested in the Government of Western Australia. It has instituted a system of exploration and development tenure to ensure that the community derives maximum benefit from that development while recognising that development of the industry requires major, long-term investments. Apart from the usual hurdles of finding a viable resource and providing the capital to develop the project, which the existing producers have had to overcome, there is nothing to stop another company opening a new mine in the Pilbara. One way of lessening these difficulties is through a joint venture arrangement with an existing producer. As described in detail below, such an arrangement is facilitating

16 The significance of this is twofold. Never have spot sales — those conducted outside the framework of a long-term contract — been as great a proportion of the overall market, and never has the price differential between the two markets been as great.

the early and rapid development of the Hancock Mining resource at Hope Downs.

A review of resource development in the Pilbara suggests that, far from being reluctant to see new resources developed, the major companies have been keen to facilitate it. These companies have facilitated the exploitation of new resources in a range of cases, both pursuant to the provisions of the State Agreements and through normal commercial negotiations. Examples of such arrangements include:

- those negotiated by Hancock Prospecting with Hamersley Iron for the development of the Marandoo ore body
- those negotiated by Hancock Prospecting with BHP, as it was then known, to transport ore from the McCamey's Monster ore body
- those made by Hamersley Iron to transport China's share of the products of the Channar joint venture involving Sinosteel Trading Co
- the takeover of North Limited by Rio Tinto, which involved Rio Tinto acquiring North's interest in Robe and led directly to the early and rapid development of the West Angelas mine
- those made by Hamersley Iron relating to the Bao-HI Ranges Joint Venture involving Shanghai Baosteel Group Corporation
- those made by Hamersley Iron relating to the Beasley River Joint Venture involving Nippon Steel, Sumitomo Metals, and Mitsui & Co
- those made by BHP Billiton relating to the Posco area 'C' deposit joint venture involving Pohang Iron and Steel
- those made by BHP Billiton relating to the Wheelarra Joint Venture involving the Chinese steel mills of Wuhan, Magang, Shagang and Tanggang, and

- the joint venture between Hancock Prospecting and Rio Tinto to facilitate development of the resource at Hope Downs.

Surplus over cash cost provides a return on substantial investment

It is sometimes asserted that the level of Pilbara producers' cash costs relative to iron ore prices is *prima facie* evidence that the market is not working properly. Given the scale of their operations, it is not surprising that the Pilbara producers occupy a relatively low position on the global industry cost curve.

The marginal producer sets the market price and there are many small iron ore producers contributing significant volumes to the seaborne trade in iron ore that do not enjoy the scale economies of the Pilbara producers. The iron ore industry in India, which accounts for around 9 per cent of global production and 11 per cent of world exports, includes many small operations.[17]

If the industry in the Pilbara were only just covering cash costs, the substantial investments that have already taken place, as well as those recently announced, could not be justified.

Customers' objectives

An understanding of the global iron ore industry would not be complete without reference to the interests of the industry's customers. Two facts are crucial. First, the cost of the iron ore input is a relatively small proportion of the steel industry's cost structure; energy inputs are much more

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[17] An article in the *South China Morning Post* on 18 January 2006 succinctly summarises the position of the Indian industry. See www.thisisnoble.com/newnoble/newsroom/news06/pressroom_011806.html.

important. Second, continuity of supply is vital. The cost of an unscheduled shutdown of a blast furnace due to an unanticipated lack of iron ore feed is prohibitive. For iron ore buyers, particularly large ones, assured supply is much more important than price.

These priorities are clear in how the Japanese steel mills managed the market through to the mid-1990s.[18] They are the principal reason why the iron ore market operates on the basis of long-term contracts with annual price reviews rather than the spot price arrangements characteristic of other metal markets. As described in the next section, the Pilbara producers have shown a keen awareness of customer requirements and built an expanding market share on their ability to satisfy them.

The Pilbara iron ore industry

Since its beginnings in the 1960s, the iron ore industry in Western Australia has grown steadily. Tonnages shipped have grown from a modest 13 000 tonnes in 1964 to a record of around 240 million tonnes in 2005. As shown in chart 4, despite the interruption associated with the Asian financial crisis, Australia's share of the seaborne trade has been on an upward trend since the mid-1990s.

Investing substantial capital

The strong growth in output depicted in chart 1 has been possible only because of the substantial investments made by the iron ore producers over the past four decades. The capital expenditure by Hamersley Iron and later Robe has been significant (chart 5). Since 2003 Hamersley Iron and

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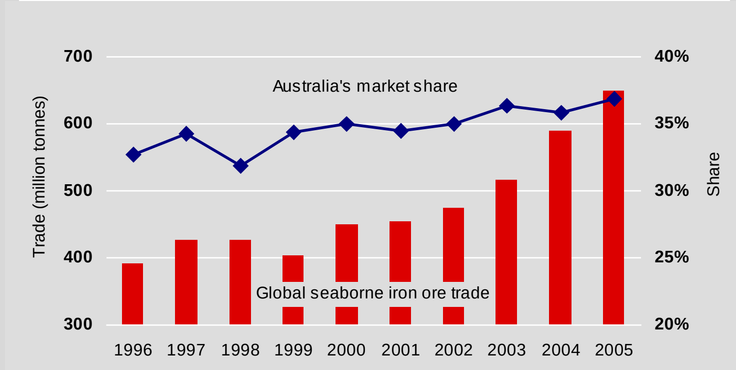
[18] A brief history of the Japanese steel mills can be found at Japanese Information Network Business News, 'Steel industry overview', 1 November 2004 <www.jinbn.com/2004/11/01175820.html>.

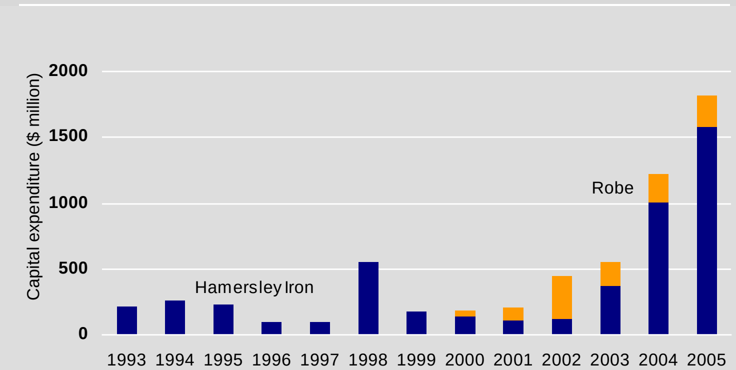
Robe have committed a total of $4.2 billion to expanding their iron ore infrastructure in the Pilbara.[19] In the same period BHP Billiton built broadly similar facilities at a broadly similar cost.

4 Australia's expanding share of the seaborne trade



Data source: UNCTAD, *Iron ore statistics*, 2005.

5 Expenditure on building a great Australian industry
Capital expenditure by Hamersley Iron and Robe in the Pilbara



Data source: Pilbara Iron company statistics.

