



SPECIAL REPORT

FUELLING THE DRAGON

Natural
resources
and China's
development

August 2012





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Natural resources and China's development



Contents

Abstract	2
Prefaces <i>President John A Kufuor; Prime Minister Raila Odinga; H.E. Mr Erastus Mwencha; The Hon Julie Bishop MP; Senator the Hon Bob Carr</i>	3
Introduction.. .. . <i>Greg Mills, Terence McNamee and Peter Jennings</i>	7
China's growth and its impact on resource demand and the iron ore trade <i>Peter Drysdale and Luke Hurst</i>	11
Africa and China: between debunking and disaggregation <i>Greg Mills</i>	40
Chinese traders: the opaque underbelly of China's presence in Africa <i>Terence McNamee</i>	53
China and Latin American resources – some trends and implications <i>Patrick Esnouf</i>	56
Conclusion <i>Greg Mills, Alberto Trejos and Peter Jennings</i>	66

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Abstract

From 17 to 19 May 2012, the Australian Strategic Policy Institute and the Johannesburg-based Brenthurst Foundation co-hosted a major international dialogue on natural resource demand and China's economy. Held at the Royal Zambezi Lodge on the Zambezi River in Zambia, the event brought together experts and policymakers from Africa, Australia, Latin America and elsewhere, including Nigeria's former president, Olusegun Obasanjo, and senior Australian members of parliament, Senator David Feeney and the Hon Julie Bishop MP.

Neither Africa, nor Australia, nor Latin America has much (if any) control over the future trajectory of China's energy demand. In that sense, all resource-based economies reliant on exports to China are in the same boat. The end of the good times may not yet be nigh,

but China's current appetite for resources will eventually abate – and that could happen with cruel suddenness. This Dialogue examined countries that have used their natural resources wisely to develop their human capital, build resilience and diversify their economies – and those that have not. It concluded that, to be able to withstand any downturn in Chinese demand, this latter group, comprised mainly of African countries, had better start paddling quickly, or the shock may be too much to bear.

Four of the papers presented at the dialogue are reprinted in full here.

Key highlights from the discussions are included in this Introduction and in the Conclusion.

Prefaces

President John A Kufuor

I congratulate The Brenthurst Foundation, on whose Board I am proud to sit, and the Australian Strategic Policy Institute, for this report.

The growing role of China in Africa during the past two decades poses vital questions for African governments and societies.

China is hailed by some as the answer to many of Africa's key economic challenges, especially the continent's massive infrastructure deficit. Others, however, have questioned whether Africa's development – and African democracy – is best served by deeper Chinese involvement in our economies.

Of course, China's search for raw materials to power its booming economy is not restricted to Africa.

All countries whose economies are based largely on commodities exports will be affected by what happens in China. Whether Chinese demand for commodities remains at current levels or grows or falls – we will all feel the impact.

Consequently, it is my hope that this report, which brings together papers from a range of African and international experts, will help us to track and better predict the likely trajectory of China's natural resource demand, so that we may all be better prepared for whatever the future may hold.

John Kufuor was the President of the Republic of Ghana from 2001–9 and is a member of the Brenthurst Foundation's Advisory Board

Prime Minister Raila Odinga

Africa's prosperity will hinge on the strength of its civil society institutions, especially its think-tanks, which will help to position us to our best advantage in the global economy. The Brenthurst Foundation, with its range of international partnerships and associations, and its skill in identifying and applying best practice, is a trailblazer among thought leaders. Specifically I would like to extend my thanks to The Foundation and the Australian Strategic Policy Institute for this report.

Any mention of China in Africa is likely to elicit strong opinions – perhaps nowhere more so than in Africa. There can be no doubt that during the past two decades, many African countries – especially the ones rich in natural resources – have become dependent on the economic might of China.

China needs energy and minerals to drive its rapid industrialisation – and Africa has these resources in abundance. This is the fundamental basis on which the China–Africa relationship was forged and continues to grow.

But this is not the whole story. Many African countries have established strong political and cultural links with China.

Africa's traditional partners – the United States and the European Union – have been somewhat stunned by how quickly these relations have grown and deepened in recent years. They realise they have a lot of catching up to do, particularly in terms of trade and investment in Africa.

During the past two decades,
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economic might of China

Today, more and more companies from America, Europe and other countries, such as India and Turkey, are following China's lead and trying to get their slice of the new economic opportunities that Africa presents. I wish to state however that much as we welcome the new players, our relations with China are not at the exclusion of traditional US and European partners. We need everyone.

In early 2010, Kenya and China signed major infrastructure agreements that will help Kenya build

new transportation links between us and our neighbours. These transportation links will underpin not only Kenya's economic growth but also economic development throughout the East Africa region.

But of course Kenya, like the rest of Africa, needs to carefully and pragmatically manage our relations with China. China wields enormous economic and political power – and not just in Africa, as our Australian friends will attest. Consequently, it is incumbent on all of us to define exactly what our interests are in our relations with China and do our utmost to ensure that we protect and promote them. If we do that, there is every reason to believe

H.E. Mr Erastus Mwencha

China has changed international perceptions of Africa from a problem to be solved to an opportunity for business. Higher prices for African commodities have been achieved by a combination of Chinese demand and improved systems of African production and governance. However, China's own success poses a challenge for Africa's prospects for job creation. How can smaller African industries working in smaller markets compete with Chinese counterparts? A commodity boom provides a foundation for growth and state capacity. How we use that is all important to creating jobs. In this infrastructure is a means to an end; the means being great efficiencies enabling more investment and providing an environment in which the private sector will set up service and manufacturing industries.

Until we are clear about how we should develop, it is going to be difficult to devise strategies for engaging China or anyone else for that matter

Here we have two sets of policy considerations to consider: First, how should African countries best employ the resource dividend in terms of using tax and royalty revenues, and establishing local

that Africa's relations with China will be mutually beneficial.

That said, we have to take care to never put all our eggs in one basket. To guard against any sudden political or economic changes in China, African countries need to redouble their efforts to diversify their economies and develop new industries and export markets. If we don't, we will not only leave ourselves and our people vulnerable – but we will also stand little chance of building on Africa's recent impressive economic growth.

Raila Odinga is the Prime Minister of Kenya

procurement strategies – all with the aim of spreading the benefits. Second, how to define Africa's own development path and strategy. Until we are clear about how we should develop, it is going to be difficult to devise strategies for engaging China or anyone else for that matter. Development starts at home, not elsewhere. Part of this is the need to establish and refine institutional capacity through which to encourage best policy practice and international standards in government-like business. In all, we have to abandon the old state-versus-market debates. We need both; an efficient state and a vibrant private sector: the former to provide the enabling environment, the latter to employ Africans.

Africa's average per capita income is \$1 190. If we grow at 5 per cent per annum, we will double this by 2027, a very long time; if we grow at 10 per cent, it will double by 2020, the sort of rates of growth China has enjoyed consistently over some decades. We thus have to find the means to raise our growth rates considerably to meet expectations, and this will help to ensure job opportunities are created.

Like China in Africa, this presents both a challenge and a tremendous opportunity.

I thank The Brenthurst Foundation and the Australian Strategic Policy Institute for this informative report from which there is much to learn.

Erastus Mwencha is the Deputy Chairperson of the African Union Commission and a member of the Brenthurst Foundation's Advisory Board

The Hon Julie Bishop MP

I extend my thanks and congratulations to the Australian Strategic Policy Institute and The Brenthurst Foundation for establishing and hosting the dialogue on China's future resource demands.

The dialogue provided vital insight into Australian, African, and Latin American interests in China's growth and long-term natural resource demands. This report brings together the rigorous and insightful discussion which occurred at the dialogue in Zambia.

The world has been impressed by China's economic development, noting its immense strategic significance and the opportunity for China to play an important role on the international stage.

Australia has been among the greatest beneficiaries of China's economic re-emergence.

China is Australia's largest trading partner and our relationship over mineral resources has benefited Australia's economic security and China's rapid industrial growth.

One of the challenges for Australian policymakers is to continue to reap the benefits from China's economic growth while ensuring our resources sector remains internationally competitive and not over-burdened by federal government red-tape and additional taxation.

It also means finalising a free trade agreement with China at the earliest opportunity to assist Australian resource, manufacturing, and service industries gain improved access to the world's largest market.

This year marks the fortieth anniversary of the reopening of diplomatic relations between China and Australia.

Under the Howard government, this relationship was firmly built on friendly and constructive foundations underpinned by mutual respect and shared interests in the Asia-Pacific region.

China is one of Australia's most important foreign policy priorities. The Coalition is committed to broadening, deepening, and diversifying our relationship with China.

This report reflects China's importance for Australia and our resource industry, and it also signals Africa's increasing attractiveness for foreign investment.

Africa is estimated to have one-third of the world's mineral resources in diamonds, gold, uranium, and iron ore. Africa is a more stable investment environment than it was a decade ago and it is increasingly prosperous.

The International Monetary Fund forecasts that seven of the world's top ten performing economies between 2011 and 2015 will be in Africa, and many countries in Africa have already benefitted from China's economic growth. Investors from China are active throughout Africa, particularly with regard to mineral and energy resources, and it is expected that activity will expand.

Australia is a nation that has recognised and established prosperity through industries shared by many countries in Africa. Land based industries, including mining, account for over half of Australia's export earnings. As demand for natural resources increase, Australia and Africa will face shared challenges and opportunities.

Australians are increasingly engaging with Africa as it embraces greater freedoms and democracy including the peaceful resolution of some long running conflicts, greater economic reforms, trade and investment.

Africa is estimated to have one-third of the world's mineral resources in diamonds, gold, uranium, and iron ore

It is my hope that Australia continues to forge stronger economic, and people to people bonds with the countries of Africa. A key part of this relationship in the coming years will include the transfer of knowledge and skills, particularly in the areas of science and engineering. This is already under way, with Australian mining and resource companies taking their expertise to the continent.

Over 200 Australian mining and resource companies are currently investing in significant projects in Africa. Australian companies operating in Africa can bring benefits through greater tax revenue to governments, by providing direct and indirect employment opportunities, and delivering capacity

building programmes close to the area of mining and resource activity.

Our two great continents border the Indian Ocean. With two-thirds of the world's oil and gas shipped through the Indian Ocean, Australia and Africa rely on safe and open sea lanes to trade with other nations. Australia endeavours to strengthen its relations with Africa through coordinating common objectives and mutual interests.

This important report shows that China's long term natural resource demands will have

wide-reaching implications for both Australia and Africa.

It is my hope that ASPI and the Brenthurst Foundation continue to inspire a dynamic conversation on this subject, and Australia's broader relations with Africa.

The Hon Julie Bishop is the Deputy Leader of the Federal Opposition and Australia's Shadow Minister for Foreign Affairs and Shadow Minister for Trade

Senator the Hon Bob Carr

I'd like to congratulate the Brenthurst Foundation and the Australian Strategic Policy Institute for producing this report on China and natural resource industries in both Australia and Africa.

The subject is of vital concern to Australia. China is our largest trading partner. It takes 25 per cent of all exports. And China has turned to us for around 44 per cent of its iron ore imports. In the future we will be China's largest source of liquefied natural gas.

Forty per cent of all Australian mining projects overseas are in Africa

So a report that examines China's long-term demand for raw materials focusing on Australian and African perspectives is timely. It should contribute to a better understanding of China's future economic development.

In the past five years, the web of relationships between Australia and Africa has grown significantly. This is driven by growing commercial ties and economic opportunities. Today there are over 200 Australian mining and resource companies involved in over 650 projects right across the continent of Africa.

Forty per cent of all Australian mining projects overseas are in Africa. Australian miners have already invested \$20 billion, with a similar amount in the pipeline. Bilateral merchandise trade, much of it off the back of this investment, is currently \$9 billion annually, and has grown at more than 6 per cent per year for the past decade. In some countries in Africa, Australian projects are the biggest single investment and responsible for the bulk of foreign exchange earnings.

The Australian Government took a conscious decision over five years ago that our official relations with Africa were underdone, and failing to keep pace with our growing commercial and other interests on the continent. Since 2007 we have gone about remedying this.

We now have diplomatic relations with all African countries – opening an embassy in Ethiopia and shortly in Senegal, establishing honorary consuls in other countries, becoming observers to all the major sub-regional organisations.

I believe this report will serve to strengthen our long-term relations with Africa and I congratulate all those who were involved in its preparation.

Senator the Hon Bob Carr is Australia's Minister for Foreign Affairs

Introduction

From 17 to 19 May 2012, the Australian Strategic Policy Institute and the Johannesburg-based Brenthurst Foundation co-hosted a major international dialogue* on *Natural resource demand and China's economy*. Held at the Royal Zambezi Lodge on the Zambezi River in Zambia, the event brought together experts and policymakers from Africa, Australia, Latin America and elsewhere, including Nigeria's former president, Olusegun Obasanjo, and senior Australian members of parliament Senator David Feeney and the Hon Julie Bishop MP. Four of the papers presented at the dialogue are reprinted in full here. Key highlights from the discussions are included in this Introduction and in the Conclusion.

China's economic growth has averaged about 10 per cent over the past two decades. To power its booming economy, China needs natural resources – particularly oil, gas, coal and iron ore. In the past five years alone, mining exports to China have risen by 140 per cent. This seemingly insatiable demand for resources has underpinned the growth of resource-based economies in many parts of the world, especially in Africa but also, to a significant but lesser extent, in Australia.

China is Africa's biggest trading partner and gets a third of its oil needs from the continent, though Africa contributes only a tenth of the world's oil supply. China is also Australia's biggest trade partner and is the top destination for Chinese overseas investment, even though it accounts for only 2.7 per cent of foreign direct investment stock in Australia. Resource exports to China have sustained high levels of growth and largely insulated the Australian and many African economies from the worst of the global financial crisis. For instance, Australia is one of the world's largest exporters of iron ore, which, due to Chinese demand, went up in price from \$12.68/tonne in 2001 to \$187.18/tonne in 2011.

This dependence on Chinese demand raises many questions for policymakers in supply countries, not least about managing risk: forecasts for both the scale and longevity of China's resource-intensive growth

vary widely. Some experts are bullish about China's economic future, while others have issued stark warnings that its growth is unbalanced, vulnerable and unsustainable. Recently, Michael Pettis, a notably bearish Peking University professor, suggested that China's growth rate over the next decade will max out at 3.5 per cent annually, with consequent impacts on commodity prices, including the prices of food and minerals. Such uncertainty has prompted a renewed emphasis in many resource-export countries on devising medium- and long-term scenarios based on Chinese growth estimates.

Of course, China's increasing role and impact in other countries isn't restricted to the resources sector. The Chinese diaspora numbers around 50 million people across all continents. Along with labourers and construction workers on major Chinese-funded infrastructure projects, huge numbers of them are engaged in trading and small businesses.

To power its booming economy,
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There are also sharp regional variations in China's overseas involvement, as evidenced by research from Latin America. China's resource appetite has driven some important bilateral relationships – China takes about a quarter of Chile's exports by value – yet Chinese investment in the region overall is still very low at just 5 per cent of its spend. What's more, although Chinese investment is expected to rise, Beijing faces stiff competition for good opportunities in Latin America – often from local corporations and particularly in the more competitive countries.

For all the hype surrounding China's explosive economic growth and its expanding global reach and interests, it's a power still rooted in the Asia-Pacific region. China's defence spending has increased rapidly in recent years, but the focus remains (for the

* As per the dialogue's rules, no participant is cited directly in the Introduction or Conclusion to this publication. Nevertheless, the Brenthurst Foundation and ASPI wish to thank all the participants for their contributions, written and oral.

time being) overwhelmingly on territorial and maritime security requirements rather than on a global military role. Beijing's principal security concern is, as ever, internal. The downfall of seemingly impregnable regimes in Egypt and Libya in 2011, as well as the unrest in other countries caught up in the Arab Spring, has alarmed China's political establishment. Internal stability and the control of the Chinese Communist Party are foremost in their strategic thinking. They're deeply attuned to their own vulnerability to pressures for internal reform, and that's certain to affect how China shapes its relations with other states in the future. Beijing would prefer not to deviate from its longstanding public position of not seeking to interfere in the internal politics of other countries, but it's clear that such a policy couldn't work in the face of regime changes such as in Egypt and elsewhere.

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How China's future industrialisation – and thus its requirement for energy and other resources – will be affected by the current domestic restructuring, the global financial crisis and the turmoil over sovereign debt in the Eurozone is an open question. However, several factors are likely to boost Chinese demand, including a further rise in per capita incomes, widening urbanisation, increased Chinese trade and greater market penetration by automobiles. Conversely, some developments are likely to reduce demand, such as political instability, a sharp change in trade orientation, a global economic imbalance, a shift from a capital-intensive, export-oriented economy to an increasingly domestically focused, consumptive one, or a transition towards low-carbon growth in a move to reduce the high pollution and energy intensity characteristic of China's economic growth to date.

In preparing for a shift in Chinese demand, resource-based economies first need to ask themselves some hard questions about the nature of their

relationships with Beijing. In Africa, Australia and to a lesser extent Latin America, political and economic relations with China have clearly strengthened over the past decade. At the same time, while Latin America remains generally less occupied with China's growing influence, Australia and many African countries share a sense of unease over Beijing's motives and intentions. Such uncertainty has bred some suspicion and distrust even as economic relations have grown massively.

In Australia, a 2012 survey found that more than half of Australians are opposed to Chinese investments. There's also a vibrant debate in the country over the growing role of China and whether Australia must choose between cooperation with one of its major economic partners, China, and its key security ally, the US. This debate is brought into sharper focus by the growing diplomatic, economic and strategic involvement of China in the South Pacific islands.

The issues of proximity and growing Chinese military strength don't feature in the African debate over China, though it's no less contentious for that. China's expanding role in Africa can be defined by a range of statistics. Annual two-way trade has risen from under \$5 billion in the mid-1990s to touch \$150 billion today; Chinese investment totals \$40 billion today, up from virtually zero 15 years ago; the number of Chinese working in Africa is estimated to have increased tenfold to around 1 million over the past 20 years.

Chinese migration to Africa is arguably the most controversial of these phenomena, and poses a number of social and political challenges for African governments. Local backlashes against Chinese merchants – often due to perceptions that their 'success' comes at the expense of local workers and industries – have occurred in communities across the world, yet the place of Chinese workers and businesspeople in African societies is arguably more precarious and contested than elsewhere. At the same time, the massive influx of low-cost Chinese goods into some economies, especially in Africa, has proved a boon to poor consumers who were previously unable to purchase almost any manufactured product.

Where Africa and Australia diverge sharply is in their stages of economic development, so a different set of questions emerges about China's impact on each. Australia is the 13th largest economy in

the world and has the 5th highest GDP per capita. By contrast, Africa is the poorest, most indebted (in relation to gross national product) and least developed continent.

South Africa, which alone accounts for over one-third of the entire GDP of sub-Saharan Africa, is a notable outlier. South Africa's relative economic strength perhaps explains why South African companies are generally less wary and more welcoming of Chinese involvement in Africa, which is seen to deliver significant market-expanding benefits. The one exception is the manufacturing sector, which bears the brunt of competition with Chinese imports. Otherwise, most South African enterprises have not (yet) experienced direct competitive pressures, while others have either entered into formal partnership arrangements with Chinese companies or are contemplating them.