19 Rio Tinto public statements.

Opening new mines

Since 1970, Australia's iron ore exports have increased more than fivefold. Increasing production at this pace meant that new mines had to be opened. Among the more significant projects of the past decade or so are:

- Hamersley Iron and BHP Billiton's development of their pisolitic deposits at Yandicoogina, leading to Yandi ore becoming the largest selling Pilbara ore
- Robe's opening of its West Angelas deposit, the first stand-alone Marra Mamba resource to be brought to market
- Hamersley Iron's opening of its Marandoo and Eastern Ranges deposits, and
- BHP Billiton's opening of its Marra Mamba resource in Mining Area C.

Expanding infrastructure

Increasing rates of production from existing mines and developing new resources demand expansions in the infrastructure on which the industry depends. Much of this has been incremental, with extensions of and upgrades to existing facilities taking place to support steadily increasing tonnages. For Hamersley Iron and Robe, major investments have included:

- constructing rail extensions to new mines at Yandicoogina and West Angelas
- expanding the annual capacity of the port at Cape Lambert from 32 million tonnes to 50 million tonnes to accommodate the new mine at West Angelas and now to 57 million tonnes
- expanding the annual capacity of the port at Dampier from 60 million tonnes to 70 million tonnes in 1999 to accommodate the ore from Yandicoogina, with a further

expansion to 116 million tonnes in 2005 and plans to expand to 140 million tonnes by the end of 2007

- replacing GE Dash 7 locomotives with 30 new Dash 9 locomotives, subsequently supplemented by the purchase of a further 20 locomotives and seven new consists of wagons, with a further 10 locomotives due to arrive by the end of 2006 and a further two consists on order
- constructing dual tracks in the most heavily congested parts of the rail system to accommodate increased production
- replacing timber rail sleepers with concrete ones from Brockman Mine to Rosella siding, and
- installing one 35 megawatt gas turbine at Paraburdoo, with another 35 megawatts planned for 2006.

Working smarter too

This investment alone, substantial though it is, would not have allowed the industry to expand at its recent pace and remain competitive. Working smarter has also been a key element in the industry's success through initiatives such as the move to an all staff workforce. Pilbara Rail Company represented another major initiative that both increased capacity and efficiency.

After Rio Tinto acquired North Limited, Pilbara Rail Company was brought into existence by negotiated agreement between Hamersley Iron and Robe. The key to the arrangements was that the assets owned by the parties were pooled and placed under the control of a single manager that operated them in an integrated fashion. The manager then provided the services that the parties were previously providing for themselves. The integration allowed the manager to realise efficiencies and provide services beyond those previously available to the parties.

The arrangement was symmetric and between peers. The costs of facilitating the integration, such as upgrading or replacing incompatible equipment, were shared by the parties under the agreement. The allocation of costs reflected the specific circumstances in which the agreement was reached, including, for example, the assets each party placed under integrated management.

The Pilbara Rail Company agreement was a joint user arrangement and not a third party access arrangement. Moreover, given its nature it would have been difficult to extend the concept to a third party, particularly if that party did not own substantial assets that could be placed under integrated management. The extent of common ownership of the negotiating companies was a major driver behind the establishment of Pilbara Rail Company.

With Pilbara Rail Company proving to be a great success, Hamersley Iron and Robe extended the integrated management of facilities and common service provision through the formation of Pilbara Iron. Pilbara Iron has taken over and significantly expanded the role previously played by Pilbara Rail Company.

Putting these arrangements together was not an easy task, reflecting the critical role of the rail system assets in the iron ore production process. It required a substantial commitment of highly skilled personnel to develop the arrangements and to execute a complex and sophisticated commercial agreement. It illustrates the capacities of the companies operating in the Pilbara and shows what it takes to remain a competitive player in the global industry.

Seeking to contain investment risk

Although project proponents often expend considerable effort in attempting to obtain long-term contracts, future sales of iron ore are not assured. Obtaining satisfactory returns on investment often depends on projects operating close to capacity. Investors are, thereby, exposed to significant risk. The stability and predictability of the policy environment are crucial in containing that risk within acceptable limits. Erosion of that stability and predictability by unanticipated changes to policy will reduce the risk-adjusted returns to otherwise attractive projects and deter future investments.

Meeting the needs of the industry's customers

One of the reasons for the success of the industry has been its desire to understand and meet the needs of customers. The tradition of maintaining close relationships with its principal customers, established through the relationship with Japan that gave birth to the industry, has been continued.

Building on a range of joint ventures with Japanese partners, including importantly Robe, the industry extended those relationships to South Korea through projects such BHP Billiton's POSMAC Project to open Deposit C in Mining Area C in partnership with POSCO.

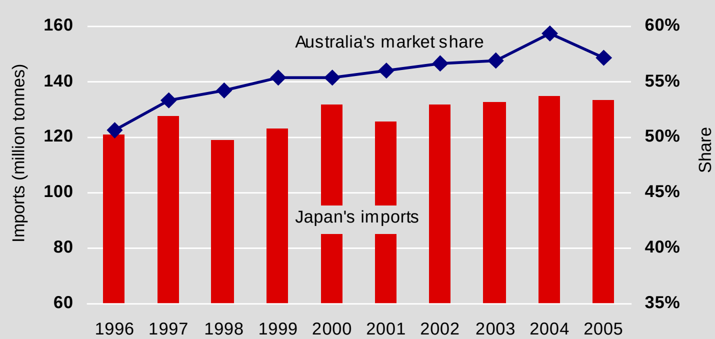
As noted earlier, Hamersley Iron was quick to recognise the potential of the China market and the Channar joint venture broke new ground for Australia and China. That relationship has been further extended through projects such as the recent Bao-HI Ranges Joint Venture to develop the Eastern Ranges mine and consolidated through new long-term supply contracts being negotiated with the leading Chinese steel mills. With Japanese demand for iron ore at near record levels, driven in part by China's demand for steel imports, Hamersley Iron's relationship with industry leader Nippon Steel has recently been deepened through Nippon's participation in the joint venture to develop the Beasley River deposit.

Japan

The initial development of the industry in Western Australia was based on demand for an assured supply of raw materials for the rapidly growing Japanese steel industry. Australian iron ore met that need and Australia became by far Japan's most important supplier of iron ore. That position was maintained through the 1980s and into the 1990s despite increasingly strong competition from Brazilian producers. As chart 6 shows, Australia's share of the Japan market has been over 50 per cent since 1996.

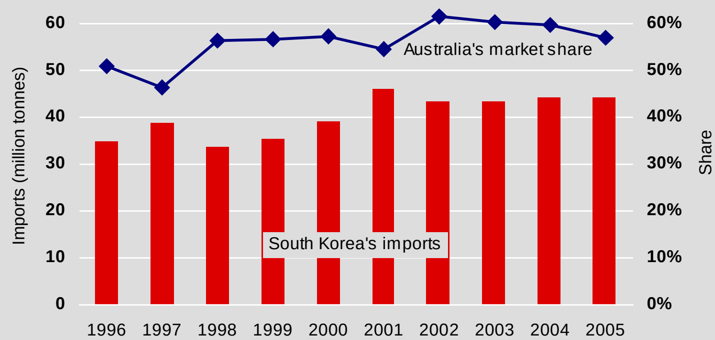
Australia's success in maintaining and increasing its market share in Japan has been based to a large degree on being a reliable supplier, having experienced no lost time due to industrial disputation since the early 1990s, and on achieving market acceptance for the pisolitic, Yandi-type ores. Although it took some effort for Japanese steel makers to develop sintering techniques appropriate to these new ores, now the technical problems have been overcome the ores have achieved substantial and growing market share in Japan.

6 Australia's majority and growing market share in Japan
Japan's iron ore imports and Australia's share



Data source: ABARE, *Australian commodity statistics 1998* and *2005*, Canberra.

7 Australia's majority and growing market share in South Korea **South Korea's iron ore imports and Australia's share**



Data source: ABARE, *Australian commodity statistics 1998* and *2005*, Canberra.

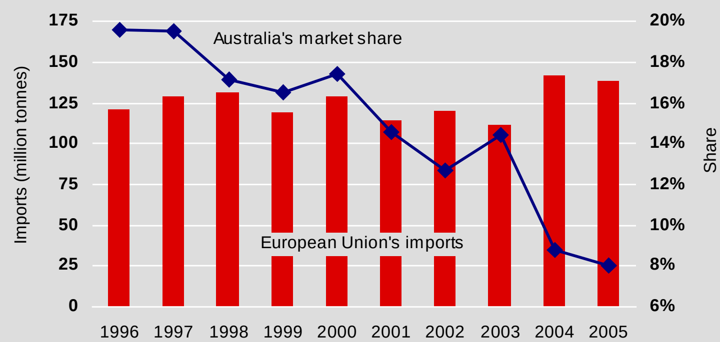
South Korea and Taiwan

South Korea and Taiwan are the smallest of Australia's principal markets. Proximity and good relationships with the leading local steel makers, POSCO and China Steel respectively, have assisted Australia to maintain a strong position in these markets. The situation in the larger of the two markets, South Korea, is shown in chart 7. The corresponding chart for Taiwan would show a similar pattern. As in Japan, Australia's market share has been above 50 per cent for some time.

European Union

Although the European Union's market for iron ore is about the same size as Japan's, distance has prevented Australian iron ore from being as competitive there as in Asia. Nevertheless, the European Union remains a significant market for the Australian commodity. The attractiveness of the market to Australian producers and the attractiveness of Australian iron ore to EU customers are strongly influenced by volatile shipping rates. As chart 8 shows, Australia's share

8 Australia's more volatile market share in the European Union **EU iron ore imports and Australia's share**



Data source: ABARE, *Australian commodity statistics 1998* and *2005*, Canberra.

of EU imports tends to reflect that volatility, and has been on a downward trend for some years, partly reflecting the expanding membership of the European Union.

China

The emergence of the China market is such an important development that its story warrants fuller treatment. The recent acceleration in the growth of China's demand for iron ore has posed particular challenges for the industry globally. The response of the producers in the Pilbara reveals a great deal about the capacity and potential of the industry there.

China's potential was recognised early

The economic reform program initiated in China in 1978 has delivered average economic growth rates in excess of 9.5 per cent a year over the past two decades. Australian iron ore producers, and Hamersley Iron in particular through initiatives such as the Channar joint venture, were among the first to recognise the importance of this emerging market.

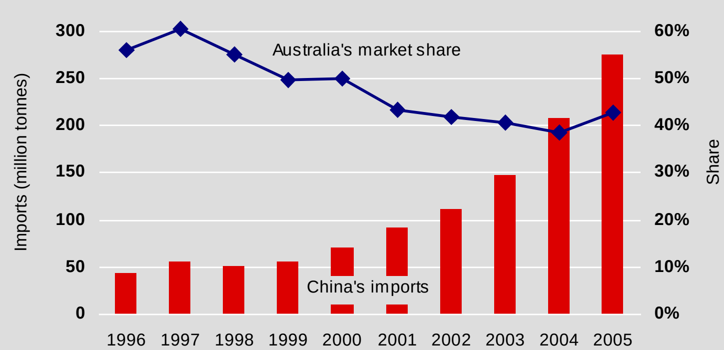
Substantial efforts were made, commencing in the 1980s, to capture a large share of the most rapidly growing market in the region. These efforts were extremely successful. China's share of Australia's exports more than doubled to 12 per cent in 1991.

Some adjustment was inevitable as China grew in importance

As the economies of the region recovered from the Asian financial crisis of 1997, China continued to increase its iron ore imports and it gradually overtook Japan as the world's largest importer of the commodity. As China's importance as a customer in the seaborne iron ore trade continued to grow, Australia's share of that market, which in 1997 was about 70 per cent above its share of the global market, started to decline, as shown in chart 9.

Even though Australia's share of world exports has been on an upward trend since the mid-1990s (chart 4), Australia would have needed an unprecedented increase in its global market share to maintain its share of the now dominant China market. Competitive pressures in that market increased, as the Asian financial crisis of 1997 served to

9 Australia's share of China's challenging market
China's iron ore imports and Australia's share



Data source: ABARE, *Australian commodity statistics 1998* and *2005*, Canberra.

highlight its growing importance and the world's other leading producers, particularly Brazil and India, realised the significance and potential of this new market.

Yandi ores introduced

In Australia, these developments coincided with a shift in the iron ore products being offered to customers. The industry in the Pilbara was built on the premium Brockman ore, the kind mined at Mount Newman and Tom Price. But through the 1990s large reserves of quality pisolitic ore from the Yandicoogina region were opened and brought to market. Lower quality pisolite had been mined around Pannawonica and successfully marketed for some time. It is the so-called Yandi ore that has provided the basis for the rapid growth in iron ore shipments from the Pilbara in recent years.

Accepted in Japan and Korea

Yandi ore is often described as a 'high value in use' ore. It was initially sold at a discount to premium Brockman ore type fines because it has a higher bound moisture content. But, once this moisture is removed, usually when the ore is sintered, the Yandi ore has a similar gangue content to premium fines. For those steel makers that can deal with the higher bound moisture content, this made Yandi an attractive ore.

Yandi ore usage in Japanese and South Korean sinter plants has increased sharply since its introduction and is currently up to 60 per cent of the iron ore burden on the sinter strand. These sinter plants have been increased in size to enable them to produce the same amount of sinter from the Yandi ore. By increasing the proportion of Yandi ore in their sinter burden the Japanese and South Korean mills have been able to achieve significant decreases in the cost of iron production.

Obstacles to acceptance in China

In China, however, there are obstacles to the rapid adoption of Yandi ore. Most Chinese steel mills are not as technically advanced as those in Japan and South Korea. For example, they lack the size of sinter strand available there, and cannot deal so readily with the Yandi ore. They tend to favour ores with higher iron content, such as Brazilian ore, which is more compatible in sintering with domestic concentrate. Many Chinese steel mills are located inland, which makes the cost of transporting imported ore to the mill from the port a major consideration. Both obstacles place Yandi ore at a disadvantage.