Elsewhere in Africa, however, the impact of China's deepening engagement on countries' development is hotly disputed. Beijing trumpets the 'principle of mutual benefit and common development' in its official Africa policy, although critics charge that its strategy in Africa is neo-colonial and predicated on exploiting the continent's mineral commodities – which make up more than two-thirds of African exports – without regard for local consequences. Across the continent there are numerous countries – notably Nigeria and the Democratic Republic of Congo – in which resources have historically been developed to the *detriment* of Africans. China has been accused of exacerbating this problem, not least due to its policy of non-interference in countries' internal affairs, which is often blamed for sustaining repressive and non-democratic regimes. Moreover, some of the more lurid headlines in Africa suggest that China is flooding the continent with inferior surplus merchandise and plans to settle tens of millions of Chinese in African countries. In 2006, Michael Sata, who's now the President of Zambia, went so far as to say that he didn't want Africa to become the dumping ground for China's unwanted people and goods.

To be sure, the Chinese diaspora in Africa is likely to stay and grow, despite the myriad problems on the African street and the prospect of further tension and even violence against Chinese. That's not the case in Australia, where immigration laws and

labour laws, together with vigilant trade unions, have prevented any significant influx of Chinese workers and traders. Labour laws, including English language requirements and minimum wage rates, are strongly enforced in Australia, unlike in Africa. As a consequence, unskilled Chinese workers haven't had much opportunity to contribute, despite Australia's shortage of skilled labour and construction workers.

Some of the more lurid headlines in Africa suggest that China is flooding the continent with inferior surplus merchandise

The entry requirements for Chinese migrants to Africa are far less stringent than Australia's, although a few African countries, such as Botswana and Ghana, have introduced forms of indigenisation legislation aimed at curtailing the activities of Chinese (and other foreign) traders in particular sectors. How rigidly they'll be enforced, however, is as yet unknown.

A common strategic interest in the 'China factor' is an increasingly important link between Australia and Africa. The relationship is multifaceted and underpinned by a host of different private sector interests and bilateral government-to-government ties. Given the mutual reliance on resources-based industry, much of the cooperation is in the mining sector, where considerable work's been done by Australian firms to strengthen training and research in Africa and to provide technical assistance. Interestingly from the Australian perspective, they're engaging more and more with China on the African continent – as much as with their traditional partners, Europe and the US.

It's primarily Chinese market demand that's fuelling Australian exploration and mining developments in Africa. The most outstanding example is perhaps the Rio Tinto – Chinalco iron ore development partnership in Guinea. Some 'Australian' companies are, in fact, majority Chinese-owned but with an 'Australian' face – such as Globe Metals in Malawi and Minmetals in Zambia. Mindful of sometimes negative perceptions about Chinese companies, Beijing sees this as a positive way to go, so

Chinese entities are increasingly the direct owners of Australian resource assets or investors in Australian resource companies. According to a Chinese official, by 2015 China wants to import 50 per cent of its iron ore from Chinese-owned mines elsewhere in the world. Clearly, the Chinese are getting more sophisticated and are going to be more discerning and demanding in the future. They're now using Australian engineers to conduct due diligence for them on potential acquisitions.

China's Ministry of Commerce recently announced that over the next five years the aim is for Chinese investors to make US\$390 billion in overseas direct investment – the current global stock of which is US\$170 billion. This is a tremendous opportunity for potential Chinese investment destinations, especially as Beijing looks to build more sustainable long-term resource relationships. Africa may witness an increase in great-power competition, as the US, China, India and middle powers ranging from the Europeans to Australia, Canada and Brazil seek to establish or broaden existing commercial interests. Over time, a worldwide competition for global resources could put some African countries into stronger bargaining positions.

African countries, in particular, will need to be sensitive to the fact that China's policy objectives aren't always consistent with their own economic models and aspirations. There are also questions about Chinese business culture and the role of ethics in professional societies – which are still not always accepted by Chinese businesspeople, although the need for codes of practice has generally been respected by Chinese mining companies. Africa faces particular challenges in the face of Chinese investment opportunities, in that historically it's tended to view any outsider as a threat, as a force coming into the continent to illegally or illegitimately take what rightfully belongs to Africans. This largely explains why the continent remains locked in many of the same debates that have defined African political economy since independence: regional integration, import substitution, beneficiation, and the role of the state versus the market.

Neither Australia nor Africa should expect China to be any less tough a negotiator than it's been in the past. This may not always win Beijing friends.

The Chinese may have a long-term view, but at the same time they're very concerned about achieving a fast payback of capital.

There are many ways that host countries can mitigate the risks of investments turning sour, perhaps especially in the area of infrastructure, which can be highly political and subject to too-rosy assessments, cost overruns and the like. One model that might be useful for Africa is the APEC – Asia Pacific Infrastructure Partnership – a high-level body bringing together public sector, private sector and international financial institutions (IFIs) within APEC, where each can bring its own expertise to bear. The ministerial level identifies priorities, processes and resources; the private sector examines sponsors, contractors, short- and long-term financiers; and the international financial institutions bring experience, best practice, anticorruption skills and the like. Together, they can effectively filter out investments that are unlikely to have the desired local benefits when developed.

As Australia operates more and more in the African space, it too is bound to become more engaged on the issue of whether China will reduce its support for unpalatable regimes and adhere more closely to global norms. If China strengthens support for well-regulated and predictable business, that can only be a good thing for Africa.

Neither Africa, nor Australia, nor Latin America has much (if any) control over the future trajectory of China's energy demand. In that sense, all resource-based economies reliant on exports to China are in the same boat. The end of the good times may not yet be nigh, but China's current appetite for resources will eventually abate – and that could happen with cruel suddenness. The countries that have used their natural resources wisely to develop their human capital, build resilience and diversify their economies will be able to withstand any downturn in Chinese demand. Those that haven't had better start paddling quickly, or the shock may be too much to bear.

Greg Mills, Director of the Brenthurst Foundation, *Terence McNamee*, Deputy Director of the Brenthurst Foundation and *Peter Jennings*, Executive Director of ASPI

China's growth and its impact on resource demand and the iron ore trade

Peter Drysdale and Luke Hurst, Crawford School of Public Policy, Australian National University

Abstract

The paper sets out what has been driving Chinese demand for resources and outlines the main features of the growth of Chinese resource consumption. It explains the impact of Chinese growth on the Australian economy and examines the future of Chinese resource demand. It reviews the potential to supply Chinese resource (and in particular, iron ore) demand and looks at some policy questions that confront China, as a major resource-procuring economy

seeking resource security through foreign investment, and resource-supplying countries, such as Australia, in the context of the growth of Chinese demand. The paper argues that increased supply capacity in Africa and elsewhere in the world is likely to put downward pressure on iron ore (and potentially other resource) prices as new projects come on stream over the next five years.

Introduction

The past three decades have seen the remarkable emergence of China's economy as the world's second largest in terms of real output and third largest in terms of international trade. This was achieved through opening China to the international market, comprehensive economic and social reform, and ongoing structural change. As part of that process, millions of people shifted from rural to urban employment. China's GDP has grown at the unprecedented rate of 10 per cent a year for much of this period, and per capita incomes rose to US\$7 640 in 2010 in purchasing power parity (PPP) terms. Yet China still faces the challenge of developing the hinterland beyond its coastal regions.

China began its period of modern economic growth as a significantly isolated and self-sufficient economy. The density of its population relative to underlying resource endowments meant that rapid industrialisation and growth would inevitably see a dramatic transformation of China's trade structure from one in which raw materials were prominent exports to one in which energy and resources have come to dominate imports.

China has now emerged as a major player in overseas resource investment and development. India, too, is a growing player in international resource markets.

The international resource industry was dominated in its early days by North American and European investment, often through vertically integrated operations that incorporated the supply of metal products to industrial country markets. That pattern of development changed remarkably around 40 years ago, when Japan emerged as a major consumer of imported minerals and energy (Drysdale 1970). At the time, Japanese end-users had little capacity to invest in the huge overseas projects needed to procure the resources to fuel Japan's

China began its period of modern economic growth as a significantly isolated and self-sufficient economy

rapid industrialisation (Crawford et al. 1978). This was the era in which the emergence of the huge independent suppliers of resources to Japan – and eventually to the rest of East Asia – laid the foundations for the strength and competitiveness of the Australian minerals industry and Australia's leading minerals companies. They became leading suppliers of a whole range of products to the international market, including iron ore, coal, bauxite, alumina,

aluminium, copper, nickel, natural gas and uranium (Drysdale 1988, Drysdale and Findlay 2009).

China and India offer opportunity on a scale that already dwarfs established markets in Japan and the rest of Asia for the expansion of resource supplies from resource rich regions such as Australia and Africa, and have already triggered rapid growth in the Australian and African resource industries. As in the past, reaching full potential requires investment from Australian and foreign firms that are already significant players in the international resource business. Perhaps most importantly, it will encourage and require a large injection of additional capital from new investors, both foreign and domestic.

This paper sets out what has been driving Chinese demand for resources and outlines the main features of the growth of Chinese resource consumption. It explains the impact of Chinese growth on the Australian economy and examines the future of Chinese resource demand. It reviews the potential to supply Chinese resource (and in particular, iron ore) demand and discusses some policy questions that confront China, as a major resource-procuring economy seeking to secure resources supplied through foreign investment abroad, and resource-supplying countries, such as Australia, in the context of the growth of Chinese demand.

China's resource consumption

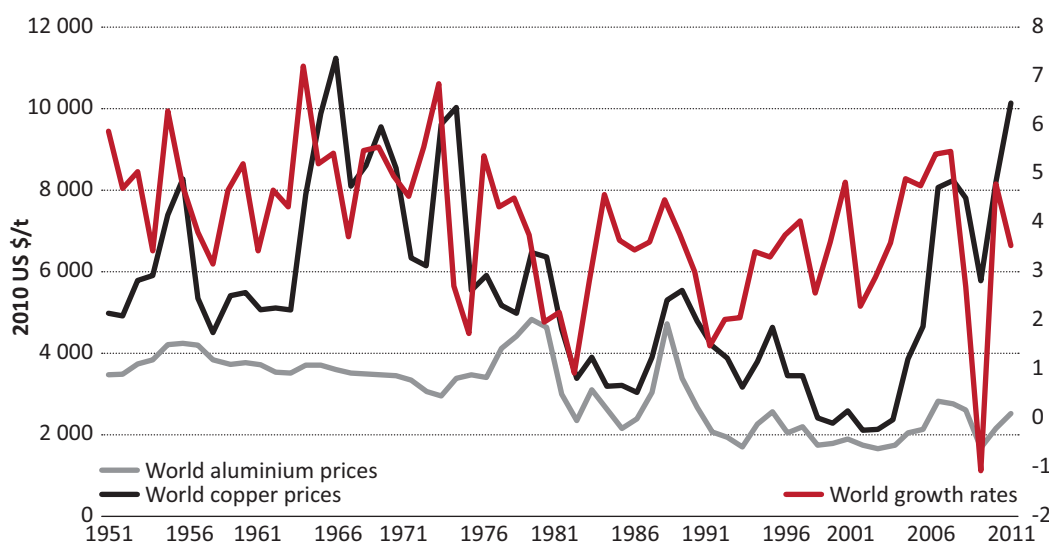
China's impact on global resource demand was initially modest, but that has changed dramatically in the past decade. It is now a large economy, and the inexorable growth in its demand for resources has brought unprecedented tightness to global commodity markets. Markets were taken by surprise with the sudden increase in Chinese demand from the early 2000s. Prices of iron ore rose nearly tenfold and prices of metallurgical coal around fourfold between China's accession to the World Trade Organization

(WTO) in 2001, which accelerated its entry to global markets, and early 2011 (see Figures 1 and 2).

What caused the exceptional energy and metal demand growth in China in the early 21st century? Strong economic growth is the start of the answer – but Chinese demand for energy and metal imports also grew much faster than economic output.

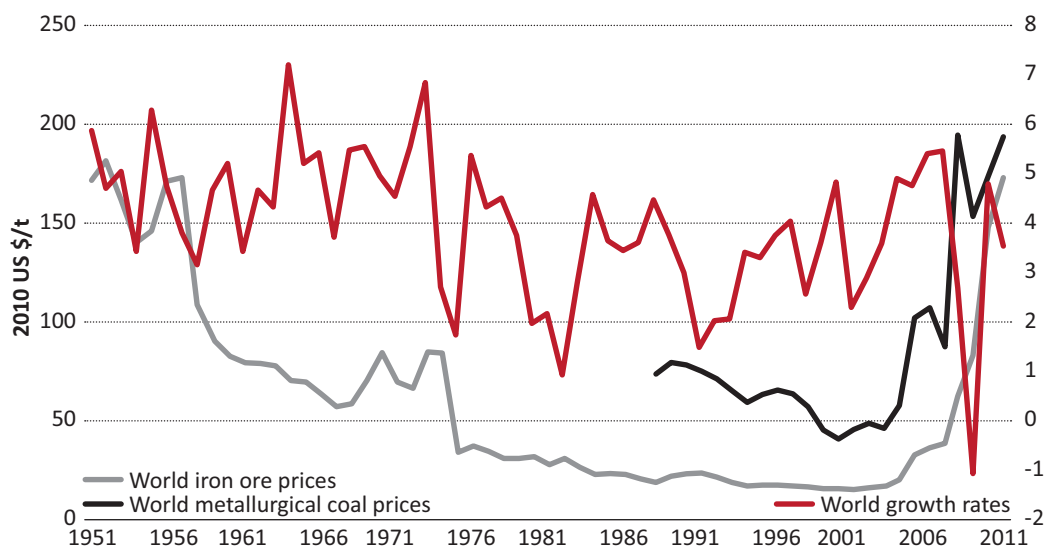
China accounted for over a fifth of the increase in global demand for petroleum, steel and copper, and for around half of the increase for aluminium and nickel, in the late 1990s, straddling the Asian

Figure 1: Aluminium and copper prices (real), 1951 to June 2011



Source: Garnaut (2011)

Figure 2: Iron ore and metallurgical coal prices (real), 1951 to June 2011



Source: Garnaut (2011)

financial crisis. For the first five years of the 21st century the Chinese share of global consumption growth rose for all energy and metals commodities, to over half for copper, nickel and aluminium. Between 2005 and 2010, China accounted for over 80 per cent of the increase in global demand for nearly all energy and metal products. Outside China, demand for nickel, copper and aluminium fell, but Chinese demand caused the growth of global demand to be strong enough to lift prices close to their highest levels (Garnaut 2011).

After the global financial crisis of 2008, high resources prices were driven overwhelmingly by Chinese demand: in the absence of the prodigious growth in Chinese demand for most energy and metallic mineral commodities, reasonable growth in the developing world beyond China would have merely offset the weakness in growth in developed countries, and prices would have languished below trend (Garnaut 2011).

China's per capita use of aluminium and copper has moved on a similarly upward trajectory. Aluminium use is, and has been, much higher in China than in other developing economies at similar levels of income. It is already on par with aluminium use in the US, and nearly as high as use in Japan. Other rapidly developing Northeast Asian economies reached peak levels of per capita use of copper that were more than five times (Korea) and three times

(Taiwan) current Chinese rates, but at income levels around three times Chinese levels (Garnaut 2011).

China's natural endowment of coal is richer than that of iron ore. As a consequence, old, autarchic approaches to the use of domestic raw materials were less distorting and had less impact on industrial efficiency than they did in the case of iron ore – the economic pressures for unwinding these approaches were less powerful. Nevertheless, Chinese imports of substantial quantities of metallurgical coal for the first time in the first decade of the 21st century also put upward pressure on world coal prices (Garnaut 2011).

The exceptional resource intensity of Chinese growth had several causes. Two related causes were central: rapid urbanisation; and a high and a rising investment share of expenditure (higher than in any other economy of substantial size, ever).

In order to satisfy the needs of its emerging middle class and continuing urbanisation, China produced 630 million tonnes (mt) of steel domestically in 2010. Around 86 per cent of that production used oxygen furnace technology, and the remainder used electric arc furnaces, which employ scrap steel instead of iron ore as the primary production input. Scrap steel is not yet a significant substitute for iron ore, the major input to oxygen furnace technology, and is unlikely to become one over the medium term (Song et al., forthcoming).

Despite the fact that China possesses the largest quantity of iron ore reserves globally (its production in 2010 was 900 mt), the average grade of Chinese iron ore is very low, at around 30 per cent ferric content. China's domestic reserves are largely in the country's north and west, making transportation to its steel mills, which are mainly in industrialised coastal provinces of the south, very costly. At an estimated US\$120/t and even higher at the margin, the production costs for Chinese iron ore producers are the highest globally; imports have thus become a more reliable and cost-effective solution for inputs into China's steel industry (MacDonald 2011, Mackenzie 2011).

it is helpful to look at how the resource commodities that China imports are actually used in industry to shed light on the direct sources of its resource demand

Assuming China continues on its expected growth path, its dependence on iron ore imports will increase as domestic producers struggle to raise their output in the face of rising domestic cost pressures through inflation, exchange rate appreciation and decreasing international freight rates (UNCTAD 2011).

Although the question of what drives Chinese resource demand is related to the question of what drives Chinese growth overall, it is helpful to look at how the resource commodities that China imports are actually used in industry to shed light on the direct sources of its resource demand. Data from various sources suggests that Chinese steel production in the 2000s was used in the construction (50–60 per cent), machinery (12–18 per cent), automobile (5–6 per cent) and home appliance (2 per

cent) industries, with at least a quarter of domestic consumption broadly being used by the 'manufacturing' sector (Roberts and Rush 2011).

Iron ore, aluminium ores, base metal ores and coal account for more than half of China's non-oil resource imports. Chinese consumption of imported iron ore and coking coal is driven by steel production (Roberts and Rush 2011). The country's steel industry has traditionally been weighted towards producing 'long' products and low-grade 'flat' products, both of which have important uses in residential and non-residential construction. But in addition to being used in construction, flat steel products – which account for a rising share of production – are used extensively in manufacturing, especially in appliances such as air conditioners and refrigerators, and in steel casing for vehicles. China's automotive manufacturing sector is now the largest in the world; it accounted (in gross output terms) for about 7 per cent of Chinese GDP in 2009 – a share that has almost doubled in the past 12 years (Roberts and Rush 2011).

Unlike iron ore demand, the bulk of aluminium ore (bauxite and alumina) demand is driven by the machinery, electronics and transport (particularly automobile) sectors, which together have accounted for around half of total consumption (Hunt 2004).

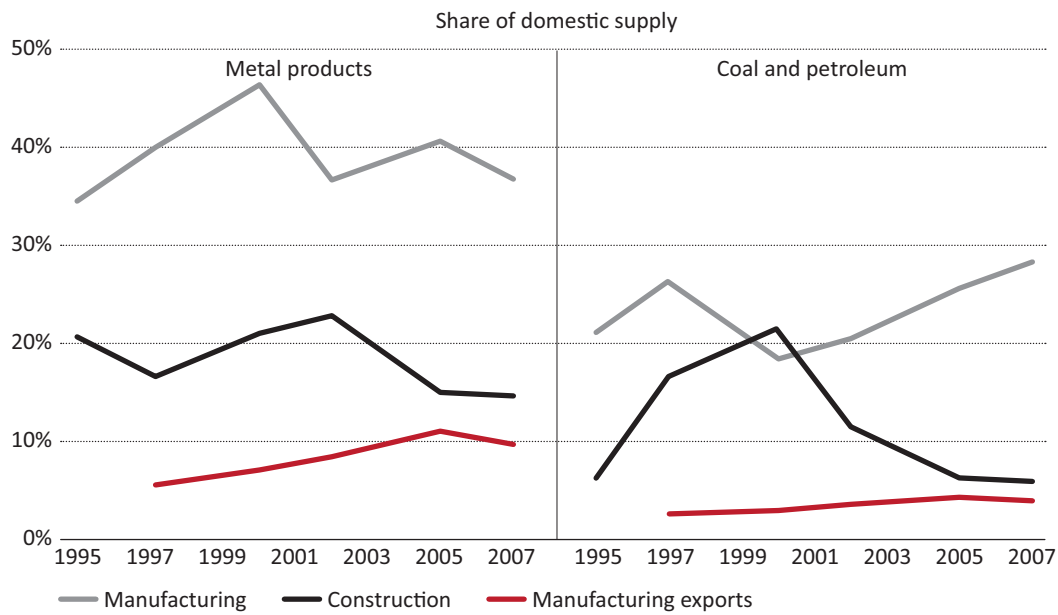
The chief industrial uses of copper are electrical and electronic products, engineering, construction and automobiles (Tse 2009). According to World Bank figures, 44 per cent of China's copper demand was used in construction and infrastructure (compared to a global average of around 33 per cent). Zinc and lead have important uses in manufacturing, especially in the automotive industry (Roberts and Rush 2011). It's not surprising that manufacturing accounts for a greater share of Chinese resource use than construction: manufacturing accounts for about 40 per cent of China's GDP, while construction accounts for only 6 per cent (see Figure 3) (Roberts and Rush 2011).

China's impact on the Australian resource trade

In 1999, China accounted for less than 5 per cent of Australia's total resource exports, whereas Japan accounted for 23 per cent. In the decade since then,

the growth of Australia's resource trade has been entirely focused on China. In 2010–11, minerals accounted for 30.1 per cent (A\$74.1 billion) of

Figure 3: Metal products, coal and petroleum – direct use by industry



Source: National Bureau of Statistics of China; Reserve Bank of Australia

Australia's total merchandise exports. In that year, China was Australia's top minerals export market at A\$44.9 billion, ahead of Japan (A\$12.3 billion), Korea (A\$8.2 billion) and India (A\$1.6 billion) (DFAT 2011).

Australia is currently experiencing a resources boom of historic dimensions thanks to a wealth of high-grade resources and relative geographical proximity to China. The strong complementarity between the Australian and Chinese economies and sustained and rapid resource-intensive growth in China has been an important element in Australia's strong economic growth, which continued despite the global financial crisis.

At the same time as contributing to higher minerals and energy prices, China's industrialisation has increased the supply of manufactured goods, the prices of which have remained lower than they otherwise would have. These shifts to higher resource prices and flat or even lower manufactured product prices have been especially beneficial to Australia, given its endowment of the factors of production and its patterns of trade (Findlay 2011).

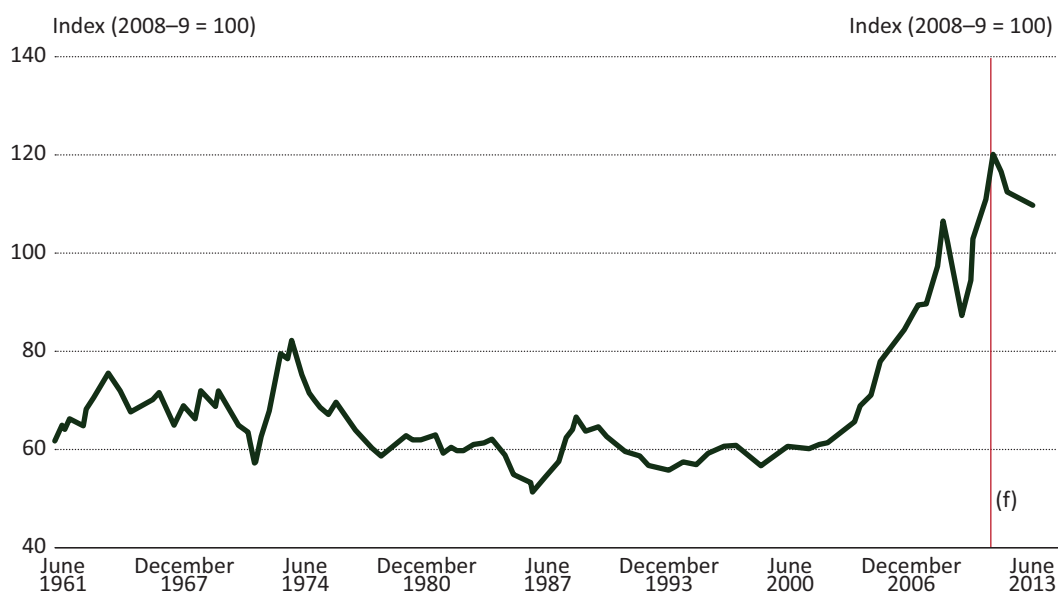
Australia's terms of trade have not been this high for more than a century (Figure 4). The price of iron ore has increased at an average annual rate of 23 per cent since 2005, and the price of coal at an average of 8 per cent (in Australian dollars). Australia's terms of

trade are 65 per cent above the average 20th century level and 85 per cent above the trend of the 20th century, had that continued. As a result, Australian GDP in nominal terms is about 13 per cent higher than it would have been without these relative price changes (Findlay 2011).

As Garnaut (2011) points out, Australia's exports have diversified away from commodities, which were the lead exports for most of the country's history, so the relative price of commodities had to rise higher than in earlier times to take the overall terms of trade above peak levels reached in the late 19th and most of the 20th centuries. Global demand growth for resources as well as food is reflected in the change in the composition and direction of Australian trade. Resources currently make up 57 per cent of exports, compared with 41 per cent in 2005 (Christie et al. 2011). This growth reflects both price and volume changes in response to Chinese demand (Findlay 2011).

The high rates of corporate investment in the resources sector have been a major factor in the strong economic growth performance of Australia relative to other developed countries in the aftermath of recent financial crises.

Since 2005, the volume of Australian exports of iron ore has grown at an annual rate of 10 per cent (5 per cent for coal). The major structural changes

Figure 4: Australia's terms of trade, 1961–2012


Source: Australian Bureau of Statistics (ABS), Australian National Accounts: national income, expenditure and product, cat. no. 5206.0, and Treasury

in trade have been the surge in iron ore exports to China (a fivefold increase in volume since 2005, to more than 250 mt), and the growth in coking-coal exports to China, to between 20 mt and 30 mt (Findlay 2011). Lifting these trade volumes has required a huge expansion of investment and capacity in the resource sector.

After several years in which investment in expanding production capacity lagged behind the rise in prices, since 2005 the rates of growth of investment in the resources sector have been rising strongly. Since the global financial crisis, resources have been overwhelmingly the main contributor to exceptional growth in Australian business investment in

general. Minerals and energy production and investment together are now larger relative to other sectors in the Australian economy than at any time since Federation.

Iron ore and metallurgical coal have contributed most to the boom in the Australian terms of trade, which began in 2003 and continues today. Both are inputs into the steel industry, and the demand for them derives from demand from Chinese steel-makers. Long-distance trade in metallurgical coal was relatively unimportant until the late 1960s and 1970s, when Japanese steelmaking began to make use of large-scale supply from Australia.

The future of China's resource demand

Rapid industrialisation in China has gone hand-in-hand with a rapid rate of urbanisation. The country has now entered what Song (2010) calls the mid-phase of industrialisation, which is more energy- and minerals-intensive than the more labour-intensive early phase. This is what drove the 'sudden surge in China's demand [for] energy and resources after 2002', and led to the dramatic lift in prices around the very low short-run elasticities of supply for minerals and resources.

While well-endowed with resources in absolute terms, China's per capita endowment is poor, which has led to its rising demand being reflected in increasing purchases from abroad. China became a net importer of oil for the first time only in 2003 and of coal in 2009; its dependency ratios (net imports divided by total consumption) were 43.8 per cent for copper, 62.1 per cent for iron ore and 78.0 per cent for alumina (Figure 5).

Although there is anecdotal evidence that China has already reached the turning point in its resource consumption, one benchmark that can be adopted is the projection of demand by McKay et al. (2010). Assuming 7 per cent compound GDP growth and referring to work on the Kuznets curve for steel, McKay et al. conclude that China will not reach peak steel consumption per capita until 2024, and possibly after that if it follows a trajectory in the growth of steel demand similar to that of Japan. At present, China's steel output is 600 mt, and it's expected that it will reach or surpass 1 billion tonnes (bt) by 2024, which indicates continuing strong growth in demand for steel and for other minerals and energy (Findlay 2011).

Garnaut (2011), on the other hand, argues that energy use will continue to increase despite climate change considerations, but that its rate of growth will diminish, as will the emissions intensity of energy production. This will have a negative influence on the intensity of China's demand for metals. Garnaut states that 'resource intensity of production will decline rather more rapidly than seems to be the common expectation, and more rapidly still as growth and the investment share of output fall from about 2015' (Garnaut 2011: 20).

Questions are now being raised about whether China's rapid economic growth over the past three decades can be sustained over the next three.

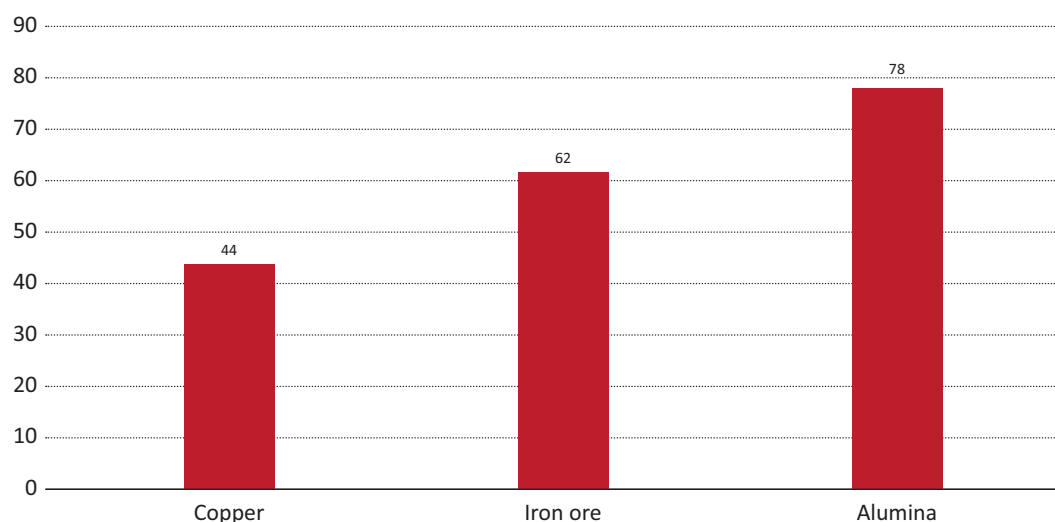
The economy faces important structural problems and is challenged to rein in savings and investment to lift consumption and to cut back its external surpluses (Garnaut and Song, forthcoming).

China's structural problems have worsened since the global financial crisis as a result of aggressive fiscal and monetary expansion to support economic growth in the context of the global downturn. Asset bubbles and excess capacity have become more serious and widespread, and have prompted many predictions of a hard landing (Huang et al. 2011).

If China fails to transform its development pattern over the next five years, there are risks of a major crisis that would sharply check growth. In the past, the government has stretched the financial and fiscal systems to contain near-term downside risks, but there is a limit to how much longer that approach can be employed (Huang et al. 2011).

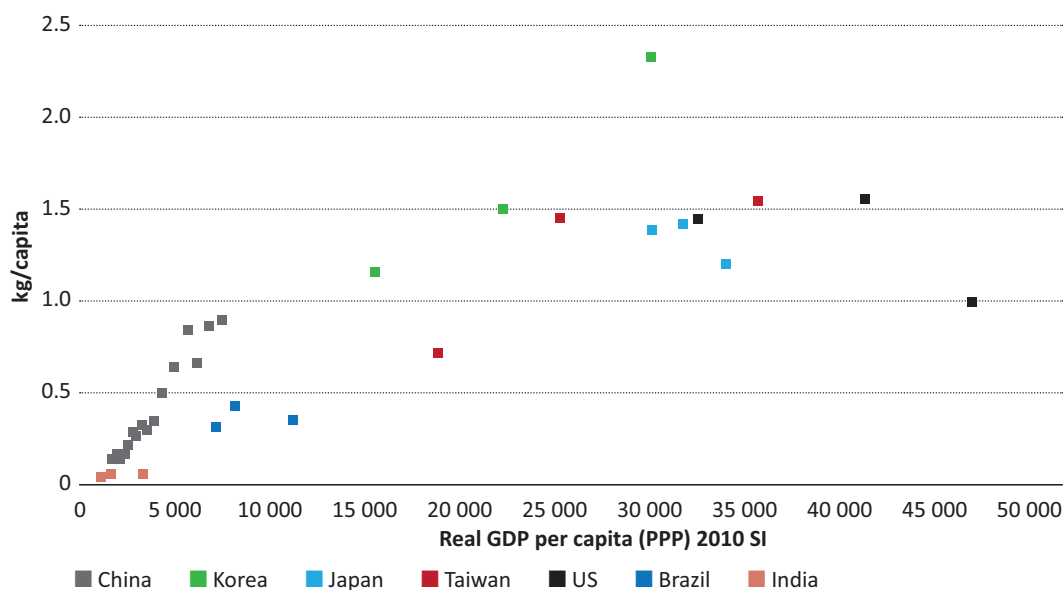
A worsening global recession would intensify concerns about a hard landing for the Chinese economy because of the country's high dependency on trade (almost a fifth of its exports go to Europe) and limited policy flexibility. However, Barclays Capital estimates Chinese economic growth at 9.1 per cent in 2011 and forecasts that it will run at 8.4 per cent in 2012 (see Table 1), arguing that even a steep decline in growth from 9 per cent to 5 per cent would not cause a meltdown.

Figure 5: Foreign dependency rate of selected resources in China, 2010 (%)



Note: The foreign dependency rate is the ratio of net imports to total consumption.
Source: Tse (2012)

Figure 6: Aluminium use and GDP per capita, 1995–2010



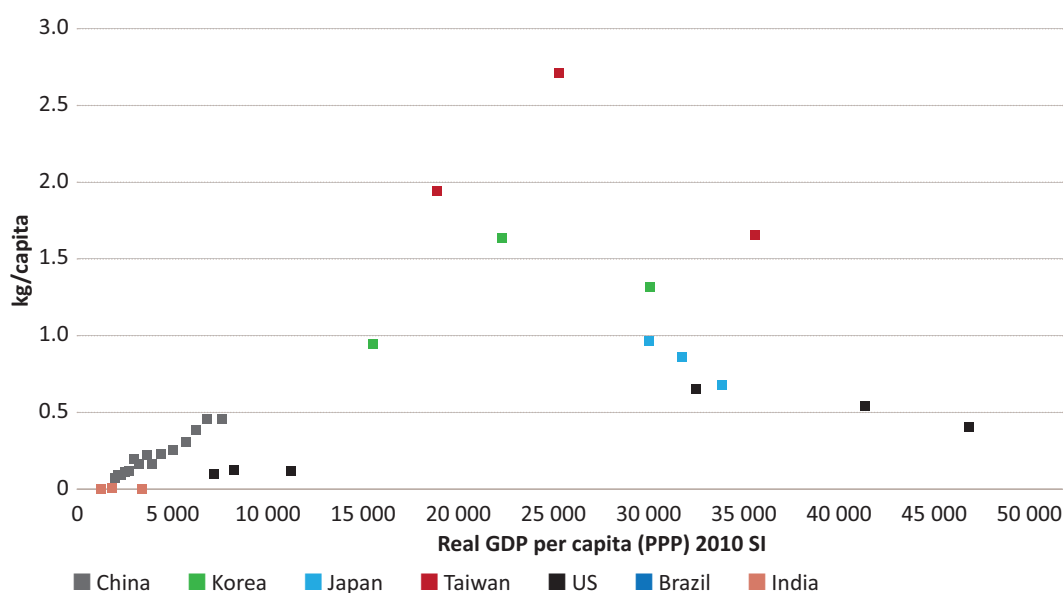
Source: Garnaut (2011)

These optimistic predictions of China’s economic outlook are based on its strong balance sheet, backed by foreign exchange reserves of US\$2.8 trillion, a current account surplus of around 5 per cent of GDP and a strong currency – all factors that give the government enough room to stretch policy and prevent a systemic economic meltdown (Huang 2012).

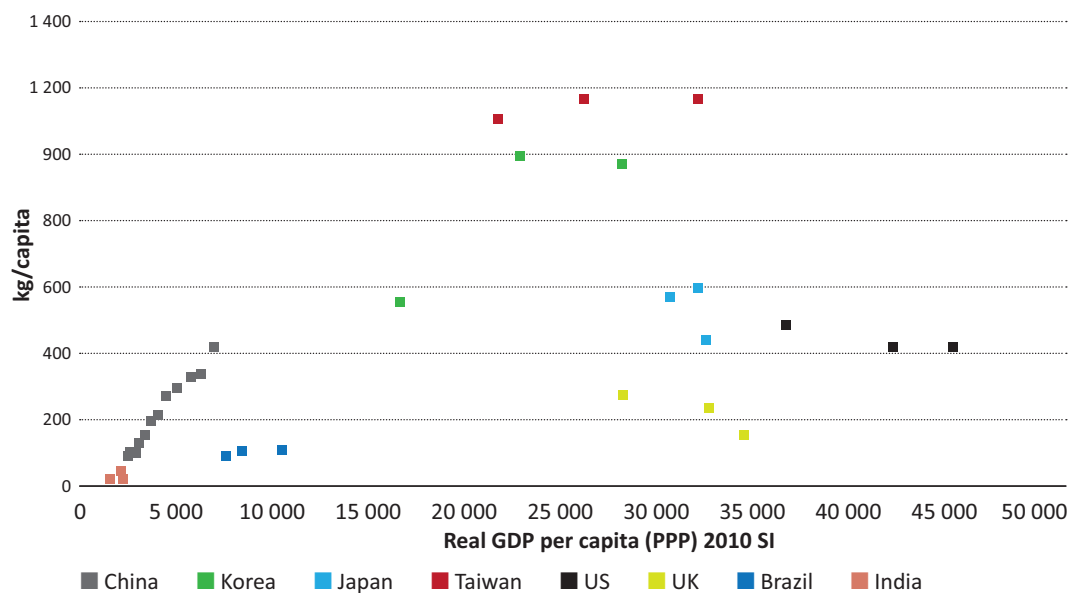
More important to international resource markets than the immediate outlook for Chinese growth

is the likely trajectory of growth in the medium to longer term and the relationship of growth to resource use. Medium to longer term assessment of the pace and structure of growth also requires taking into account environmental and related constraints that will increasingly affect the pattern of growth. Historical patterns suggest that consumption of metals typically grows with income until income reaches about US\$15 000–20 000 per capita (PPP,

Figure 7: Copper use and GDP per capita, 1995–2010



Source: Garnaut (2011)

Figure 8: Steel use and GDP per capita (1998–2009)


Source: Garnaut (2011)

Table 1: China's economic growth, by five-year plan, 1991–2015

Five-Year Plan	8th (1991–95)	9th (1996–2000)	10th (2001–5)	11th (2006–10)	12th (2011–5)
Target (%)	6.0	8.0	7.0	7.5	7.0
Actual (%)	12.3	8.6	9.8	11.2	8.4 ^a

^a Forecast.

Source: Huang et al. (2011)

adjusted dollars); such growth corresponds to periods of industrialisation and infrastructure building. At higher incomes, growth typically becomes more services-driven and, therefore, the use of metals per capita starts to level off (see Figures 6, 7, 8 and 9) (IMF 2006).