Obstacles being overcome

These obstacles to the acceptance of Yandi ore in China are, however, being progressively overcome. Many of the new steel mill developments are in coastal regions where the economics make imported ores more desirable. Sinter strand capacity is being added to coincide with these new coastal steel mills and other expansions. Improvements in technology are being encouraged by China's government, which will make using Yandi ore attractive. As the output of steel continues to grow rapidly, the ratio of imported ores to domestic iron ore concentrate in the sinter blend will rise, particularly in coastal steel mills, reducing the extent of compatibility issues. The use of Yandi ores can be expected to grow in line with the experience in the Japan and South Korea markets.

Pilbara's response to China's demand

In the period 2000–05, China's iron ore imports almost quadrupled (chart 9). The unprecedented demand for iron ore in China took almost all analysts by surprise. Globally, iron ore suppliers have been struggling to adjust to this demand. In response Hamersley Iron, Robe and BHP Billiton announced major expansions. Projects to support these expansions were quickly under way and some are already completed. New projects announced, under construction or completed by the Rio Tinto group of companies include:

- further expanding the Yandi mine to increase annual capacity from the 24 million tonnes attained in 2004 to 36 million tonnes, with a further expansion to 52 million tonnes scheduled for completion by the end of 2007
- increasing the annual capacity of the West Angelas mine by 5 million tonnes to 27 million tonnes
- commencing production at the Hope Downs mine in 2008 and increasing it to 30 million tonnes a year by 2012
- increasing the annual capacity of the port of Dampier by 40 million tonnes to 116 million tonnes and to 140 million tonnes by the end of 2007
- increasing the annual capacity of Cape Lambert to 57 million tonnes, with the possibility of a further expansion to 80 million tonnes
- dual-tracking 145 kilometres of railway north of Rosella to link with existing dual track at Tunkawanna, providing dual track for the whole of the section of rail between Rosella and the Robe–Hamersley Iron crossover, with the project to be completed in two stages by the middle of 2006
- extending the railway to Hope Downs to service the new mine
- interconnecting the Hamersley Iron 220 kV and the Robe 132 kV power transmission systems and installing two 35 megawatt gas-fired turbine generators at Paraburdoo, which will be supplied by the construction of an 18 kilometre gas line to the Goldfields pipeline, and
- planning expenditure of $240 million on drilling and evaluation programs over five years to extend the reserve base beyond potential new mine developments.

By the end of 2006 the industry will have added an extra 75 million tonnes of annual capacity since 2002, supporting annual exports worth about $3.75 billion (at 2005 prices).

In contrast to the substantial and rapid response of Australia's iron ore producers, other mineral industries, particularly coal, have been struggling to meet the challenge of China's demand. Attention was drawn to this situation by the February 2005 statement from the Reserve Bank of Australia.[20] The situation quickly became a matter of national concern and the Prime Minister established a task force to examine it. The report of the task force confirmed the earlier comments of the Reserve Bank of Australia. It concluded that:

> Where Australia's logistics chains are vertically integrated and are subject to much less economic regulation, the response to increased global demand has been timely, effective and efficient. In contrast, in those parts of the economy where economic regulation sits between investors in export related infrastructure and users, lengthy delays have been widespread, as infrastructure owners, users and regulators focus more on shifting slices of the pie than on ensuring that the pie expands to meet competing demands.[21]

and that:

> … a co-ordinated response has been rapidly deployed [in the Pilbara] that will result in integrated expansion of mine, rail and port.[22]

It is clear from this independent review that the structure of the industry in the Pilbara played a major role in facilitating its rapid response. The integrated ownership and management of all facilities involved in producing and exporting iron ore meant that each operator could quickly make and implement

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20 Reserve Bank of Australia, *Statement on monetary policy*, Sydney, 2005.

21 Exports and Infrastructure Taskforce, p. 2.

22 Exports and Infrastructure Taskforce, p. 30.

its own plans for expansion. The stability and predictability of the policy environment emphasised earlier contained the risk and made the substantial investments viable.

Contribution of the industry to Western Australia

The Pilbara iron ore industry makes a major contribution to Australia — to the economy as well as socially and culturally. Its impact is naturally felt most strongly in the state where it is based.

Economic contribution

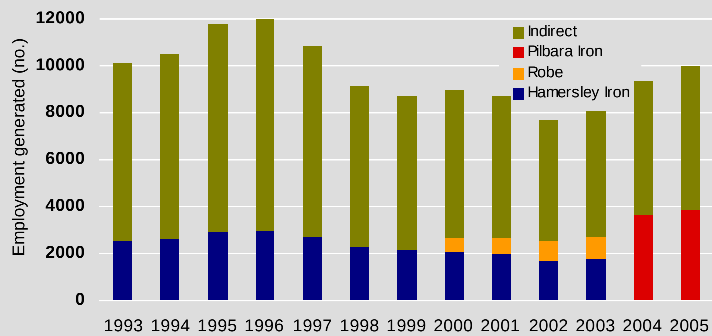
It is well known that resource-based industries make a major contribution to the Western Australia economy, but the scale of that contribution should be recognised.

Estimates in a recent paper from the Economics Department of Rio Tinto, *The economic benefits of mining to Western Australia*, based on work by the Western Australian Department of Industry and Resources and the Economic Research Centre at the University of Western Australia, are instructive. Mining directly constitutes about 15 per cent of Western Australia's gross state product. After allowing for multiplier effects, this increases to almost 30 per cent. Iron ore contributes more than any other commodity to the value of minerals produced in Western Australia, accounting for about a third of the total.

Employment contribution

It was estimated that, in 2001–02, 41 000 people were directly employed in mining in Western Australia. The Economic Research Centre at the University of Western Australia estimated a multiplier effect for mining employment in Western Australia of four. This means that the mining sector was responsible for creating 164 000 jobs in Western Australia in 2001–02, over a sixth of total

10 Employment in Western Australia generated by Hamersley Iron and Robe[a]



[a]Pilbara Iron was established under a cooperative arrangement between Hamersley Iron and Robe in 2004.

Data source: Pilbara Iron company statistics.

employment. Hamersley and Robe's contribution to employment in Western Australia is shown in chart 10.