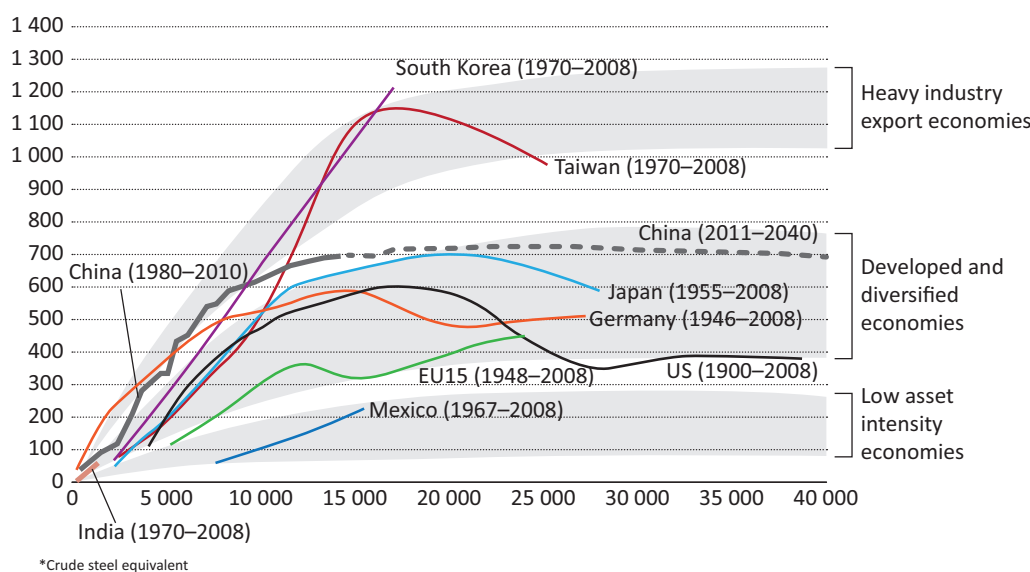
China's current level of per capita income puts it at the mid-phase of industrialisation, a period characterised by a relatively high proportion of manufacturing in the total economy and a relatively high share of heavy industries in total industrial output. This phase of industrialisation is characterised by a pattern of extensive growth in which factor inputs – especially physical capital – play a central role. This is evident, for example, in the sharp acceleration of China's steel consumption. As China enters a period in which the increase in the export share of output is decelerating, Garnaut (2011) aligns its metal intensity growth with Japan's historical rise rather than

with the export-oriented economies of Korea and Taiwan (Figure 9).

In 2010, China's middle class numbered around 157 million people – only the US had a larger middle class (Kharas and Gertz 2010). Kharas (2011) forecasts China's middle class to include 1.1 billion people by 2030. The emergence of a middle class of this magnitude suggests that the country is far from reaching a saturation point for durable goods; for example, China's automobile penetration ratio is a mere 5 per cent of the US level (McKay et al. 2010).

The International Monetary Fund (IMF) estimates that vehicle ownership starts to grow quickly when countries reach incomes of about US\$2 500 per capita in PPP terms (IMF 2005). Rapid growth continues until income per capita reaches about US\$10 000. Saturation level is at about 850 vehicles per 1 000 people. China is projected to have nearly 20 times as many vehicles in 2030 as it had in 2002

Figure 9: Steel consumption (consumption, kg per capita vs real GDP, \$ per capita)



Source: Ridsdale (2011)

(269 vehicles per 1 000 people), which is comparable to levels of vehicle ownership in Japan and Western Europe in the early 1970s. If these predictions are accurate, in 2030 China will have more vehicles than any other country and 24 per cent more vehicles than the US. This is a significant driver for steel demand.

The vehicles that will come onto the Chinese market in the decades ahead will be significantly different from vehicles produced in the past; they'll be built from new materials and use different fuels. According to the Indian Steel Alliance, an average of 850 kg of steel and 120 kg of aluminium are required to produce a car (Dargay et al. 2007). The average steel content is expected to fall to 445 kg by 2020.

Aluminium is ideal for use in transport, building and thermal applications. In 2010, China's aluminium consumption is estimated to have increased by 14 per cent and reached 16.3 mt. It is forecast to increase by a further 18 per cent in 2011, to 19.2 mt; this growth is generated by the continuing expansion of non-residential construction and domestic demand for aluminium-intensive manufactures, such as motor vehicles. China, which accounted for 41 per cent of world consumption in 2010, will continue to be a major player in the aluminium market in the medium term (ABARES 2011).

Around half of global zinc consumption is used in galvanising steel, which helps prevent corrosion. Galvanised steel is primarily used in the construction

and automobile industries, so demand for zinc is highly responsive to activity in those industries. China's refined zinc consumption is projected to increase by 6 per cent a year to 7.6 mt in 2016. Consumption will be supported as electricity networks continue to expand. For example, galvanised steel will be used in high tension electrical towers under the national grid program, which will connect major grid points throughout the country to improve transmission capacity.

China's continuing urbanisation will also be a major driver of resource demand. Since the beginning of the reform period, the proportion of its total population living in urban areas has more than doubled, from 19 per cent in 1978 to 47.5 per cent in 2010, with a target of 51.5 per cent by 2015 set out in the 12th Five-Year Plan. The continued flow of people from rural to urban areas will require substantial infrastructure to support the estimated 717 million people who'll live in Chinese cities by 2015.

The high rate of urbanisation that characterised the reform period will diminish now that around half of the Chinese population lives in towns and cities. Unlike most other countries, China shows no signs of a vast backlog of investment in transport and other urban infrastructure; rather, there are signs that anticipatory investment may reduce future investment demand. Decelerating urban growth and recent high rates of urban investment will have a

negative impact on resource demand growth in the years ahead.

In the mature developed countries, per capita steel use was once much higher than it is today. China's per capita steel consumption is now much higher than the United Kingdom's, similar to the US's, and rapidly catching up with Japan's. As with the other metals, however, China's situation looks less unusual when compared with that of Taiwan (which has levelled out at about two and a half times China's current per capita use) and Korea (which has levelled out at about three times).

China's urban concentration ratio (the proportion of its population living in megacities¹) was 20.4 per cent in 2007: 4 per cent lower than the world average, and 8 per cent lower than its predicted share at current levels of Chinese economic development. It is predicted that 32 per cent of the Chinese population will live in megacities by 2020, reaching 37 per cent by 2030 (Wang 2011). Those urban concentration ratios, although significantly higher than the present level in China, are still below current levels in the US and Japan (43 per cent and 48 per cent, respectively).

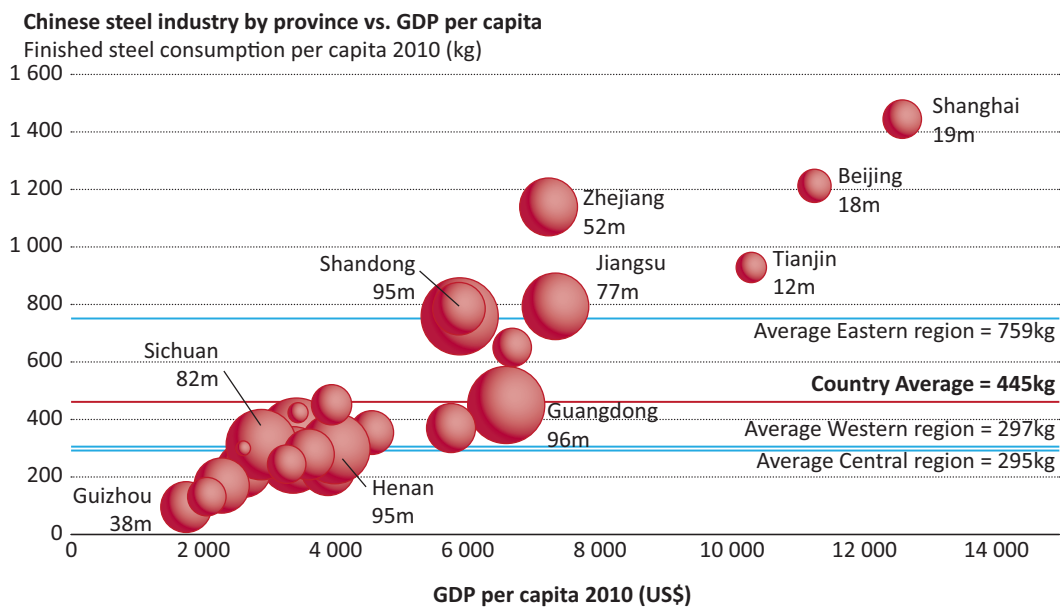
The emerging megacities will largely develop from today's medium-sized cities, or even from

small cities. Over time, new economic and population centres might emerge beyond the Yangtze River delta, Pearl River delta and Beijing–Tianjin–Hebei regions. The Chongqing–Chengdu and Wuhan–Changsha areas, which are still in the early stages of the steel intensity curve, might become two such population centres in decades to come.

Continuing urbanisation and the development of new megacities will be a driving force in the growth in China's demand for steel and copper, which are used in electricity infrastructure and housing construction. Demand for copper is also expected to be supported by growth in exports of copper-intensive goods, such as televisions and air conditioners. China accounted for around 40 per cent of the world's copper consumption in 2010; consumption will continue to grow at a projected rate of 5 per cent a year, and will reach 9.9 mt by 2016.

In the medium term, China's steel consumption is forecast to increase from 647 mt in 2011 to 995 mt in 2016, an increase that represents 4.7 times the total steel consumption of India in 2011 (Garnaut and Song, forthcoming). The increased steel demand will be largely driven by demand in a cluster of China's provinces with relatively low steel intensities but strongly positive growth. The central region has

Figure 10: China's steel intensity, by province



Note: Bubble size reflects 2010 population of each province.
Source: DRC Report, NBS, BHP Billiton

an average steel intensity of 295 kg compared to the country-wide average of 445 kg; the eastern region has an average of 759 kg (see Figure 10).

Despite the planned economic restructuring program and associated slowdown in steel demand, a recent 'stress test' presentation by Raw Materials Group for an 'almost worst case growth scenario' assumed China had become a 'normal' country, with 35 per cent rather than the current 45 per cent of

China's resource needs cover the whole range of minerals and energy resources

GDP going to investment by 2015, domestic GDP growth slowing to 6 per cent a year between 2011 and 2015, and the steel intensity of output remaining constant. Under those assumptions, Chinese iron ore demand would grow by 3.8 per cent a year (Ocean Equities 2011).

Metallurgical coal is the other major input in steelmaking. China is expected to increase its reliance on imports relative to domestically produced metallurgical coal. Import demand is expected to grow strongly over the medium term for several reasons, including the decreasing quality and increasing cost of domestic coal production, the increasing desire for higher quality coal for the production of higher value steel products, and the increasing number of steel mills in coastal regions close to ports. In addition, new steel mills built in western provinces will increasingly rely on metallurgical coal imported from Mongolia. While China's imports are projected to increase at an average rate of 9 per cent a year to

reach 73 mt in 2016, that growth trend is likely to fluctuate as a result of swings in domestic production.

In brief, Paul Braddick (in Yardney 2012) offers the following insights into the character of China's urban population, which will drive the country's resource demand in 2025:

- 350 million more people will move to the cities, adding to the 103 million who have moved since 1990.
- 221 Chinese cities will have more than a million people living in them, whereas the whole of Europe has 35 today.
- 1 million km of new roads and 28 000 km of metro rail will be laid between now and 2025.
- 170 mass-transit systems will be built – twice the number in all of Europe today.
- 1 600 million to 1 900 million square metres of floor space (around the land area of Indonesia) will be constructed each year, as part of five million buildings.
- China is home to half of the world's skyscrapers – defined as buildings over 240 metres tall – currently under construction. In the next decade and a half, 50 000 skyscrapers will be built; this is equivalent of building two Chicagos every year.
- 97 new airports will be built.
- By 2025, 1 in 7 planes assembled by Boeing and Airbus will be delivered to China.
- 1 000 MW of coal-fired power capacity will be commissioned every week, equivalent to 4 mt of new coal demand (although China's rapid move to clean energy could well nullify this prediction as Garnaut suggests).
- One wind farm turbine will be built every hour and a half.

China's potential resource supply: the case of iron ore

China's resource needs cover the whole range of minerals and energy resources. Major suppliers have traditionally been those with pre-existing mining capital infrastructure, including Australia (iron ore, coal, bauxite and alumina, copper, zinc); the US (copper); Peru (copper); Brazil (iron ore, bauxite); Chile (copper), India (iron ore, bauxite, copper); and Guinea (bauxite).

The international iron ore market has been dominated by Australian and Brazilian supplies since Japanese demand played a central role in developing the two countries' iron ore regions from the 1960s to the 1980s. In 2011, Australia and Brazil accounted for around 69.6 per cent of global exports (39.4 per cent and 30.2 per cent, respectively); China accounted for an estimated 59.0 per cent (645 mt) of global imports in 2011 (Table 2).

Table 2: Iron ore exports, 2010–17 (mt)

	2010	2011	2012	2013	2014	2015	2016	2017
Australia	402	439	493	525	588	678	749	779
Brazil	311	313	333	372	411	443	467	489
India	96	63	43	46	46	46	44	40
Canada	33	34	36	37	37	38	38	38
South Africa	48	54	58	64	67	71	75	79
West Africa ^a	11	12	14	15	17	23	35	47
World exports	1 051	1 075	1 149	1 213	1 279	1 355	1 439	1 500

^a West Africa includes Guinea and Mauritania.

Source: BREE (2012)

Table 3: Top four producers' capacity expansion plans, 2010–18

Company	2010 (mt)	2018 (mt)	% of total growth
Vale SA	322	533	26
Rio Tinto	242	454	27
BHP Billiton	137	271	17
Fortescue	41	255	27
Total	742	1 513	97

Source: Ridsdale (2011)

The rapid increase in global iron ore demand has led the established iron ore producers to plan major production expansions, which will add an estimated 871 mt of new production capacity by 2018 (Table 3).

Australia

Australian producers have developed significant expansion plans to capitalise on rising demand from China and diminishing Indian exports. Currently, around US\$60.8 billion of investments are planned for new iron ore mines and to expand current capacity, with another US\$22 billion earmarked for infrastructure projects to support new capacity. These investments are scheduled to occur by 2018. The expansion plans are led by the three big Australian iron ore producers (BHP Billiton, Rio Tinto and Fortescue) as they attempt to push total annual seaborne iron ore trade from 402 mt/year in 2010 to over 1 bt/year by 2018.

The recent historically high prices and accompanying profit margins for iron ore have brought

Table 4: Australian magnetite potential

State	Planned mines	Total magnetite raw (mt)
WA	29	17 846.6
SA	25	6 048.8
Tas	3	61.2
Qld	2	137.4
NT	1	3.7
Total	60	24 097.7

Source: Intierra database

Australia's vast magnetite deposits into consideration in expansion plans (Game-Lopata 2012). Hematite (or 'direct shipping ore', because it can go straight into a steel furnace), has driven Australia's iron ore boom so far. Hematite has a different chemical make-up (Fe_2O_3) from magnetite (Fe_3O_4); magnetite contains less iron than hematite and is therefore of less value in its raw state. Before it can be used in steel production, magnetite needs to be processed (beneficiated), which requires capital-intensive processing infrastructure at or near the mine site.

Australia currently has around 60 magnetite mines in planning or operational phases with total magnetite resources estimated at around 24.1 bt (Table 4). A report published by Deloitte Access Economics last year estimated that the development of the magnetite industry could add \$4.5 billion to national GDP per year and create more than 4 000 jobs (Burrell 2011).

One of Australia's biggest challenges in unlocking its magnetite reserves is attracting investment

into the industry, a large part of which will likely come from China. Just as Japan's development and engagement were critical to unlocking Australia's Pilbara hematite reserves in the 1960s, China is now positioned to partner magnetite projects. And with US\$2.8 trillion in foreign exchange reserves and a growing demand for iron ore, the times have never been riper (Siddique 2011, Huang 2012).

An example of China's importance to the development of Australia's magnetite is on display with

Australian producers hold a cost advantage over their Brazilian counterparts due to their relative geographical proximity to China

the CITIC Pacific Magnetite Project, the first major magnetite mining and processing project in Australia. It's a significant step for the budding industry and is set to become the largest magnetite operation in the world; at full capacity, CITIC Pacific will mine around 140 mt a year. Another key to the development of Australia's magnetite industry is the troubled Oakajee port and rail project in Western Australia's mid-west region. The Western Australian Government has been pushing for Chinese companies to become equity partners in the project, which comprises a 45 mt per year deepwater port near Geraldton and a 570 km railway to handle 100 mt per year (Game-Lopata 2012).

The success – or failure – of the CITIC Pacific and Oakajee projects will have a significant impact on the future of Australia's magnetite production. Chinese investors are increasingly presented with development opportunities for less capital-intensive direct shipping quality hematite reserves in Africa's central and western regions.

Brazil

Brazil is the second largest global iron ore exporter. Led by Vale, Brazil's producers are investing heavily to take advantage of current Chinese demand and the high price of iron ore. The Bureau of Resource and Energy Economics (BREE) forecasts that iron ore exports from Brazil will reach 489 mt in 2017,

up from 313 mt in 2011 but well under Australia's 2017 forecast exports of 779 mt (BREE 2012).

Vale's medium-term expansion plans include the addition of 211 mt of capacity by 2018. The company will invest US\$10.2 billion by 2014 to expand its Carajás Serra Sul iron ore mine. Carajás, in the northern state of Pará, is the site of the company's largest single iron ore mine. Vale will also invest US\$2.5 billion by 2014 in the Apolo iron ore mine project in Minas Gerais.

Australian producers hold a cost advantage over their Brazilian counterparts due to their relative geographical proximity to China. In December 2011, Capesize shipping rates from Port Hedland/Dampier to Qingdao (3,458 nautical miles) were around US\$13.50/tonne, whereas Brazilian exporters faced transport costs of US\$30.50/tonne from Tubarão to Qingdao (11 023 nautical miles). Capesize ships from Australia take around 22 days and 12 hours less time to reach Qingdao.²

In an attempt to reduce the cost advantage of Australian producers, Vale has pursued an aggressive strategy to develop Valemax ships that can carry 380 000–400 000 tonnes of iron ore – more than twice the capacity of the current Capesize vessels. During the 10 months leading up to the financial crash of 2008, the Baltic Dry Index³ was consistently above 11 000 and ships were leased at extremely high fees. Regardless of the inflated ore prices, shipping costs exacerbate the distance problem for Vale.

In 2008, Vale ordered 35 of the giant Valemax ships (it planned to own 19 of them) from South Korean company Daewoo Shipbuilding and Marine Engineering; the vessels were expected to come into service from 2011 to 2013. The predicted cost for shipping iron ore using a Valemax is around US\$4–5/tonne cheaper than using Capesize vessels, which corresponds to savings of around US\$1.6–2.0 million per shipment.

Vale's US\$8 billion shipping project is seen as a major strategic step in competing with Australian producers, but there have been problems with the project, including a cracked ballast tank, stiff opposition from the Chinese Shipowners Association and Vale cargoes being turned away from Chinese ports.

On 28 December 2011, the first Valemax ship, the *Berge Everest*, was allowed to dock in Dalian in north-east China. This might signal a changing

attitude on the part of the Chinese port owners. The ship is owned and operated by a Singapore-based dry bulk shipowner (Berge Bulk) but chartered long-term to Vale (Wright et al. 2011). Vale is now setting up transshipping operations in the Philippines, which will see the Valemax's iron ore unloaded to smaller ships for delivery to China.

India

As Australian and Brazilian producers rush to meet rising demand from China, India is set to cut exports dramatically. In 2010, India was the world's third largest iron ore exporter, capturing around 9.1 per cent or 96 mt of the global export market (BREE 2012).

In 2011, Indian authorities adopted policies to ensure that their rapidly emerging middle class and urban infrastructure needs would be supported by Indian steel production, served by India's own iron ore riches.

On 2 January 2012, the Indian Government announced a further increase of export tariffs to iron ore lumps and fines of up to 30 per cent. Unless the Federation of Indian Mineral Industries is able to have the tax abrogated, exports for the first quarter of 2012 will be 75 per cent lower than previously expected. The Bureau of Resource and Energy Economics (BREE 2011) forecasts a drop in exports from 63 mt in 2011 to 43 mt in 2012 (Mukherjee and Dutta 2012). The gap left by receding Indian exports will put upward pressure on international prices in the short term and further support the case for rapid expansion in Australia, Brazil and elsewhere (de Krester 2012).

India's National Steel Policy (revised in 2008) forecasts domestic steel production to reach 180 mt/year by 2019–20; current capacity is around 78 mt, and reported production is around 65.5 mt. To meet domestic steel production demand, India would need to increase its annual iron ore production from around 220 mt in 2009–10 to 500 mt over the next decade. If the increase isn't achieved, India will have to upgrade its port infrastructure to ensure that remaining demand for iron ore is met by imports (India Bureau of Mines 2011).

Africa

Africa's total iron ore reserves (measured plus inferred) contain an estimated 34.9bt of hematite⁴

and 17.3bt of magnetite⁵. In comparative terms Africa has similar reserves to Australia, with 37.0bt of reported hematite reserves and 10.4bt of magnetite, although reserve levels provide a limited insight into production potential.

The sustained demand for iron ore from China and diminishing grades of hematite in Australia and Brazil, along with the uncertainty surrounding India's iron ore exports have encouraged miners to pursue assets in operationally risky locations, largely in west and central African countries (Johnston & Reddy 2012).

Despite considerable investment risks, the African iron ore industry is going through a renaissance as low operating costs and vast, high grade discoveries of hematite have overshadowed countries' risk profiles.

The key driver for Africa's growth is not just China's booming resource import demand, but improved political and macroeconomic stability and microeconomic reforms. In the past decade the real GDP of iron ore-rich west and central African countries⁶ has enjoyed a healthy growth rate of

The key driver for Africa's growth is not just China's booming resource import demand, but improved political and macroeconomic stability and microeconomic reforms

4.0 per cent – the global average for the period was 3.9 per cent (McKinsey & Company 2010).

The improved business environment has benefited from government debt relief for the most highly indebted countries. Increased pledges of overseas development assistance from donor countries and philanthropic institutions are also providing fresh opportunities to free up resources for investment in human and fixed capital (Donnelly & Ford 2009).

This growth and other political and macroeconomic indicators suggest that Africa may be at a turning point as a global resource supplier. Guinea's Bellzone and China International Fund joint venture operating company Forécariah Guinea Mining

is an example of how high risk operations in Africa are becoming realistic investment opportunities. The project is set to begin exporting iron ore to China in the first quarter of 2012, on schedule (Esterhuizen 2012).

The draw of Africa's iron ore is its relative purity. As ferrous content decreases in Australia and Brazil, unearthed African deposits consistently offer DSO quality resources. But for decades the main obstacle to investing in African mining has been insufficient – often non-existent – infrastructure. Deals that might have looked good on paper were often unviable once the infrastructure costs were factored into the internal rate of return. This situation means that the initial marginal cost for west and central African iron ore will be massive when compared to the marginal costs of expanding production in Australia and Brazil where infrastructure is developed.

To develop African resources Chinese operators have support from the US\$5 billion China-Africa Development Fund (CADFund). The CADFund's stated aim is, 'investing directly in Chinese enterprises which have set up operations in Africa or plan to invest in Africa, CADFund will push Chinese and African enterprises to reach their cooperation targets and facilitate infrastructure construction, as well as enhance the social and economic development of African countries.' The Fund provides equity and quasi-equity investment, fund investment and investment management and consulting services for projects in agriculture, manufacturing, infrastructure, natural resources and industrial parks.

In addition to infrastructure development support, China's renewed investment push into global

markets may hold the key for the development of west and central African iron ore. RBC Capital Markets (2011) reports that all-in capital costs to develop a sample of 32 iron ore mine sites across the African continent range between US\$52 billion and US\$54 billion. Current credit ratings for African iron ore countries, coupled with Western banks' unwillingness to invest in such projects, suggest that it is unrealistic to expect these resources will develop in the next 5 to 10 years.

Chinese ODI to Africa has increased 19-fold, from US\$491.2 million in 2003 to US\$9.3 billion in 2009 – Chinese ODI to Europe in 2009 totalled US\$8.7 billion (Hurst 2011) (see Table 5 for Chinese ODI to iron ore rich African countries). Moran et al. (forthcoming 2012) stated that 'Chinese investors will be more willing to take on new frontier – or even fringe – projects that the major established oil and mining companies might pass by.' Moran (2010) noted that in 13 of 16 cases analysed, Chinese investors took an equity stake and/or wrote long-term procurement contracts with producers on the competitive fringe.

To date, Chinese investors in African iron ore projects have been from large companies and investment funds across the scope of ownership structures. Current African iron ore investors include Wuhan Steel (state owned), CADFund, China International Fund Ltd. (privately owned), Shandong Iron and Steel Group (state owned) and Chinalco (publicly owned).

Looking to the future, China has the necessary capital and an incentive to put downward pressure on the price by assisting the development of African

Table 5: Chinese ODI to Africa iron ore countries, 2003–9 (US\$m)

	2003	2004	2005	2006	2007	2008	2009
Cameroon	5.73	6.98	7.87	16.46	18.51	20.34	25.05
Rep. of Congo	–	5.65	13.32	62.9	65.4	75.42	115.17
Guinea	14.34	25.77	44.22	54.63	69.97	96.37	129.32
Liberia	5.8	6.38	15.95	29.51	29.78	37.36	56.39
Mauritania	1.82	2.13	2.4	20.12	15.14	24.76	31.29
Nigeria	31.98	75.61	94.11	215.94	630.32	795.91	1 025.95
Sierra Leone	5.74	18.45	14.89	32.28	43.7	47.47	51.23

Source: Chinese Ministry of Commerce, 2010

iron ore export capacity in a way that will significantly alter the supply structure. China's Ministry of Commerce (MOFCOM) announced in early 2012 that over the next five years it will encourage ODI to increase global stocks to US\$560 billion (an increase of US\$390 billion over the period). This push aims to make better use of China's estimated US\$2.8–3.5 trillion foreign exchange reserves at a time when exports markets are declining and FDI inflows slowing down as a result of the global economic crisis (Edwards 2012; Huang forthcoming 2012).

This future Chinese ODI is not all earmarked for African iron ore projects. But if 14 per cent of the \$390 billion ODI is directed to African iron ore projects over the next five years, it would meet the \$52–54 billion all-in capital costs reported by RBC Capital Markets to develop 32 mines across the continent.

It is essential for African governments to ensure a supportive business environment for these major capital-intensive projects. Chinese banks are able to take a longer-term view of projects in comparison to Western lenders but the Chinese authorities are cracking down on risky investments in the wake of significant and embarrassing losses. China's State Assets Supervision and Administration Commission published new rules in 2012 that hold SOEs and their executives accountable for bad overseas investment decisions (Cai 2012).

Low levels of knowledge capital have also been a considerable obstacle for the development of technology intensive infrastructure and mine sites. Again, China is a promising partner on this front. Unlike Australia, most of Africa's resource-rich countries allow Chinese operators to import a wider range of labour and management. Although this has created cases of significant tension and difficulties it is a key ingredient for Africa's iron ore development which had been previously lacking.

China's aim to secure iron ore supplies in Africa is supported by long-established state relationships, fostered through its triennial Forum of China–Africa Cooperation (FOCAC). The advantage of the strong state ties also provides some assurance and political insurance for Chinese investment in iron ore (SOEs accounted for 69 per cent of China's ODI stocks globally in 2008–9) (see Table 7). China's

non-interventionist approach to international engagement also permits relationships with regimes where Western governments would be unwilling (Hurst 2010).

Already there are hundreds of iron ore projects under study or being developed in Africa, including some large scale ones, and African governments are pushing to increase their iron ore export capacity while the price is high. For example, the government of Gabon recently reached a deal with BHP Billiton to award them the Belinga iron ore concession after it decided China Machinery Engineering Corporation was not developing the resources fast enough. This kind of 'strike while the iron's hot' mentality by the Guinean government has pushed Rio Tinto to truck iron ore 650 km to meet its first ore shipment deadline of mid-2013 from its Simandou mine in Guinea.

Hurst (forthcoming) constructed a risk index for each of the 27 production expansion phases of 17 mines across west and central Africa. A production expansion phase refers to the expansion of a mine's capacity which is brought online in a staggered fashion. For example, the Forecariah iron ore deposit will come online in two phases – phase one will have 4 mt/a capacity by 2012, the second phase

Chinese banks are able to take a longer-term view of projects in comparison to Western lenders

will expand production capacity to 10 mt/a by 2013.

The risk index incorporated seven risk categories (host operational risk, host political risk, project infrastructure requirements, investor experience, investor–government relations, funding risks, and Chinese ownership and funding) to construct three risk-based scenarios – high, medium and low risk. Another way of looking at these risk scenarios is to think of low-risk projects as having a high probability of coming on stream as designed and within the timeframe planned; medium and high-risk expansion phases have a lower probability of meeting their outlined initial production dates, being more likely to be delayed. The likelihood of these higher risk projects coming online in the long term is nonetheless

Table 6: Western and central African cumulative export capacity scenarios, 2011–18 (mt/year)

	2011	2012	2013	2014	2015	2016	2017	2018
High risk capacity	1 075	1 179	1 270.6	1 467.6	1 612.6	1 749.6	1 871.6	1 983
Export overcapacity	0.0%	2.6%	4.8%	14.8%	19.0%	21.6%	24.8%	27.0%
Medium risk capacity	1 075	1 169	1 257	1 349	1 434	1 526	1 628	1 727
Export overcapacity	0.0%	1.7%	3.6%	5.5%	5.8%	6.1%	8.5%	10.6%
Low risk capacity	1 075	1 164	1 242	1 329	1 399	1 471	1 543	1 592
Export overcapacity	0.0%	1.3%	2.4%	3.9%	3.3%	2.2%	2.9%	2.0%
Global exports (BREE 2012)	1 075	1 149	1 213	1 279	1 355	1 439	1 500	1 561*

* BREE forecast export growth for 2010–17 has been extrapolated linearly for 2018.

Sources: BREE (2012); Intierra database; RBC Capital Markets (2011); Ocean Equities (2011); company reports; author's calculations

Table 7: Potential global export capacity scenarios, 2011–18 (mt/year)

	2011	2012	2013	2014	2015	2016	2017	2018 ^a
High-risk capacity scenario	1 075	1 241	1 360	1 500	1 591	1 695	1 855	1 966
Export overcapacity (%)	0.0	8.0	12.1	17.3	17.4	17.8	23.7	25.9
Medium-risk capacity scenario	1 075	1 207	1 301	1 413	1 489	1 573	1 680	1 741
Export overcapacity (%)	0.0	5.0	7.3	10.5	9.9	9.3	12.0	11.5
Low-risk capacity scenario	1 075	1 178	1 257	1 346	1 422	1 506	1 590	1 651
Export overcapacity (%)	0.0	2.5	3.6	5.2	4.9	4.7	6.0	5.8
Global exports	1 075	1 149	1 213	1 279	1 355	1 439	1 500	1 561

^a For 2018, import growth is assumed to be linear.

Note: Rio Tinto's Simandou mine capacity is assumed to come online as 5 mt (2013), +5 mt (2014), +10 mt (2015), +15 mt (2016), +30 mt (2017), +30 mt (2018) in the medium risk scenario.

Sources: BREE (2012); Intierra database; RBC Capital Markets (2011); Ocean Equities (2011); company reports; Hurst (forthcoming 2012)

real and they represent a significant longer term overhang in the market.

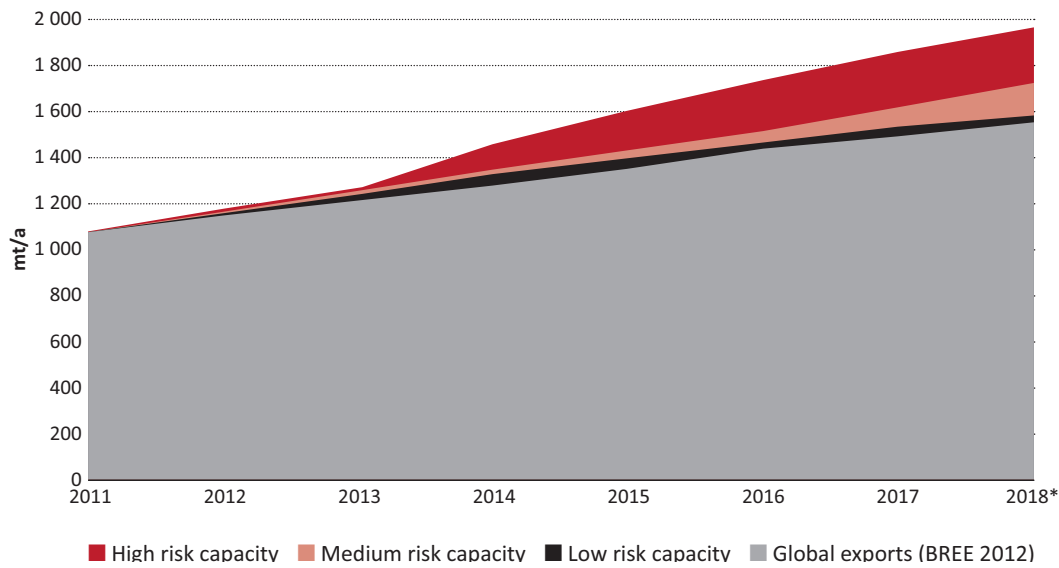
Based on the reporting of 17 mines (over 27 production expansion phases), west and central African iron ore production has the potential, in the high-risk scenario, to add 481 mt/a to world iron ore export capacity by 2018 (see Figure 5 and Table 8 below). This figure is in line with estimates by RBC Capital Markets (2011) that 475–575 mt/a of iron ore export capacity will become available in Africa by 2016 (based on analysis of 32 mines), and by Ocean Equities (2011) that 300 mt/a could be available by 2018 (based on 16 mines).

The low-risk scenario suggests that if all high and medium-risk projects are delayed beyond 2018, 31 mt/a (in addition to the 425 mt of already

forecast global export supply expansion) will come online by 2018 – representing a global export supply overcapacity of 2 per cent. If all medium and low-risk phases are achieved on time and high-risk phases delayed, 166 mt/a export capacity could come online – representing 10.6 per cent export overcapacity by 2018. If all 27 analysed production expansion phases come online as outlined an extra 422mt/a could enter the global export market by 2018, representing export capacity that would be 27 per cent over currently forecast global demand, see Figure 11 and Table 6.

Most disclosed estimates of operating costs for west and central African iron ore projects tend to be relatively low due to low labour costs and the high grade ore, which requires little processing. African

Figure 11: Potential global export capacity scenarios, 2011–18 (mt/year)



* For 2018 import growth is assumed to be linear.

Source: Hurst (forthcoming)

Free On Board⁷ (FOB) cost estimates range from as low as US\$20/t for the planned DSO material from Sundance’s Mbalam project up to US\$50/t for Sierra Leone’s Marampa mine⁸ (RBC Capital Markets 2011; Emery 2012). When shipping costs are included, west and central African iron ore will, on average, cost around A\$50–80/t.

In a business as usual scenario, BREE (2012) estimated that the contract price of iron ore will average around A\$140/t in 2012 and will drop to A\$109/t by 2017.

In the low-risk scenario the addition of BREE’s forecast global expansion and African export capacity could decrease the price to A\$80/t Cost, Insurance and Freight⁹ (CIF) into China by 2018; the medium-risk scenario could see the price drop to around A\$65/t; and the high-risk scenario to around A\$60/t.

In the low-risk scenario, west and central African iron ore will push current marginal suppliers – mainly Chinese but also Indian and others – out of the market. If the high-risk scenario is realised some of the new higher cost African capacity will also be pushed out (see Figures 12 and 13 below).

Policy questions

In absolute terms, China is well endowed with natural resources, which are the key to fuelling its

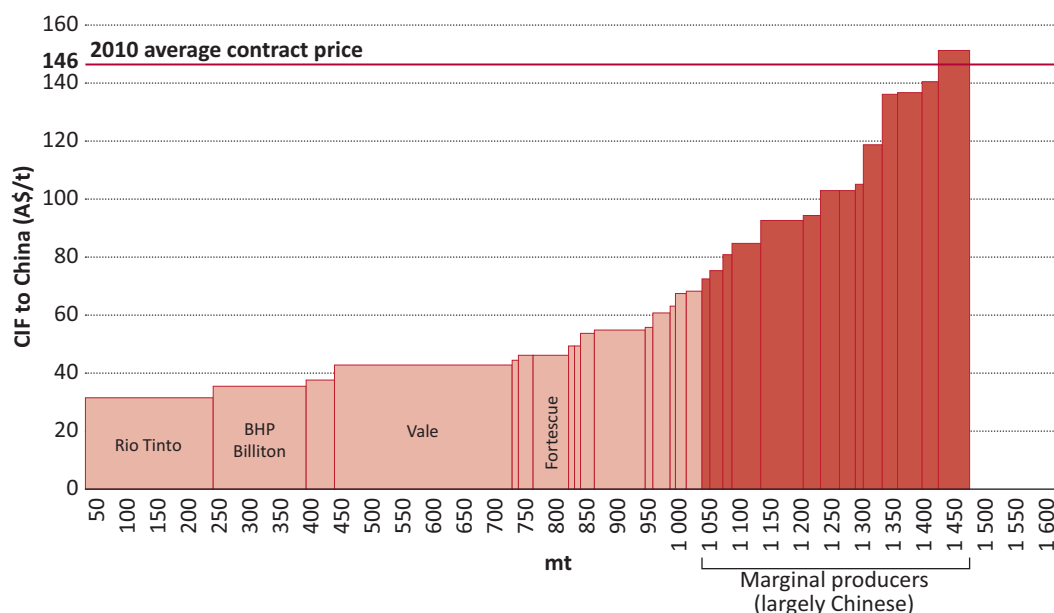
The iron ore pricing mechanism is moving away from quarterly and monthly contracts toward a spot market, so the decreases in price caused by the export overcapacity will occur in real time.

If the iron ore price dropped to A\$80/t, low-cost exporters such as Rio Tinto, BHP Billiton and Vale would still have a A\$35–45/t margin. If the high or medium-risk scenarios materialised, the low-cost producers’ margins could drop to around A\$25–30/t (see Figure 13 below).

The knock-on effects of these price scenarios would be significant for iron ore-centric economies such as Australia – iron ore is expected to provide A\$59.7 billion to Australia’s GDP in 2011–12 (BREE 2012). A drop in iron ore prices in all the scenarios outlined above would negatively impact Australia’s terms of trade, real exchange rate, and revenue collected from the Mineral Resource Rent Tax (MRRT). The falling price would also be another significant constraint for the development of Australia’s budding magnetite industry development, which is forecast to add A\$4.5 billion to national GDP per year and create more than 4 000 jobs over the coming decade.