Royalties and other taxes paid

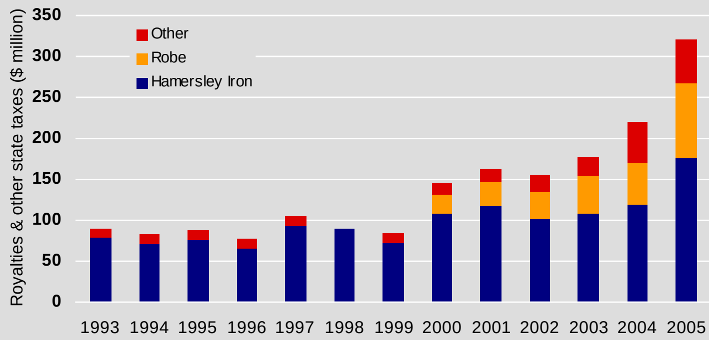
Royalties and other taxes from mining directly provide about 5 per cent of the Western Australian Government's revenue. This does not include the substantial indirect contribution flowing from the distribution of federal taxes such as the GST. The direct contributions from Hamersley Iron and Robe are shown in chart 11. Since the iron ore industry started in the Pilbara, Hamersley and Robe (since 2000) have between them paid $2 billion in royalties and $375 million in other state taxes to the Western Australian Government.[23]

Social and cultural contribution

The iron ore industry also makes a substantial contribution to the social and cultural life of Western Australian. In 2005,

23 Figures to 2005 supplied by Rio Tinto Ltd.

11 Hamersley Iron and Robe's major contribution as taxpayers



Data source: Pilbara Iron company statistics.

Hamersley Iron and Robe spent $57 million in communities, the majority in the Pilbara through town services support, land use agreements, sponsorships and community advisory committees. Major sponsorships included the AFS (American Field Service) student exchange program, Murdoch University's Science Technology Awareness Raising Program and the Black Swan Theatre Company. Community advisory committees are very active. The Dampier committee considered more than 40 projects in 2003 and chose seven for priority support.

In addition to sponsoring specific business units and funding community involvement programs, Rio Tinto contributes $2 million a year to projects that make a difference to the future of Western Australia through its Rio Tinto Western Australia Future Fund. Rio Tinto takes its wider responsibilities to the community seriously, as exemplified by each business unit's annual *Social, safety and environmental report*.[24]

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24 For examples of this reporting, see www.pilbarairon.com/SiteContent/news/publications.asp.

3 THE POLICY FRAMEWORK FOR THE FUTURE

It is widely accepted that an industry cannot expect the policy regime under which it operates to remain entirely unchanged. Regulatory polices in areas such as the environment, employment and safety can be expected to evolve in response to changing community standards. There are, however, some aspects of the policy environment that are so critical to commercial operations that changes can be expected to have profound consequences. One such area is property rights.

While the iron ore industry can absorb changes in regulatory regimes and the periodic review and renegotiation of tax and royalty rates, changes in property rights would undermine the foundation of the industry. This chapter looks at one set of developments that carries such a danger — the imposition of access regimes on some of the facilities owned and managed by the Pilbara iron ore producers.

To date, exploitation of the iron ore resources of the Pilbara has depended on commercial decision-making and the negotiation of mutually acceptable arrangements between any parties involved, subject to the requirements embodied in the State Agreements that have provided the operators with the right to mine in the Pilbara. The earlier part of this publication details the highly successful industry that has resulted from this mode of operation.

The possibility of a party compelling a facility owner to provide access to its facilities became possible in Australia with the amendments to the *Trade Practices Act 1974* made in response to the Hilmer Report.[25] These developments and their application in the Pilbara are reviewed in the next section.

Debate now centres on the costs and benefits of applying a regime such as that contained in Part IIIA of the Trade Practices Act to the Pilbara iron ore industry. The second section of this chapter analyses these costs and benefits.

Access regimes in Australia

The competition policy reforms

The Competition Principles Agreement and the National Access Regime

Following the Hilmer report, the federal government and the state governments signed the Competition Principles Agreement. Clause 6 of this agreement deals with access to services provided by significant infrastructure facilities. Pursuant to clause 6, the federal government amended the Trade Practices Act to include Part IIIA, which establishes a national third party access regime now known as the National Access Regime. Clauses 6(3) and 6(4) of the Competition Principles Agreement contemplate that states and territories may also establish access regimes. If such regimes are determined to be 'effective' by the National Competition Council, use of the processes in Part IIIA to gain access to the facilities covered by the regimes is precluded.[26]

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25 Commonwealth of Australia, *National Competition Policy: report by the Independent Committee of Inquiry*, AGPS, Canberra, 1993.

26 See sections 44G(3)and 44G(2)(e) of the Trace Practices Act.

Major impact on property rights

The National Access Regime and state access regimes established under clause 6 of the Competition Principles Agreement 'entail a significant attenuation of private property rights' and an interference in the normal operation of the market.[27] The Hilmer report itself noted:

> The Committee is conscious of the need to carefully limit the circumstances in which one business is required by law to make its facilities available to another. Failure to provide appropriate protection to the owners of such facilities has the potential to undermine incentives for investment.[28]

and

> … when considering the declaration of an access right to facilities, any assessments of the public interest would need to place special emphasis on the need to ensure that access rights did not undermine the viability of long-term investment decisions, and hence risk deterring future investment in important infrastructure projects.[29]

As a consequence of these fundamental risks, Part IIIA of the Trade Practices Act contains strict criteria that must be met before the National Access Regime is applied to a facility. In particular and most relevantly:

- Part IIIA does not apply to a facility that is part of a production process[30]
- a service provided by a facility may be declared to be subject to Part IIIA only if each of the following are satisfied:
  - access to the service would promote competition in at least one market other than the market for the service

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[27] Productivity Commission, *Review of the National Access Regime*, Report no. 17, AusInfo, Canberra, 2001, p. 59.

[28] Commonwealth of Australia, p. 248.

[29] Commonwealth of Australia, p. 251.

[30] See the definition of 'service' in section 44B of the Trade Practices Act.

- it would be uneconomical for anyone to develop another facility to provide the service
- the facility is of national significance
- access can be provided without undue risk to human health or safety, and
- access would not be contrary to the public interest.[31]

Application in the Pilbara

The Federal Court has held that Part IIIA has no application to a Hamersley Iron rail line to which access was sought because it is a part of a production process used in the production of export-quality iron ore.[32] The same position would apply in relation to the Robe rail line.

It should also be borne in mind that, even if this were not the case, the various criteria for declaration under Part IIIA would not be met. For example, it is not 'uneconomical' for another party to duplicate Hamersley Iron and Robe rail lines as is well illustrated by the existence of other rail lines in the Pilbara and proposals that have been made from time to time to build new rail lines.[33] Western Australian iron ore is sold into the worldwide seaborne iron ore market, which is already highly competitive, and the application of Part IIIA to Pilbara rail infrastructure would have no effect on competition in that market.

In summary, the Pilbara rail systems would not seem to meet the criteria that must be met before the National Access Regime applies.

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31 See section 44G(2) of the Trade Practices Act.

32 Federal Court of Australia, *Hamersley Iron Pty Ltd v National Competition Council FCA 867*, 28 June 1999.

33 See, for example, Fortescue Metals Group Ltd, *Annual report 2003*, p. 9.

Matters remain contentious

Although the above conclusions seem to be well founded, dispute about the interpretation and application of Part IIIA to the Pilbara rail systems continues to occupy the National Competition Council and the courts, not to mention the systems' operators. In considering an application from Fortescue Metals Group for declaration of parts of the BHP Billiton rail system, the National Competition Council offered a different conclusion in its draft recommendation. At the time of writing this matter was the subject of legal action.