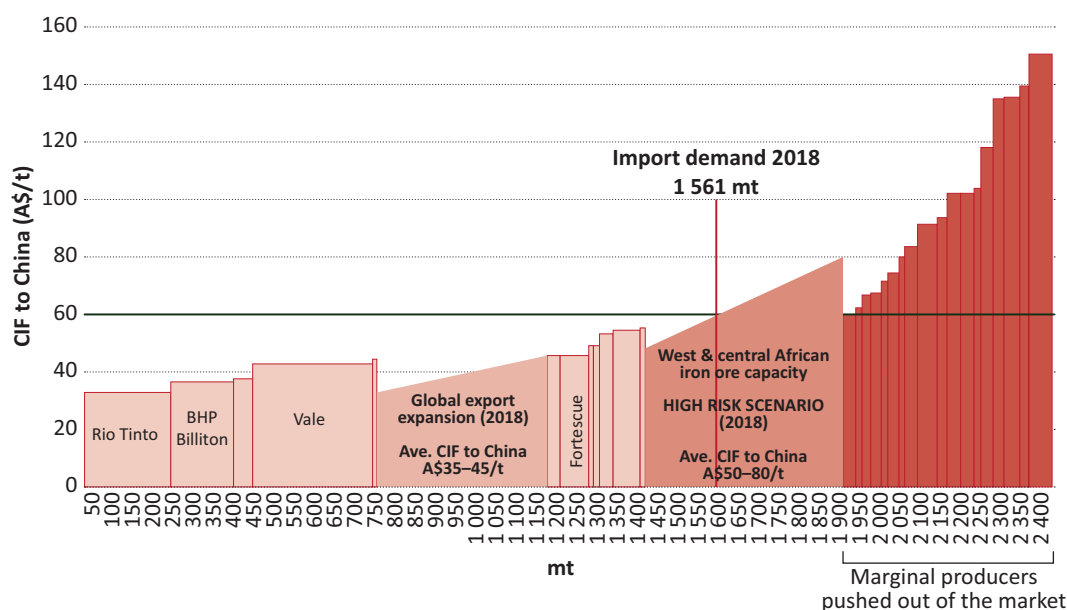
development. Yet its accessible per capita reserves are low – particularly of resources in high demand,

Figure 12: 2010 iron ore cost curve & average contract price (CIF to China A\$/t)



Source: Adapted from Mackenzie (2011)

Figure 13: 2010 iron ore cost curve with global export capacity expansion and high risk Africa scenario (2018, CIF to China A\$/t)



Sources: Mackenzie (2011); BREE (2012); Hurst (forthcoming)

such as iron ore and copper. Chinese authorities are concerned that insufficient supplies will constrain growth and put upward pressure on manufacturing costs.

Those anxieties were exacerbated in the past decade, when international resource dependence increased suddenly, resource prices rose steeply

in response to the surge in Chinese demand, and resource security became a national obsession. Overseas investment policies have consequently identified natural resource acquisition as a key strategic objective of internationalisation, and state support has been allocated to achieve that objective (Hurst 2011).

Chinese investment abroad in resource development

The 'go global' policy introduced in 1999 aims to encourage Chinese outward FDI (ODI). The policy had three main objectives:

- to support national exports and expand into international markets
- to push domestic firms to internationalise their activities as a means of acquiring advanced technologies
- to invest in the acquisition of strategic resources. (van Wyk 2009)

The objectives of the 'go global' policy were consolidated at the Chinese Communist Party's 16th Congress, which was held in 2002. On that occasion, the authorities pushed hard to sustain the economic reform process and promote global industry champions in the wake of China's accession to the WTO in December 2001 (Hurst 2011).

The rise of China's ODI, its resilience during the global financial crisis and its continuing rapid growth have raised questions about the 'China model' of investment abroad. Given that the state has direct interests in investing enterprises, Chinese ODI is said to be driven by geopolitical considerations. In this view, Chinese ODI decision-making is not based on profit-seeking assumptions but on geopolitical machinations. This supposed divergence of motivations renders familiar models of ODI unsuitable for analysing Chinese ODI because China is said to pursue political rather than economic advantage.

State-owned enterprises (SOEs) account for an estimated 69 per cent of China's ODI stocks globally (Table 8). Geopolitical considerations by Chinese SOEs are central to the 'China model' argument (Buckley et al. 2007, Huang and Wang 2011). Morck et al. (2008) argue that the embedding of party and state officials at the top structural levels of corporate governance has direct implications for corporate strategy and management. Party officials have direct control but little stake in the firm's long-term economic performance because massive investment projects aligned with political objectives might be good strategies for career advancement within the central bureaucracies – even if they're unprofitable in the long-run.

The following passages from two papers on Chinese ODI summarise the core idea of the 'China model' of investment abroad:

China remains distinctive from other emerging economies in that many of its MNEs [multinational enterprises] remain in state hands, even though corporatized in order to focus on commercial objectives. State direction means that these firms still align their operations, whether at home or abroad, with the five-year plans and national imperatives. This is a model that is not replicated, in any general objective way, in any of the other leading emerging economies. (Buckley et al. 2007:514)

There probably is a 'China model' for ODI, where for China, the motivation for and

Table 8: Investor structure, by industrial and commercial registration, 2008–9

	Share in number (%)	Share in China's ODI stock (%)
State-owned enterprises	14.8	69.4
Limited liability companies	54.0	21.1
Private enterprises	8.4	1.0
Stock limited corporation	8.0	6.1
Cooperative enterprises	5.7	1.1
Foreign investment enterprises	3.3	0.7
Collective-owned enterprises	1.4	0.4
Hong Kong, Macao and Taiwan-invested firms	1.8	0.1
Others	2.7	0.3

Source: Chinese Ministry of Commerce, Statistical bulletin of China's outward foreign direct investment, cited in Wang and Huang (2011)

determinants of ODI differ significantly from those of developed countries [suggesting that] they do not invest in industries where they do well in either domestic or international markets. Rather, they are attracted by advanced development in OECD countries and by resources in non-OECD countries. (Huang and Wang 2011:19)

Drysdale (2011:63) takes a critical view of this conception of Chinese corporate behaviour and argues that concern about Chinese SOE ODI reflecting geopolitical considerations ‘does not appear to have been based on any careful objective analysis’. He stresses that the institutional environment in which Chinese SOEs operate at home is changing rapidly. There is considerable evidence that SOEs abroad actively pursue market conforming strategies, which do not always align with government policy strategies (Drysdale 2011).

There have certainly been recent reforms to SOE corporate management policies. The separation of the party from the management at China’s largest oil firms is a case in point. In the past, the party secretary also held the position of managing director. The new arrangements require these positions be held by different people (Drysdale 2011). This does not ensure

Corporate governance of China’s SOEs is evolving towards a system increasingly driven by market disciplines

that the state has relinquished control, but it does signal a movement towards market-based day-to-day management of SOEs. For example, in 2011 the State-owned Assets Supervision and Administration Commission dismissed Sinosteel’s CEO partly because of the company’s investments in Australia. In turn, that caused Midwest Mining Corp. to suffer huge losses (Hurst and Wang 2012).

Rosen and Hanemann (2011:6) acknowledge that the party’s control over the appointment of key personnel in SOEs makes it difficult to accurately assess the determinants of – and incentives for – SOEs’

corporate strategic decisions. Those difficulties notwithstanding, the authors argue that ‘commercial pressures on Chinese companies are growing rapidly and similarities between Chinese firms in this respect and those of OECD countries are mounting faster than the difference.’ For example, in 2006, the State-owned Assets Supervision and Administration Commission pressured SOEs to become more competitive or risk acquisition by their competitive peers. It was also announced that a consolidation strategy would reduce the number of centrally owned SOEs from 155 to between 80 and 100.¹⁰

Access to preferential loans is also seen as distorting the competitive landscape in favour of China’s SOEs. This has prompted a movement away from soft loans through the state-owned banking system, and terms are increasingly based on commercial considerations. This was exemplified when the China Development Bank brokered a US\$25 billion syndicated loan for two Russian energy companies in exchange for a 20-year crude oil supply contract. Negotiation stalled when the parties seemed unable to agree on interest rates and appropriate risk premiums, but a final settlement was reached after extensive analysis of historical transaction data, the cost of capital, taxation, transaction costs and the calculation of the appropriate risk premium (Drysdale 2011).

Chinese SOEs are locked into a continuing, dynamic process of reform of the institutions that govern their operation at home. They’re also influenced by the environment in which they operate overseas. Corporate governance of China’s SOEs is evolving towards a system increasingly driven by market disciplines, and that reform is expected to intensify as their international interests are subjected to more scrutiny by host-country investment vetting agencies. Drysdale (2011:67) suggests that ‘Chinese authorities will have to give more and more attention to transparent governance arrangements if Chinese firms are to receive equal treatment to that provided to other multinational investors in international markets.’

Responses to Chinese investment in Australia

Despite their apparent shift to profit-driven operating principles, misgivings about Chinese SOEs’ operations and administrative arrangements have

been prejudicial to Chinese SOE investment abroad, especially in developed market economies. The approach to receiving Chinese investment in the US has been restrictive, and European authorities have also been cautious.

According to MOFCOM, after Hong Kong and tax havens such as the Cayman Islands and the British Virgin Islands, Australia was the biggest recipient of Chinese ODI in 2009 and 2010. An estimated 90 per cent of Chinese ODI to Australia is from SOEs, and more than 80 per cent of Chinese investment to Australia goes into the mining sector – nearly half into iron ore, and the rest into coal, zinc, aluminium, copper, uranium and so on (Hurst and Wang 2012). It's estimated that Australia was the largest single destination for Chinese ODI between 2004 and 2010 (Scissors 2011).

In Australia, negative perceptions of Chinese SOE investment were associated with the sudden surge in Chinese ODI and with the failure of significant Chinese investment proposals. In that context, the Australian Government introduced additional guidelines covering foreign investment applications from government-related entities. The guidelines were implemented through the Foreign Investment Review Board (FIRB) and are perceived to be directed primarily at Chinese investors (Larum 2011).

Drysdale and Findlay (2009:378) argue that 'additional requirements' put on resources projects created greater 'uncertainty about the treatment of Chinese FDI in the resources sector [and were], at the margin, likely to damage the potential growth of the sector and Australia's full and effective participation in the benefits from Chinese economic growth through the growth of its market for industrial materials.'

There's some evidence that Chinese investment in Australia is beginning to wane (Findlay 2011). Should that be the case and should that development be linked to uncertainty in the application of Australian policy, it's likely to test a very important bilateral economic relationship for Australia and to hinder the development of large China-dependent resource projects.

The increasing politicisation of foreign investment policy is an emerging problem in the development of Australian policy responses to investment activity. As the gateway for major

foreign investment proposals, the FIRB has an important mandate in maintaining Australian community confidence in foreign investment through the screening regime it operates. This government agency has also insulated the consideration of foreign investment proposals from political resistance. Very few major projects have been rejected outright on the advice of the FIRB, and the minister responsible for final investment approval has rarely felt the need to reject foreign investment proposals. Some observers and foreign governments – the US among them – have criticised the FIRB, saying it restricts access by foreign investors to the Australian market (Kearney 2007, Stoeckel 2008). Others have argued

The approach to receiving Chinese investment in the US has been restrictive, and European authorities have also been cautious

that, over the years, the FIRB has played precisely the opposite role, keeping Australia open to direct investment from abroad in the face of political pressure to be more restrictive (Drysdale 2011). In fact, in the past decade, the Australian Government has officially rejected only two foreign investment proposals (Drysdale 2011). However, some important projects have been subject to revision and, of course, it's not clear how many project proposals have been discouraged or withdrawn.

The uncertainties that have arisen in recent years over the treatment of Chinese investment have, therefore, undermined a traditionally open foreign investment regime.

Other policy questions

The relationship with China is not only driving strong growth and structural change in Australia's economy; it's also generating debate about resource sector policy. An important issue is the taxation of resource rents. One consequence of higher prices was extraordinarily high profits in the resource sector, and this led to debate over the distribution of resource rents and to a significant change in taxation policy. The Australian Government has recently

introduced a minerals resource rent tax of 22.5 per cent (effective) on the resource rents of the coal and iron ore industries, affecting approximately 320 companies and potentially raising \$11 billion in revenue during its first three years (Novak and Moran 2011). These new taxation arrangements for onshore mining, which extend similar longstanding arrangements that govern the offshore energy sector under Commonwealth jurisdiction, were subject to strong industry resistance and political campaigning – a contributing factor in the downfall of the former prime minister, Kevin Rudd.

Firms in the resources industry were always concerned that higher prices and profits would trigger higher royalty rates

Previously, Australia levied taxes on onshore minerals projects in two ways: through company income tax and through state-government royalties, which were linked to sales. Firms in the resources industry were always concerned that higher prices and profits would trigger higher royalty rates, which would be difficult to reverse later if prices were to fall (Findlay 2011).

Royalties are an inefficient instrument for taxing mining activities because they don't tax rents and they induce mines to close earlier than their economic life would justify. Royalties have been subsumed in the new Australian resource tax regime, which has prompted critics to say that mines will continue to close too soon at times when profits are low and there are insufficient profit tax payments against which to credit royalties. However, overall the new resource rent tax regime addresses significant weaknesses in the old resource tax regime for onshore projects in Australia.

The main host-country benefits from resource project development are through income flows, including to governments. There are issues related to the presence of foreign capital in resource sector projects, which include managing their income flow. Resource projects are associated with the presence of variable rents. They involve developing resources

that are not replaceable and whose global stock has scarcity value as a result of their limited quantity and uneven geographical distribution. In these circumstances, the value of the resource enjoys a premium or rent over the cost of extraction – at least for infra-marginal projects. UNCTAD (2007: Box VI.3) lays out some options for capturing these rents, including taxes based on revenue, output and profit. There are trade-offs between the costs of collecting and administering these taxes and their effects on economic efficiency.

Income taxes have an effect on the incentive to invest compared to taxes on pure profit (Garnaut and Clunies Ross 1983), while output taxes affect the incentives to exploit a deposit. In the past, tax allocation in the Australian resources sector has been skewed towards the collection of revenues from resource firms via income taxation.

Inefficient taxation regimes run the risk of collapse as circumstances change. The minerals and energy sector tax regime in Australia is complicated by the Australian federal system and the evolution of the distribution of taxation powers between the Commonwealth and the states. It is, however, legislatively and politically robust. In some federal jurisdictions, including those dealing with the offshore production of oil and gas, a variant of a resource profits tax regime has applied for some time. State-levied royalties remained the primary form of non-income taxation of onshore projects until March.

As experience in recent years shows, the profitability of long-lived resource projects can change over time, creating incentives to change the fiscal arrangements where political and legislative systems aren't robust. This is especially the case in periods when there's a substantial increase in the rent value of resources caused by sharp rises in the terms upon which they're traded (Duncan 2006).

In an advanced economy like Australia, the perception of an unfair and inefficient distribution of rents in projects may emerge, especially in the context of rising prices. This mightn't be an issue for existing projects but could hinder the development of new projects that operate on the same terms as existing projects. Chinese and other investment in Australian minerals in recent times is a consequence of the growth in demand in China. That growth has

contributed to rising prices in the same way that, in the 1960s and 1970s, the growth of Japanese demand saw a rise in Australian and global commodity prices. As investment arrives in host countries to take advantage of new profit opportunities in resource production and trade, the distribution of rents becomes an issue in policy debate.

Conclusion

China's resource demand has risen to historically high levels over the past decade. This expansion of demand across the whole range of resources is set to continue as China's economy develops further, more people join the middle class and rural migrants settle in urban centres.

The rise of China has been central to Australia's strong economic performance, especially over the past decade. Vast quantities of high-quality resources, including iron ore, established know-how, high mining and engineering technology, an attractive investment environment and close geographical proximity to East Asian markets have allowed Australia to profit from China's rise.

The relationship with China is driving not only strong growth and structural change in Australia's economy but also debate about policy in Australia. Important examples are foreign investment policy and the taxation of resource rents.

As China has followed its growth path, its concern about resource security has intensified and the Chinese Government has encouraged FDI as a means of securing resources. This has opened large-scale development opportunities in the resources sector, especially in the iron ore industry, in Africa and around the world. In some developed countries, Chinese ODI, especially from state-owned companies, has met with suspicion and questions about host security and sovereignty. In reality, Chinese SOEs are undergoing a continuing reform process towards market-oriented operating principles, and Chinese firms also face a steep learning curve in host-country markets. By far the largest proportion of Chinese resource imports are, nonetheless, still bought in open markets from corporations not owned by China.

Despite some controversy, Chinese ODI in Australian resources has been, and will remain,

There's scope to implement more efficient taxation regimes. Australia has extended its profit-based tax regime, from the petroleum resource rent tax that had long been applied under federal offshore jurisdiction to onshore mineral resources under state jurisdiction, and has imposed those arrangements upon the states while offering royalties compensation.

important in ensuring that Australia's mining sector continues to grow. One example of Australia's need for Chinese capital is the nation's budding magnetite industry. The industry could add US\$4.5 billion a year to GDP and 4 000 jobs, but it's unlikely to develop without continuing interest from China.

New international resource provinces are opening up as realistic supply alternatives, and this renders Chinese investors' perceptions of bias in the Australian investment screening process increasingly important. Countries in western and central Africa have world-class reserves of iron ore, in similar quantities to Australia, but those resources can't be developed without investing heavily to build infrastructure in politically and economically risky environments.

New international resource
provinces are opening up as
realistic supply alternatives

The scramble to expand iron ore export capacity in Africa and globally has created potential for significant export oversupply over the next five years and could, under a high-risk scenario, cause iron ore prices to drop to around US\$60/t CIF to China by 2018 (the price could soon fall to around US\$80/t even in the low-risk scenario). A fall in price of that magnitude would have serious consequences for marginal producers and Australia's magnetite development plans. Most importantly, a drop in prices would lead to withdrawal and slowdown in the development of projects worldwide.

Any fall in the price of iron ore would have significant knock-on effects for the iron-ore-centric

economies of Australia and Brazil. Iron ore is predicted to contribute A\$59.7 billion to Australia's economy in 2011–2, a drop in price could affect the overall terms of trade, the value of the Australian dollar and the real exchange rate.

For some years, the expectation of strong Chinese demand for iron ore and other resources has been a

shaping force in the resource trade, but that might not last forever. The exceptionally tight commodity markets and high resource prices in the past decade seem very likely to ease over the next five years as supply in global markets responds to the profit opportunities that high prices have generated.

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Acronyms and abbreviations

bt	billion tonnes	OECD	Organisation for Economic Co operation and Development
FDI	foreign direct investment	PPP	purchasing power parity
FIRB	Foreign Investment Review Board	SOE	state-owned enterprise
GDP	gross domestic product		
MOFCOM	Ministry of Commerce (China)		
mt	million tonnes		
ODI	outward FDI		

Endnotes

- 1 A megacity is a metropolitan area with a population of more than 10 million.
- 2 Based on 13 knot shipping speed.
- 3 The Baltic Dry Index provides an assessment of the price of moving the major raw materials by sea. Taking in 23 shipping routes measured on a time charter basis, the index covers Handysize, Supramax, Panamax and Capesize dry bulk carriers carrying a range of commodities, including coal, iron ore and grain.
- 4 Estimate based on 66 reporting mines (Intierra database).
- 5 Estimate based on 16 reporting mines (Intierra database).
- 6 Average GDP growth across Cameroon, Republic of Congo, Guinea, Liberia, Senegal, Sierra Leone, Gabon.
- 7 FOB requires the seller to deliver goods on board a vessel designated by the buyer. The seller fulfils its obligations to deliver when the goods have passed over the ship's rail.
- 8 Note that many of the available estimates are still at the prefeasibility or feasibility stage, and so there exists some potential for cost increases once these operations are in production. Further, much of the pellet feed operating cost estimates for African projects do not include the cost of pelletizing.
- 9 CIF price includes insurance and all other charges up to the named destination port.
- 10 'Betting on Africa: how Sinosteel gambled and won', *Caixin Weekly*, issue 21, 20 December 2010.

Africa and China: between debunking and disaggregation

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Western countries also buy oil, and have mines around the world. People don't talk about 'grabbing', or 'new colonialism' there. So why is it different for Chinese? We are not sending our armies to places and saying: 'Now sell us this!' If you can't compete with us, you find an excuse. It's like two children fighting, and the losing one crying to his parent about funny tricks ... Salaries in China are not enough ... I had to come for the money.

– *Xu Jianwen*, importer of Great Wall television sets and toilet paper, Kenya¹

Fifteen years ago, in the mid-1990s, most discussions on African development focused on topics that the development sector today regards as largely irrelevant. For example, while the continent is still dealing with the ramifications and the highest rates of infection, HIV–AIDS is no longer a defining issue. No longer, either, is there a Manichean debate about the role of the state and the market. It's broadly accepted that both an efficient state and open markets are necessary for development to occur, even though some governments are uncertain or incapable of creating one and lukewarm to allowing the other. The development issues facing Africa today have changed significantly.

Even during the 1990s the debate about how Africa could most quickly develop centred on the role of external actors, and the relationship between aid and poverty alleviation. This reached its zenith during the 2005 Gleneagles G8 summit when, at the urging of activist leaders such as British Prime Minister Tony Blair, it was agreed to double aid to the continent. Similarly, the African debt issue was virtually taken off the table through a combination of the Heavily Indebted Poor Countries Initiative and the Gleneagles proposals, which agreed to write off \$40 billion in debt owed by 18 poor countries to the International Monetary Fund, World Bank and African Development Bank.

In the mid-1990s, Africa was also at the start of a period of 'redemocratisation'. At the end of the Cold War, 70 per cent of African countries were considered to have 'unfree' political systems, as classified by Freedom House. By 2010, more than two-thirds were 'free' or 'partly free'. No longer, with some exceptions, was the debate in Africa focused on trying to get the military out of politics, as it had been in the Cold War, but rather on how to restore professionalism and ongoing respect for civil–military boundaries.

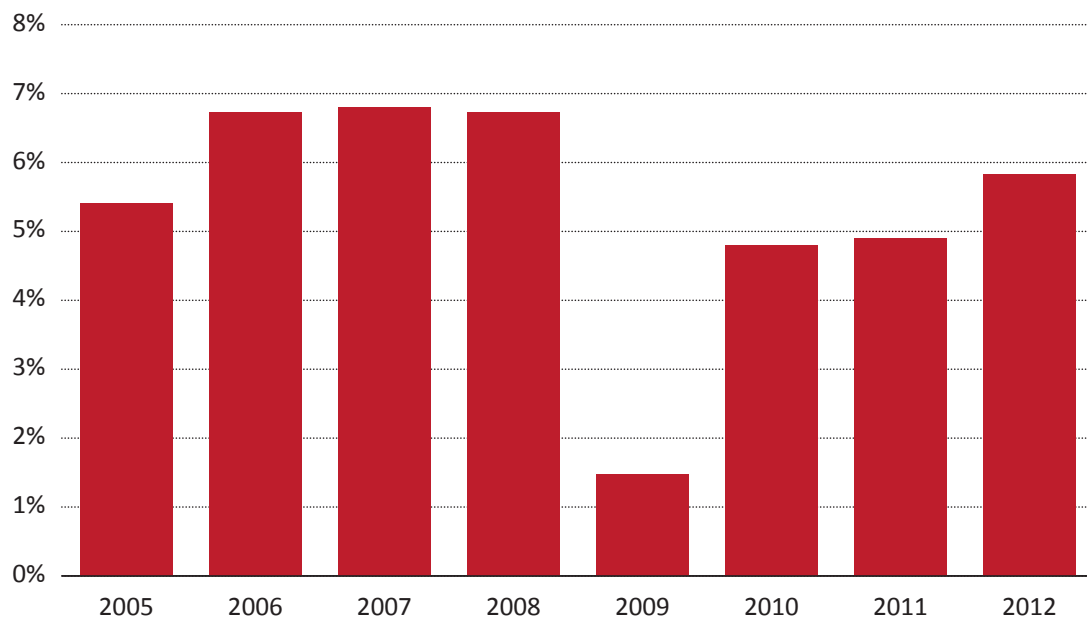
Today Africa is in the midst of a global commodity boom which, combined with profound technological changes in the form of digital communications, has driven up growth rates. Whereas by the mid-1990s African telephone connectivity was just one-tenth of the global average, today it is half, even though the global figure has increased fourfold to 70 connections per 100 people. As a result of these factors, along with improved local ownership of development choices and promising governance indicators, in the 2000s sub-Saharan Africa enjoyed its best growth decade since independence (Figure 1).

The development issues facing Africa today have changed significantly

Today, too, rather than the state versus market debate, there's a common appreciation of the centrality of economic growth as a necessary (if insufficient) condition for development. There's much more scepticism about the value of aid, which is viewed at best as a facilitator, not a generator, of development – and with a range of deleterious side-effects, not least for the link of accountability between leaders and the electorate. Debt, thanks to the Heavily Indebted Poor Countries Initiative, is largely off the table.

In all of these changes, perhaps the most notable and profound impact for Africa has been from the emergence of China. Unlike during the Cold War

Figure 1: Real GDP growth, sub-Saharan Africa, 2005–12 (% change, year on year)



Source: Economist Intelligence Unit

years when China’s engagement with Africa was limited mainly to political solidarity projects (such as the TanZam railway), there’s currently a new wave of Chinese engagement across the continent. China’s engagement with Africa is multifaceted: the Chinese operate as consumers/customers/extractors of raw materials, as investors in and operators of African mines and other businesses (including banking), as suppliers of basic infrastructure and providers of cheap consumer items, and as small-scale entrepreneurs. By 2011, the number of Chinese working in sub-Saharan Africa was estimated at over 1 million

(up from 100 000 in 1990) in a total regional population of 800 million, of whom around 200 000 were ‘officially’ estimated to be living in South Africa.²

China’s growing, multifaceted presence in Africa makes it a central player in the continent’s development. However, it’s often accused of being exploitative, and misrepresented as a singular, uniform actor. This paper contextualises this contentious relationship, debunks some common misperceptions, and considers new ways to ensure a mutually beneficial arrangement.

The emergence of China: many faces in Africa

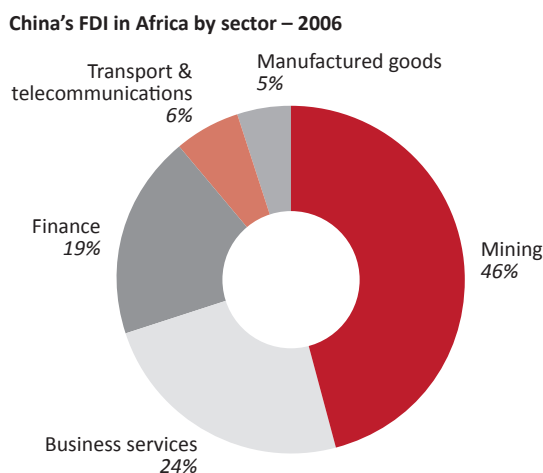
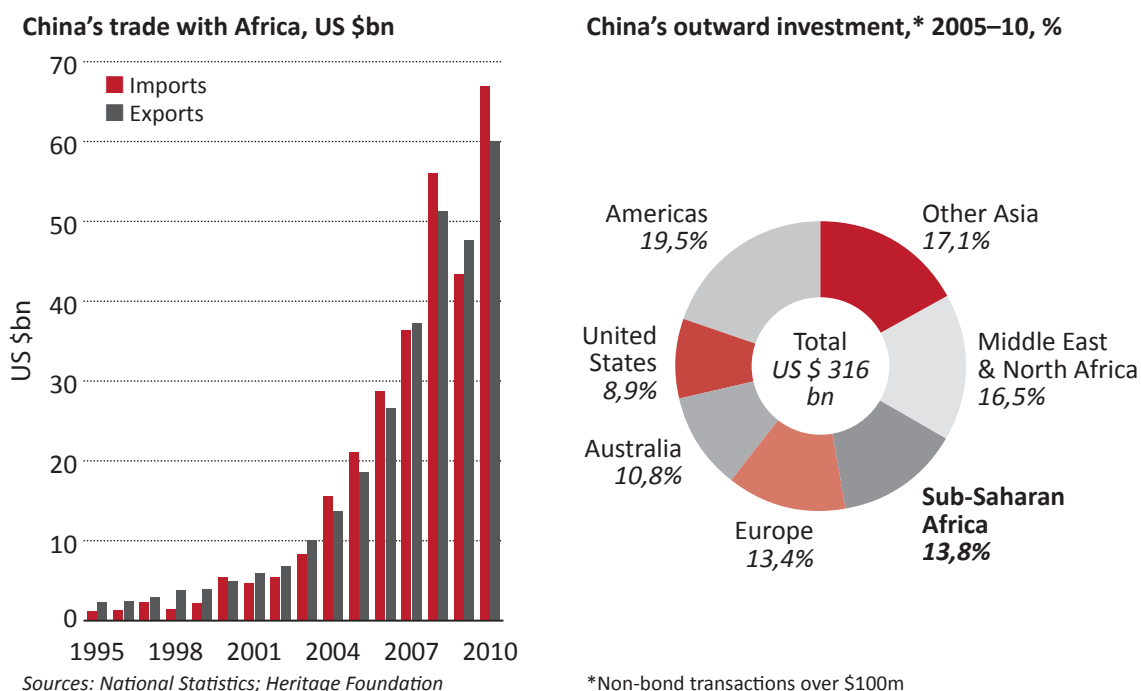
Perhaps more than any other single factor, China’s interest in Africa has illustrated that the continent isn’t only a humanitarian cause, but a business opportunity. A welter of statistics are routinely trundled out to describe this engagement: for example, China’s trade with Africa rose from under \$5 billion in 1995 to over \$130 billion in 2010, and in 2010 sub-Saharan Africa accounted for nearly 15 per cent of Chinese outward investment – from virtually nothing in 2005 (Figure 2).

But China’s investment has to be carefully segmented, and each segment contains different challenges for African countries and other external

partners. China’s growing African role is not one dimensional, since there are a range of Chinese investors and players, from those in the natural resources sector – usually big (state) and small (individuals), including those employing aid or assets-for-commodities swap deal methods – to the myriad smaller Chinese businesses across the continent.

Each facet of China’s engagement in Africa carries a variety of implications for governance, domestic and international politics, the private sector and individual entrepreneurs, as well as development and other strategic choices. A deep understanding of these aspects is critical.

Figure 2: Chinese trade and investment in Africa



One of the myriad implications of China's expanding interests in Africa may be a further entrenchment of poor leadership through the notorious assets-for-commodity swaps. In September 2007, for example, the Congolese Government and a group of Chinese state-owned enterprises signed a bilateral investment and trade agreement, under which the Chinese committed to constructing a number of roads, railways and hospitals. The work was to be carried out by Chinese companies and financed by loans from the Chinese EXIM bank estimated at \$6.5 billion. In return, to guarantee reimbursement

of the loans, a Congolese–Chinese joint venture with Chinese majority participation was to be created to extract and sell Congolese copper, cobalt and gold. Although there is an infrastructure dimension, such a deal can do only little to change Africa's status as a raw material exporter and achieve its aim of increasing diversification and local job creation.³ Further loans to a kleptocratic government like that of the Democratic Republic of the Congo may hinder the country's development, which is one reason the multilateral agencies objected to these deals. Such investment deals are mostly about the elite's capture

of rents, with little further redistribution and little hope of the promotion of democratic values.

On the micro-level, there's also a displacement effect on the local economy. For example, Guy Scott, the Vice President of Zambia, has noted about Chinese traders in Zambia, '[T]he guys we've got ... are people who have difficulty getting work back in China ... They have started to compete with Zambians at quite a low economic level – raising chickens, for example. ... They don't take weekends off, and they live four to a room. And they get money at 6% interest from the Bank of China, compared with 25% that Zambian contractors have to pay.'⁴ Scott's observations speak to the economic fissures that have formed as a result of increased competition for local small to medium enterprises.

Recent research by the Brenthurst Foundation⁵ among small Chinese traders across five southern African countries shows that these businesses receive no Chinese or African state support and are deeply mistrustful of the local people and authorities. The key question for Africa is, however, why it takes Chinese entrepreneurs with limited local knowledge and support base to succeed in the very areas where local Africans should be more competitive. The Chinese traders' competition is fiercest from Somalis, Vietnamese and each other.

Of course, China isn't the only new actor. Others, including Turkey, Brazil and India, have also shaped a

more positive view of Africa as a place to do business. In 2011, for example, India announced \$5 billion worth of development deals in Africa for a three-year period.⁶

China's undoubtedly a major price and demand driver for African commodities. In 2006, it was estimated that emerging economies (including China) had been responsible for 90 per cent of the global increase of oil and metals consumption since 2002.⁷ Since 2000, China alone has accounted for one-third of the increase in world oil consumption. Its share of world metal consumption jumped from less than 10 per cent to around 25 per cent over the 2000s. Increased demand and higher prices have reinforced African demand on commodities for export revenue and growth. The World Trade Organization estimates that 66 per cent of Africa's trade comprises fuels and mining products, while the African share of global trade overall remains thin, at just 3 per cent.⁸

The importance of China to Africa has to be understood in terms of China's own development path. Its real economic growth, which has averaged a shade under 9 per cent annually for the past 30 years, has been on the back of export growth averaging over 17 per cent during that time and nearly twice that figure in 2006. In 1980, China's share of world trade was less than 1 per cent; by 2003, it had risen to 6 per cent. This trade largely involves China's processing of raw materials and assembly of parts.



Its shortage of minerals, energy, arable land and even water is as impressive as its abundance of labour and manufacturing capacity.

Currently, the People's Republic imports just under one-third of its oil from Africa, and that figure's expected to rise. Between 2009 and 2010, Chinese crude oil imports rose more than 17 per cent. In 2010, it imported 4.8 million barrels per day (bpd) of crude oil, of which 2.2 million bpd (47 per cent) came from the Middle East and 1.5 million bpd (30 per cent) came from Africa. Angola was the principal African supplier, followed by Sudan and Libya. About 85 per cent of all Chinese imports from Africa are raw materials, mainly crude oil and

minerals, including significant stocks of cobalt, copper, manganese, tantalum, bauxite and iron ore.

China isn't alone in this regard, however, even though it's often the object of criticism for its overdue focus on raw material imports from Africa. In 2010, the US imported 2.3 million bpd of oil from the 54 African countries, or about 800 000 bpd more than China. Raw materials, more than 80 per cent of which are energy products, also dominate American imports from sub-Saharan Africa.⁹ This picture is more extreme for certain countries, given their natural resource base.¹⁰

In all this, however, it's necessary to set aside some myths about China in Africa.

Dealing with the myths

As the quote from Xu Jianwen at this paper's opening suggests, distinguishing the facts from the myths about China's engagement with Africa is a process fraught with problems, and is often informed by a sense of insecurity and xenophobia on the part of local populations and commercial competitors.¹¹ It's worth considering what the stakes in the myths are – why they would be believable – and whose interests are served by them.

China's involvement with Africa is often criticised – from the business practices of the traders to the multinational corporations and even the state-owned

despite the abundant criticism
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isn't exceptional in its behaviour

enterprises. An article in *The Economist* in April 2011 ('China in Africa: Africans are asking whether China is making their lunch or eating it') critiqued a number of China's methods of engagement with Africa, including lower standards, a lack of 'corporate social responsibility' in business practices, deteriorating labour relations and insufficient hiring of local labour. But other allegations are made, including about the

nature of Chinese credit and tied aid, as the monies are spent on Chinese companies, leading to a lack of competition due to the monopoly, lack of skills and technology transfer and shoddy work. Although this is true for China, most contracts still go to donor countries' own firms even when OECD countries are the donors. Additionally, much of the Chinese assistance to Africa is in the form of commercial-rate export credits, which, as with other countries, is tied. Therefore, despite the abundant criticism it's clear that contextualising China's practices in the global arena often reveals that China isn't exceptional in its behaviour.

Another allegation about China in Africa concerns the use of prison labour on African construction projects. There's little (if any) hard evidence to support this claim, which has reached urban legend proportions. No doubt it springs from the conditions that many Chinese workers are willing to work and live in, at least compared to Europeans. As the Director-General of Africa in the Chinese foreign ministry, Lu Shaye, has argued:¹²

The Chinese employees work in tougher conditions than the employees of western companies. The Chinese have a spirit of enduring hardship. They live a hard life, eat simple food and live in simple domiciles so that they can send home the money they earned to raise their families and improve their living conditions. The Chinese workers can endure hardship. They work in

three shifts a day and work all day and all night to speed up project schedules. That is why the Chinese companies are competitive. They spend less on the workers. Take government assistance projects as an example, China spends 95 per cent of the money on the project and on the recipient countries, while the west may spend 80 per cent on their own staff.

In part, the Chinese have brought the African prison labour myth upon themselves. Their use of Chinese prison labour in their own economy and the treatment of their own workers make such claims believable. Such tendencies and perceptions are exacerbated by the cultural and linguistic barriers that exist between Chinese and local populations in Africa.

Structural issues arising from this long-standing neglect of technology, infrastructure, and institutions continue to limit competitiveness

Another myth is that there are more Chinese than European-origin people in Africa today. Although the Chinese population in Africa is rising rapidly, that assumption isn't grounded in statistical evidence. As noted above, however, the animosity derives from Chinese enterprises preferring to employ Chinese labourers or semi-skilled workers while the rate of unemployment in the host African countries is disproportionately large. The apparent ease with which the Chinese obtain visas in African

countries (or enter without one) can only exacerbate those tensions.

Finally, there are accusations, too, about Chinese 'land grabs' across Africa – a highly emotive issue. Yet one 2009 Food and Agriculture Organization study reports that 'A common external perception is that China is supporting Chinese enterprises to acquire land abroad as part of a national food security strategy. Yet the evidence for this is highly questionable ...'¹³ The report also notes that 'as yet there are no known examples of Chinese land acquisitions in Africa in excess of 50 000 hectares where deals have been concluded and projects implemented.'

However, a subsequent 2010 World Bank report¹⁴ raised a series of concerns about the nature of such 'grabs' in Africa more generally, noting that investors are taking advantage of 'weak governance' and the 'absence of legal protection' for local communities to push people off their lands. It also found that such investments are giving almost zero back to affected communities in jobs or compensation, to say nothing of food security.

Yet, at the same time, increased commercial investment in agriculture in Africa, whether from China or others, can assist in improving yields. The 2010 World Bank report noted that 'structural issues arising from this long-standing neglect of technology, infrastructure, and institutions continue to limit competitiveness.' These factors have in many cases 'contributed to disappointing performance of commercial cultivation of bulk commodities, where sub-Saharan Africa can have a comparative advantage. Instead, success with export agriculture was limited to higher-value crops, such as cotton, cocoa, coffee, and more recently horticulture.'

Key components for long-term success

With the above in mind, three sets of long-term effects should be considered.

The sustainability of Africa's current growth phase

The sustainability of Africa's economic growth depends in large part on what happens in China itself, not least because Chinese demand has been responsible for an estimated 90 per cent of the 21st century increase in commodity prices. China's

growth now appears to be cooling off, with implications for African exporters (Figure 3).¹⁵

A number of factors are routinely advanced as brakes on Chinese growth: the 'gilded youth' generation, pollution and the environment, and political change.