Possible state access regimes

It has occasionally been suggested that an Australian state might introduce its own access regime. For a state access regime to be an 'effective access regime', under Part IIIA of the Trade Practices Act that state regime must apply only to facilities that meet essentially the same strict criteria as in Part IIIA. In particular:

- an effective access regime must apply in relation to a 'service' and as a consequence cannot apply in relation to the use of a production process[34], and
- an effective access regime is to apply only to services provided by means of significant infrastructure where:
  - it would not be economically feasible to duplicate the facility
  - access to the service is necessary in order to permit effective competition in the downstream or upstream market, and
  - the safe use of a facility by the person seeking access can be ensured.[35]

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34 See section 44M of the Trade Practices Act.

35 See clause 6(3) of the Competition Principles Agreement.

It follows that, if a state access regime were imposed in relation to the Pilbara rail systems, such a scheme could not be an 'effective access regime' for the purposes of the Competition Principles Agreement because the Pilbara rail systems do not meet the Competition Principles Agreement criteria for when an access regime is appropriate. In particular, as has been judicially confirmed, at least some of the Pilbara rail systems are an integral part of a production process; each Pilbara rail line is economically capable of being duplicated; and access to the rail lines would not promote effective competition in any market.[36]

The Productivity Commission review

In 2001 the Productivity Commission completed a review of the National Access Regime. This review once again emphasised the risks of interfering with the well-established principles of private property rights in Australia. The Productivity Commission noted that:

> The potential 'chilling' effect of access regulation on investment in essential infrastructure services is the main concern. Investment may be deterred for two reasons.[37]

The first reason that the Productivity Commission gave is that:

> Potential exposure to access regulation is likely to increase the general level of risk attaching to investment in essential facilities. The inevitable regulatory discretion involved in the implementation of such regulation, and perceptions that regulatory decisions are likely to be biased in favour of service users, are among the factors that contribute to regulatory risk. These sorts of risks attach to investment in any regulated activity. However, the scale of investment in essential infrastructure, and the fact that, once in place, the assets are

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36 Some aspects of these conclusions are the subject of current legal process.

37 Productivity Commission, p. xix.

> 'sunk' with few alternative uses, mean that regulatory risk can be a more critical factor in the investment decision and may sometimes deter projects.

The second reason given is that:

> Investments in essential infrastructure will also be deterred if regulated terms and conditions are not expected to provide a sufficient return. A particular problem here is that the possibility of earning higher than normal profits if a project proves to be very successful may be required to balance the possibility that the project will fail. However, once a facility is operating, it will generally be impossible for regulators to delineate any upside return from genuine monopoly rent — that is, returns in excess of those necessary to justify the investment. Regulatory pricing arrangements that (inadvertently) appropriate upside returns (so called 'regulatory truncation') can be a significant source of inefficiency arising from access regulation.[38]

The Productivity Commission went on to note that:

> Third party access and the resulting benefits to service users are only possible over the longer term if there is continuing investment in the essential infrastructure services themselves. On the other hand, while denial or monopoly pricing of access imposes costs on the community, such behaviour cannot threaten the continued availability of the services concerned. This asymmetry in potential outcomes highlights the priority that access regulation must give to ensuring that there are appropriate incentives for efficient investment.[39]

The dangers of inappropriate regulation identified by the Productivity Commission are clearly present in the potential application of the National Access Regime to the Pilbara rail systems. Ignoring these dangers may well inhibit the successful development of Western Australia's iron ore resources.

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38 Productivity Commission, p. xix.

39 Productivity Commission, p. xix.

To provide some protection for situations in which the application of the National Access Regime was likely to do far more harm than good, the Productivity Commission recommended retention of the production process exclusion in Part IIIA of the Trade Practices Act. It is also significant that the federal government, in its final response to the report in February 2004, agreed with the Productivity Commission that the 'production facility' exemption should be retained, leaving the Courts to determine its scope, noting that:

> These exclusions ensure that the Regime is not too broad in its application. Hence, they protect the legitimate interests of owners of essential infrastructure facilities and preserve incentives for investment in such facilities.[40]

The legal processes that are currently under way (referred to above) would suggest that, at least in respect of the essential infrastructure facilities in the Pilbara, these protections are proving to be inadequate and, therefore, the incentives for investment in such facilities may not be preserved.[41]

State Agreement provisions

The State Agreements, under which the Pilbara iron ore mines were established and continue to operate, contain provisions that oblige the companies to carry third party freight where it does not unduly prejudice or interfere with their own operations.

The protections for the operators contained in these arrangements are important. The obligation is to carry freight, not allow use of the track. The traffic on the Pilbara

40 See www.treasurer.gov.au/tsr/content/publications/nationalaccessregime.asp.

41 There has been much discussion about whether the National Access Regime is having its intended impact — for example, in submissions to the Productivity Commission review. One difficulty seems to be in the definition of a market, with apparent differences between the economic and at least some legal interpretations of the term.

heavy haul railways needs to be closely controlled if the rail systems are to operate efficiently. As discussed below, experience elsewhere shows how difficult it is to achieve efficiencies approaching those of the Pilbara where a number of train operators have to be accommodated on a track system. The safeguard against undue prejudice or interference, besides being equitable, was also clearly necessary to allow efficient operations to be maintained.

Since the original State Agreements were put in place, some subsequent agreements between the Western Australian Government and the iron ore producers have confirmed or extended the framework for third party access to the rail system. The scope of the 1987 Rail Transport Agreement between BHP Billiton and the other Newman participants and the state was recently confirmed by the Western Australian Court of Appeal.[42] The October 2001 agreement between Hamersley, Robe and the Western Australian Government facilitated a form of infrastructure sharing between two of the Pilbara iron ore producers that allowed the formation of Pilbara Rail Company. This proved to be such an effective way of making more efficient use of existing rail infrastructure that the arrangements were extended and broadened with the establishment of Pilbara Iron. It is significant that in the 2001 agreement the parties expressly acknowledged that:

> a generic or generally-applicable freight carriage arrangement is inappropriate, since individual agreements must be settled on a case-by-case basis as a function of their specific fact situations.

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[42] Hancock Prospecting P/L v BHP Minerals P/L [2003] WASCA 259.

Consequences of compelling access to Pilbara facilities

Compelling Pilbara iron ore producers to provide third party access to their facilities, through a mechanism such as the National Access Regime, would almost certainly have major consequences for the future of the Pilbara iron ore industry. Some are claiming that the Australian community would benefit, while others claim the opposite. Both sets of claims are examined here.

Benefits

The claimed dual benefits of compelling access are increased competition — it is widely accepted in Australia that there should be competition in industry — and increased benefits for the Australian community. It is claimed that the Pilbara iron ore industry is lacking competition and that compelling the present producers to provide access to its infrastructure in the Pilbara is necessary to remedy this situation. Compelling access would supposedly increase the size of the industry in the Pilbara and hence the volume of benefits that it is able to deliver to Australia.

Market power?

The key flaw in simplistically applying competition policy principles to the Pilbara iron ore industry is the failure to identify the market in which the purported market power will be exercised. Once it is recognised that the iron ore market is not a small domestic market but a large global market, the fact that only two producers from the Pilbara compete in this market is not a particular cause for concern.

Indeed, elsewhere in the Australian economy, government and industry have gone to considerable lengths to restrict the number of Australian suppliers to large global markets for products such as wheat. While the benefits to producers of the single desk selling policy for Australian wheat are often debated, no one has suggested referring it to the Australian Consumer and Competition Commission because it operates against the interests of the Australian community by conferring undue market power.

If the Pilbara producers were to restrict the supply of iron ore their actions would have an effect on price only in buoyant market conditions and for a short time. Other suppliers would move quickly to fill any shortfall in meeting demand, undoing most if not all of the impact on price. The sole net result of the Pilbara producers pursuing such a strategy would be lower sales and revenues.

The conditions in the global market over the past two or three years — the strength of demand and the limited capacity for suppliers to respond quickly — have been the most propitious for exercising any such market power that might exist. Yet the response of the Pilbara producers to this situation has been the exact opposite. Rather than restrict supply, they have worked their current assets as hard as possible, setting annual production records, and have greatly accelerated the pace of capacity expansions.

Perhaps the situation was best summed up by the Prime Minster's task force, which concluded that:

> As a nation, Australia has a strong interest in the efficiency of export oriented infrastructure. However, it is important to remember that export industries operate in competitive world markets. Producers have little ability to increase price above the competitive level, as they are largely price takers for the final output. As a result, Australia's export chains are strongly exposed to world market disciplines, and hence have strong incentives to be, and remain, efficient.
>
> Moreover, even in those rare instances where there is scope for export prices to be profitably increased, those increases are in Australia's long term interests.[43]

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[43] Exports and Infrastructure Taskforce, p. 38.

A larger industry?

The principal claim for compelling access is that more players will be induced to enter the industry, thereby increasing its size and capacity to deliver benefits. This conveniently overlooks the possibility that imposing such a regime may reduce the current and future outputs of the current operators (which is examined in more detail below).

The obvious question is who might enter the industry. The Western Australian Government periodically reviews the iron ore industry. The most recent review includes a section on proposed new projects.[44] Of those proposed in the Pilbara, all but two were by companies that own or have negotiated access to the required rail systems.

One of these new projects is Hope Downs. The progress of this project demonstrates the industry's capacity to execute worthwhile projects without regulatory compulsion. The project proponents initially attempted to use regulatory and judicial processes to obtain access to existing rail infrastructure for the project, but ultimately reverted to commercial channels and a competitive tender process. This resulted in a joint venture with Hamersley Iron that enabled the project to proceed. The mine is scheduled to produce ore by 2008, much earlier than would otherwise have been possible, and the new development will reap the full benefits of integrated operation. It is estimated that the project will add around $1.5 billion to Australia's annual export revenues at current prices.

The other project is based on Mount Nicholas and Mindy Mindy and managed by Fortescue Metals Group Limited. Initially, the proposal was founded on the company building its own rail and port facilities and offering them on a common-user basis through negotiated commercial

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[44] Western Australian Government, *Western Australian iron ore industry 2003*, Department of Industry and Resources, Perth.

infrastructure access arrangements.[45] More recently the proposal involves an independent rail line only to Cloud Break and Christmas Creek and the company has moved to seek access to the BHP Billiton rail system using Part IIIA of the Trade Practices Act discussed earlier. The outcome of this application is yet to be determined.

While it is difficult to identify other substantial resources that would be economic even under a regime biased in favour of new entrants, other projects could conceivably be developed if compulsory access to the rail systems were imposed. Given the experience of Hope Downs and the other examples of joint ventures quoted earlier, there must be a reasonable likelihood that any emerging, worthwhile project would be developed without need for regulatory compulsion. It seems likely, therefore, that any additional projects called forth by such regulation would be small and commercially marginal.

Costs

Experience elsewhere suggests that the immediate effect of compulsory access would be the disruption of existing operations and a consequent reduction in output and exports. This disruption would reduce the return on the resources invested in the existing infrastructure and deter future investment. Expansion of infrastructure is also likely to be much more complex if a number of parties have an interest in the outcome. There is also the 'chilling effect' identified by the Productivity Commission in the earlier quote. Additionally, the entry of a number of small producers may increase the volatility of the iron ore price

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[45] As described in *Western Australian iron ore industry 2003*, the railway would be built in two stages, first to service the Mindy Mindy mine, with a subsequent extension to the Mount Nicholas area in the Chichester Ranges where the company is now pursuing the development of other resources, including Cloud Break and Christmas Creek.

and thereby the risks confronting potential investors in the industry.

Disruption

The difficulties of coordinating multiple users of a busy facility can be substantial. In a recent submission to the National Competition Council, BHP Billiton showed that:

> It is clear from TSG's modelling analysis that BHPBIO's rail infrastructure does not have the capacity to absorb third party traffic without significant adverse impacts on BHPBIO's throughput of iron ore.
>
> These direct operational performance consequences may, however, be offset by significant additional track infrastructure.
>
> To accommodate 45 mtpa from Cloud Break on the Mt Newman and Goldsworthy production systems, 152 km of double tracking is required (assuming FMG uses trains that perform 20 per cent poorer than BHPBIO's trains). That is, all of the Mt Newman line that FMG would use, would need to be replicated to accommodate this extra volume of iron ore. To accommodate 10mtpa from Mindy Mindy on the Mt Newman and Goldsworthy systems, 44 km of double tracking would be required (assuming FMG uses trains of equal performance to BHPBIO's trains).[46]

Experiences with the Hunter Valley rail system are also instructive. Studies of the impact of accommodating coal for domestic consumption on rail lines used for export coal in the Hunter suggest that 8 per cent of system capacity would be lost, even assuming that operations were closely coordinated. An indication of the significance of such an impact is that 8 per cent of the capacity of the Pilbara iron ore production system has a net present value of around $12 billion. It was also noted that failures to meet agreed

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46 BHP Billiton, *Modelling and related submissions to the National Competition Council in response to draft recommendation*, 4 November 2005, document 3, p. 13.

schedules imposed further serious losses.[47] Multiple-user port infrastructure has experienced such problems. In March 2004, more than 50 ships were queued off the port of Newcastle awaiting loading, a number well in excess of that of any other port worldwide.[48]

If the Pilbara iron ore producers are to gain maximum benefit from the rapid growth in the demand for iron ore in China, they must to be able to respond quickly. Imposing a regime that introduces significant further complexity, uncertainty and capacity constraints to such a key part of the iron ore production process would significantly impede the industry's ability to respond. Present circumstances are such that the resulting damage could be considerable.

Difficult to coordinate expansions

The difficulties of securing rapid expansions in capacity when market conditions suddenly become more favourable were well summed up by the Prime Minister's task force, which noted:

> Difficulties in the response of infrastructure providers to changes in demand can also arise from the need to ensure coordination of investment decisions between the infrastructure owner and the users of that asset. Coordination may not readily occur if the transaction costs it entails are high — for example, when the common infrastructure is used by large numbers of firms with divergent interests. Even when the number of users is relatively small, the task of efficiently coordinating investments in infrastructure services may pose substantial challenges.
>
> Some of these challenges relate to the need for physical coordination of investment. For example, a port provider may

47 Internal Rio Tinto document.

48 For a discussion of the impact of ship queues on the coal industry on the east coast of Australia, see *Xstrata coal submission to the Infrastructure Taskforce* <www.infrastructure.gov.au/submissions/XstrataCoal/xstratasubmission.pdf>.

> expand capacity consistent with an expansion of the mines it services, but this will be an incomplete solution if the rail line running to the port remains constrained. Poor information flows between infrastructure owners, and between owners and users, can contribute to bottlenecks if it leads to a situation where interdependent infrastructure is not expanding in a coordinated manner. The difficulties associated with physical coordination of complementary investments are, however, greatly complicated by disputes over the division of the gains from those investments.
>
> Historically, vertical integration between infrastructure providers and the activities that most rely on their services has been a way of avoiding these complications.[49]

As the task force itself recognises, the outstanding example of integrated operation in an Australian bulk export industry is the Pilbara iron ore industry. As already noted the task force points out the dramatic difference this has made to the performance of the industry in responding to the sharp acceleration of demand for imported ore in China.

In the Pilbara, compelling access could lead to enterprises of very different scales attempting to share infrastructure. In addition to the difficulties noted above, such enterprises are likely to have sharply different sizes of resource and hence different strategic priorities as well as different approaches to technology.

Sovereign risk

Compelling owners of infrastructure, which they built and paid for in order to run integrated operations, to provide access to others constitutes an infringement of the facility owner's normal legal rights. Much of the discussion of Part IIIA of the Trade Practices Act and its application — in the Hilmer Report and by the Productivity Commission — emphasises dangers. A principal danger is that future

49 Exports and Infrastructure Taskforce, pp. 17–18.

investment will not be undertaken for fear that the facilities it creates will be made subject to compulsory access arrangements. This danger is particularly acute in capital-intensive industries that are sensitive to perceived sovereign risk. Iron ore mining falls into this category.

The House of Representatives Standing Committee on Communications, Transport and Microeconomic Reform, which produced the report *Tracking Australia* in 1998, recognised the issue when it noted that:

> The potential disruption of third party access to highly integrated operations, such as mine to port hauling operations, may also have implications for future investment in private infrastructure … one obvious concern is that the private sector may simply stop investing in the development of infrastructure facilities where uncertainty over potential third party access exists.[50]

As discussed earlier, the success of the Australian iron ore industry has been made possible by the very significant infrastructure investments of Rio Tinto, Robe and BHP Billiton. Those investments involve significant commercial risks. The imposition of an open access regime is likely to add significantly to the risks associated with infrastructure investment in the Pilbara and to act as a substantial disincentive to any future investment.

Since the Keating report[51] the Western Australian Government has been making efforts to improve the processes for approving major projects in recognition of the importance of remaining competitive in the fiercely competitive market for global investment funds. A policy change of the magnitude of open access could sharply

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50 House of Representatives Standing Committee on Communications, Transport and Microeconomic Reform, p. 74.

51 Western Australian Government, *Review of the project development approvals system*, Department of Industry and Resources, Perth, 2002.

increase investor's estimates of the sovereign risk associated with investment in Western Australia, undermining many of the efforts made to make it more attractive.

Industry dynamics

Facilitating the entry of small, commercially marginal operators risks destabilising the industry as occurred in the coal industry in New South Wales. Here a move away from long-term contracts to spot purchases of coal made it easier for small, marginal producers to enter the industry, but resulted in extremely aggressive tendering that took prices temporarily below sustainable levels. The resulting boom and bust cycles reduced the return on investment in the industry while sharply increasing the risk.

Given the scale of investment required in iron ore, if that experience with coal were repeated with iron ore, the results could be extremely deleterious. Higher risk implies less (perhaps substantially less) investment, a slower rate of development of iron ore resources in the Pilbara and a loss of global market share. Lower production volumes because of reduced investment imply a smaller contribution from the industry to economic activity and fewer benefits for Australians.

Although prices on average might be no different over the cycle, customers would not welcome their greater volatility and the periods of extreme tightness of supply in the boom times.

It is noteworthy that the recent recovery of the coal industry in New South Wales has coincided with most of the smaller players exiting the industry.

In conclusion

It would seem less than prudent to run the significant risks that compulsorily giving third parties access to infrastructure clearly carries unless a strong case can be made that substantial public benefit is likely to accrue from pursuing that course. Such a case remains to be made.

The industry has shown great flexibility in the arrangements it has devised to ensure that worthwhile projects are undertaken while retaining the substantial benefits of integrated infrastructure operation. It is difficult to identify any case where the present arrangements have prevented a worthwhile project proceeding.

4 CONCLUSIONS

The iron ore industry in the Pilbara ought to have a bright future and make a significant contribution to the welfare of all Australians. Whether that potential is realised depends on the policy decisions now being contemplated. A significant alteration to present property rights, which have underpinned the prosperity of the industry, could markedly dim that potentially bright future, to the detriment of Australia.

China's demand for imported iron ore shows no signs of slowing. In a recent survey of China, the OECD concluded that:

> The pace of economic change in China has been extremely rapid since the start of the economic reforms just over 25 years ago. Economic growth has averaged 9½ per cent over the past two decades and seems likely to continue at that pace for some time.[52]

In its most recent review of the outlook for Australian iron ore exports ABARE noted that:

> … Australian iron ore exports are projected to increase by 56 per cent over the outlook period to reach 375 million tonnes by 2011. At that time, Australia is forecast to account for 43 per cent of world seaborne iron ore trade. Australia's export earnings are projected to rise to over $18 billion (in 2005–06 dollars) by 2007–08 …[53]

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52 OECD, *Economic Surveys: China*, 2005, p. 16.

53 ABARE, *Australian Commodities, March Quarter*, vol. 13, no. 1, 2006, p. 23.

The history of the industry reflected in this publication portrays a capacity to capitalise on this opportunity and make the next four decades an even greater success story than the past four have been. Most of the factors that have underpinned that success remain in place. The only significant question lies over the policy environment.

There is a clear thread of independent expert opinion — through the Hilmer report, successive reports of the Productivity Commission and the House of Representatives, the Reserve Bank and, most recently, the Prime Minister's task force — supporting the view that the integrated operations of the iron ore producers in the Pilbara are a source of national wealth and not a cause for concern. By taking careful note of this accumulation of evidence, policymakers can ensure that the Pilbara's potentially bright future is realised. If they ignore it, by the end of the 21st century the history of the Pilbara may be considered a sad tale of lost opportunity.