But one thing seems for certain: the Chinese are getting older, and quickly (Figure 4). In 2011, Chinese numbers revealed a steep decline in the average annual population growth rate, down to

Figure 3: Chinese growth and exports to China

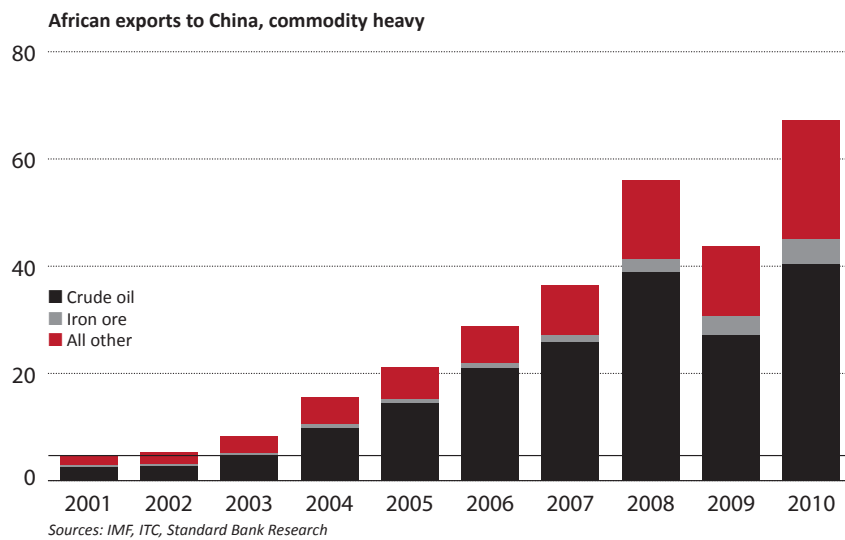
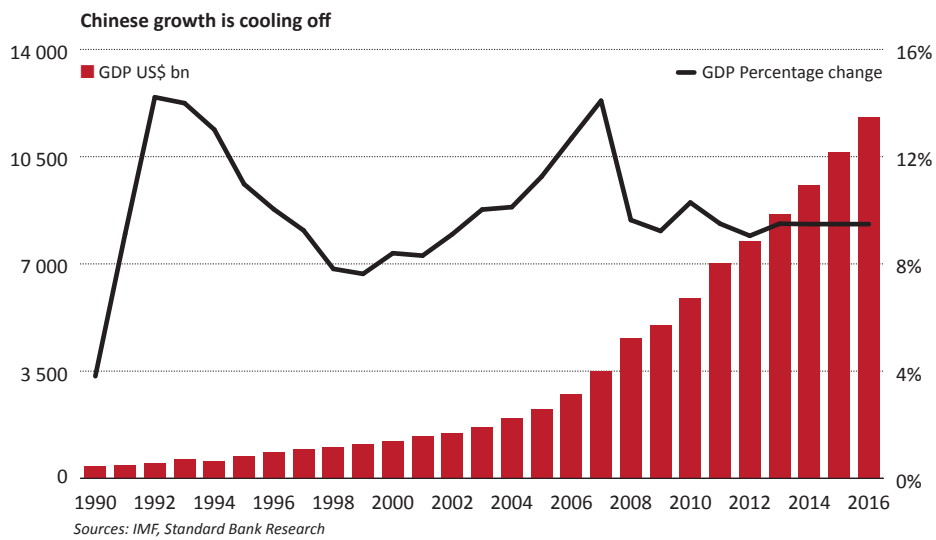
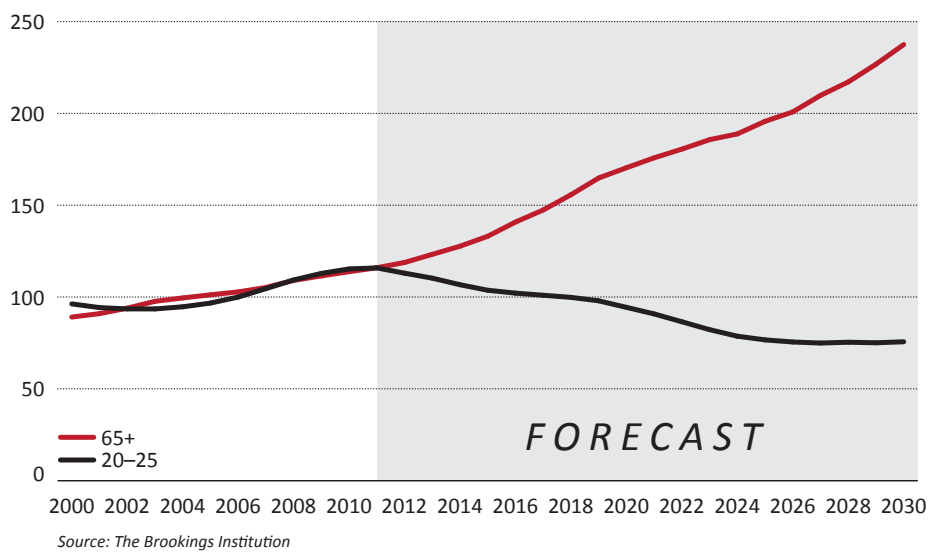


Figure 4: China's population, by age group, 2000–30 (millions)



0.57 per cent in the 2000s, which was half the rate of 1.07 per cent in the previous decade. The total fertility rate (the number of children a woman of child-bearing age can expect to have, on average, during her lifetime) is estimated now to be just 1.4 (it was over five per woman in the 1950s), which

Increasing population – and especially urban population – offers an unprecedented demographic dividend and economies of scale for development

is far below the ‘replacement rate’ of 2.1. In other words, China’s great ‘demographic dividend’ (a rising proportion of working-age adults) is almost over.¹⁶ At this rate, by 2020 the age of the average Chinese worker will be greater than that of their American counterpart. Will they still have the same demand for raw materials as today? And, if not, are there others to step into the gap to keep prices buoyant?

Africa’s diversification and job-creation prospects

Sub-Saharan Africa will become an urban continent (meaning that most of the population will reside in towns and cities) by 2025, when one in four of the world’s people under the age of 24 will be from that region. Sub-Saharan Africa’s population has increased from 100 million in 1900 to 800 million today, and should reach 1.5–2 billion by 2050. Increasing population – and especially urban population – offers an unprecedented demographic dividend and economies of scale for development, but it also threatens to destabilise if the expectations of this young cohort are not met. Africa has already experienced several cases of civilian unrest as a result of disgruntled youth, including in Liberia, Rwanda and Tunisia.

How African countries manage this tension and enable job-creating growth will separate African exemplars from others. Already, a little under 80 per cent of sub-Saharan Africans are in what the International Labour Organization refers to as ‘vulnerable employment’. For example, Zambia had three million people at independence in 1964;

today it has over four times that number, but formal employment has increased only from 300 000 to 400 000 since then.

Africa’s ability to deliver a diversified, employment-generating economic model will hinge on dealing with challenges of competitiveness and costs of doing business. Moving from slow (or no) growth was Africa’s challenge of the late 20th century; how to translate high growth into jobs is probably the key one for the early 21st century.

The important question here for the relationship with China is whether Africa can ever match the industrial unit labour costs of China, or for that matter the back-office service industry costs of the Philippines or India. And, if it can’t, are there other options for job creation?

In recent years, a stumbling block to job creation has come from China. So far, China’s direct export impact on African industries, notably textiles, has been catastrophic: the textile industry has lost as many as 750 000 jobs in the past decade. Yet, in US African Growth and Opportunity Act (AGOA) beneficiaries such as Lesotho, some estimates credit the Chinese-led textile export industry with creating 100 000 jobs for the local population.

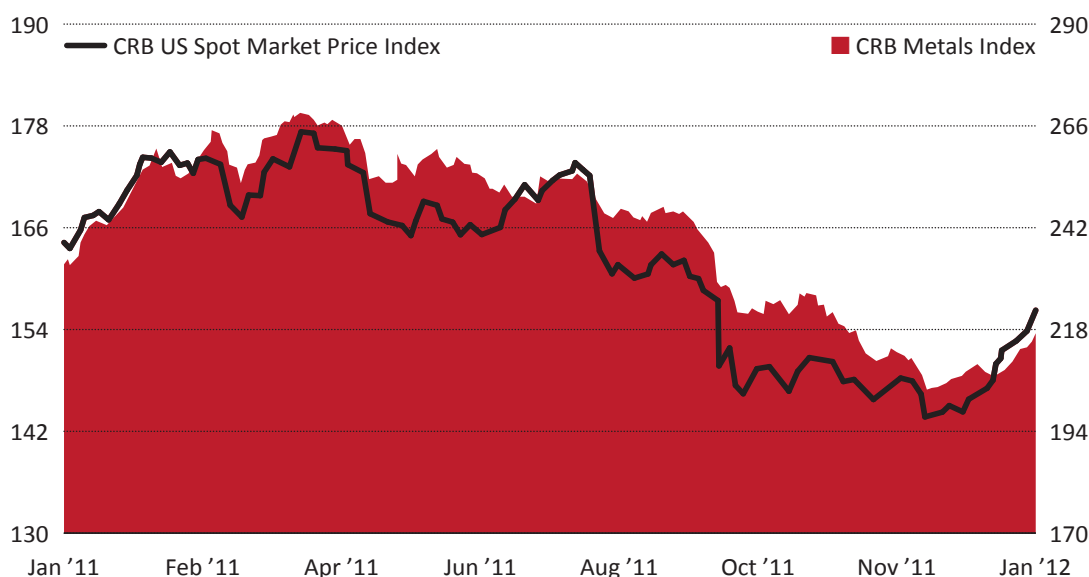
In recent years, a stumbling block to job creation has come from China

Dutch and other unmentionable diseases

At the same time, Africa has to contend with the unintended consequences of the natural resources boom. Unsterilised and large financial inflows from natural resources can create problems of overvalued currencies, and make diversification into other exports and even the beneficiation of primary products more difficult. Yet this is perhaps not the foremost danger from commodities.

In particular, observers should ask: ‘What is China’s impact on African governance?’ Of course, that impact isn’t always state-to-state, or even big-company-to-state, but at the lower levels in terms of work permits, labour standards, petty corruption, payment of taxes etc. At another level, China’s demand for natural resources provides the resources for African governments to do their job better, while

Figure 5: Chinese demand for industrial metals, 2011



the prospect of cheaper finance for African development, both bilaterally and through the mooted BRICS' development bank, is encouraging; at another, the very nature of effectively state-to-state

mining transactions is problematic. There are other consequences, not least the impact on local producers and, invariably, on politics.

Three scenarios for Africa

With the above in mind, and considering other pressures on Africa, three 'generational' scenarios can be identified.

Boom times are here to stay: high commodity prices continue

China has become the factory to the world: it's now the largest steel producer, and has gone from a bicycle economy to a car industry producing seven million units a year (Figure 5).

China depends on this fast pace of growth continuing, because the impacts of a slowdown on its internal political stability would potentially be seismic. This, of course, depends on the security of export markets, the growth of its internal market and the price of commodities. While its extraordinary economic performance has enabled a sevenfold expansion in per-capita incomes since 1979, China has still not caught up with Latin America and most other Asian nations, let alone the developed world. This means that even though its growth rates are impressive the country has to undergo much more economic growth in order to catch up to other

emerging markets. Hence, it's plausible that China's fast-paced growth may continue.

The interest of China in Africa can be explained largely by this circumstance and by the prices of commodities, which have driven the best growth decade in independent Africa. One way for China to continue to expand its economy in the face of an export slowdown and to cater for its 1.4 billion expectant citizens will be to seek more value at source, in Africa, for example – at its well of natural resources.

The view that Chinese demand (and ultimately Indian demand, too) will continue to grow is based on two facts:

- China's per capita demand for commodities is roughly equal to that of Japan and South Korea during their take-off phases.
- Thus if Chinese purchasing power parity adjusted per capita GDP continues to converge on South Korean levels, over the next 20 years aluminium and iron ore consumption will increase five times from current levels; oil, eight times; and copper, nine times. China's total oil consumption could increase tenfold in absolute terms over the next

three decades, and yet it would still be using 30 per cent less oil per person than the US does today.

There have been two commodity ‘supercycles’ that have lasted longer:

- 1886–1907 (21 years): the first phase of globalisation, along with US land exploitation
- 1951–71 (20 years): the postwar US boom and the recovery of Japan and Europe.

Of course, there are qualifying factors in such predictions. One is what happens in India. By the mid-2000s, India consumed only one-eighth as much copper and one-third as much energy per person as China. India’s need to expand its manufacturing to create more jobs and to improve its rickety infrastructure could see its raw-material demand triple over the next decade.¹⁷

Whatever manifests, Africa’s global trade, heavily commodity-dependent as it is, will be shaped by drivers in the supercycle.

High growth and demand for commodities could also create opportunities for African agriculture, which is described as Africa’s ‘new oil’. Whether Africa is able to realise that opportunity, however, will depend on whether it deals with the same interrelated impediments that have blighted the sector since independence: lack of clarity on land

title, limited collateralisation value, poor extension services, political resistance to foreign ownership of land and to genetically modified seeds, and limited technology inroads and impact.

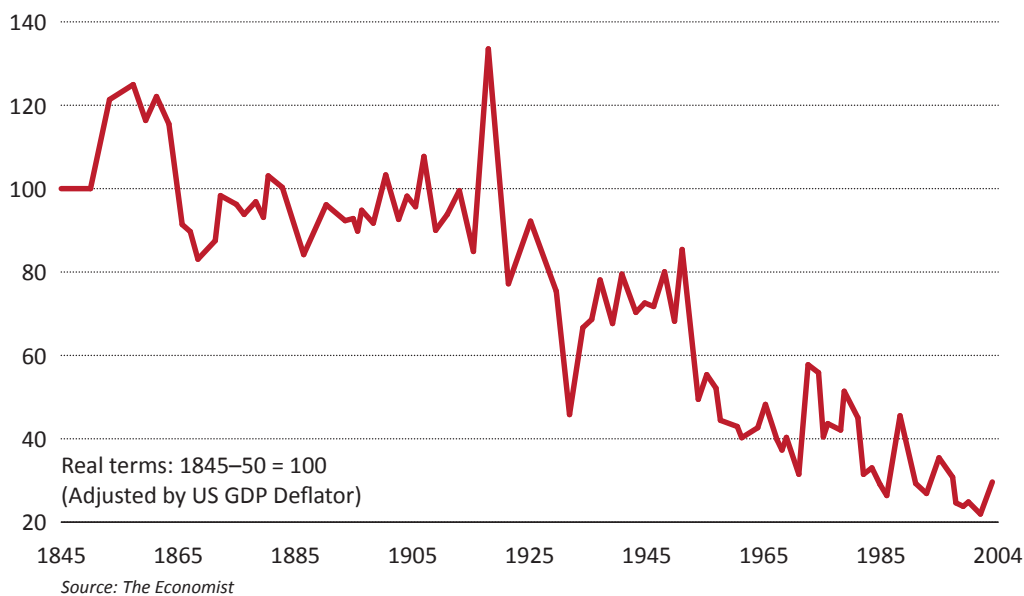
Whatever the predictions about its longevity, the extent to which Africa can benefit from the current boom depends not only on how long the boom lasts before an apparently inevitable price decline, but also on how African countries manage their resources and this windfall, whether the proceeds are wisely invested, and how they manage to put in place the building blocks for diversification. Those building blocks include the provision of infrastructure (potentially in partnership with mining and other foreign investors), the crafting of better and stable policy regimes, investment in skills acquisition (especially secondary and vocational education), logistical integration with regional neighbours, and creating the space for the private sector to compete and develop as an alternative source of wealth creation.

In essence, longevity depends on a critical change in Africa’s politics.

The cycle turns: the (temporary) end of the commodity boom

The current commodity boom appears as blip during a long-term reduction in prices (Figure 6).¹⁸ History shows that commodity prices usually revert to a long-term mean, even though deviations are often

Figure 6: Industrial commodity price index, 1845–2006



long-lasting (averaging at least six years and sometimes as long as 12 years). There are three possible reasons behind this: the removal of speculation in the market, given that non-commercial trades account for a large share (over half) of all trading; slowing of global demand over the long term; and a correction of prices in China itself.

There are basic supply and demand questions here too. Despite growing demand for oil, the moment of 'peak oil' (defined as the point where the rate of new discoveries and production is lower than the rate of consumption) has not yet been reached, for all of the gloomy punditry. Second, compared to reserves of oil, reserves of metals are vast. According to economist Simon Hayley, total deposits of copper (inferred from geological evidence) would last 107 years at current rates of consumption, and reserves of iron ore would last 151 years. Those deposits may not all be profitable to extract with current technology, but high prices will encourage technological advances. One study (by Martin Sommer at the International Monetary Fund) found that copper prices in the mid-2000s were almost three times above the cost of the least efficient producers – a much higher ratio than at the height of the 1980s boom.¹⁹ Chinese demand would be a major price driver, and is subject to market forces.

But, as noted above, raw materials also dominate American imports from sub-Saharan Africa, more than 80 per cent of which consist of energy products. A change in US demand could be as significant for African producers as a change in Chinese demand.²⁰

In all this, the African environment is unlikely to remain static. If commodity demand and prices remain high, there are likely to be continued calls for indigenisation of those assets – so-called 'resource nationalism'. This could create the perfect economic and political storm. Together with a downturn in prices, it could transform a price downturn into a rout for African producers, leading to collapse and all that entails.

A downturn in international prices for African commodities would have varied impacts. Any reduction in already low levels of state expenditure would probably further stress African polities. In this environment, an 'African Spring' – in the form of coups, insurrections or irredentism – becomes more likely.

An African model emerges: African economic diversification and job creation

Resource booms have historically been poorly exploited in Africa. A combination of 'Dutch disease', uncontrolled increases in spending during booms not reversed during slumps (resulting in a debt crisis) and poor spending on pork-barrel projects leads to minimal short-term gains and often to longer term problems. For example, during the inflow of oil money in Nigeria from the 1960s, government doubled its role in the economy to 40 per cent of non-oil GDP, agricultural production plummeted and manufacturing and utilities stagnated; capacity utilisation in manufacturing went from 75 per cent (in 1975) to a plateau of around 40 per cent, and total factor productivity fell.

African politicians routinely promise that 'this time it will be different'. For that to be true, however, the tendency towards rent-seeking and patronage will have to be remedied and political accountability improved, even though direct tax receipts become less important to government. In this environment, transparency disappears to facilitate patronage and corruption where institutions required for growth are stunted.

Historically, commodities in Africa
have done little for employment

Historically, commodities in Africa have done little for employment. They've done a great deal for elites, however. The extent to which this outcome can be altered today is dependent on how well governments and business can work together to eradicate rent-seeking and corruption and devise policies for long-term benefit rather than short-term gain.

Any diversification model would also have to address the significant hurdles in agricultural production identified above. Africa is the world's 'last frontier' in this regard. It's estimated that over 60 per cent of the world's available and unexploited cropland is in sub-Saharan Africa, and is increasingly important because of projected global population increases (demanding a projected increase in food production by 70 per cent by 2050) and the simultaneous decline in China, which has 20 per cent of

the world's population and less than 8 per cent of its arable land and where total cropland is expected to shrink from 135 million hectares in 2011 to 129 million hectares in 2020.²¹ A critical focus on agriculture will be the key to diversification and job creation in Africa.

Can it be different this time for Africa? Some positive developments in Africa, including cellular communications and improvements in banking, make growth and diversification less dependent on the efficiencies of government. For example, the Standard Bank of South Africa predicts that there could be as many as 400 million new African bank accounts by 2020. This allows for the possibility of private sector initiatives that could contribute to the growth of the continent's economies. Improvements in regional trade – which has increased as a percentage of African trade from 7 per cent to 15 per cent

over the past decade – against a backdrop of increasing fuel costs are a further driving force behind African diversification. Another problem is the small African share of global tourism (less than 5 per cent of a \$1 trillion market) compared to the continent's unique offerings. Realising these potentials depends on reducing regulatory barriers to entry and overcoming the vested interests that support them. Other challenges that have to be met in the diversification drive include the worldwide surplus availability of labour and the competitiveness of African labour and infrastructure (including telecom and transportation costs) relative to other competitors, compounded by uncertain regulatory and political regimes.

A failure to develop this diversified model, however, portends continued political instability in many African environments, especially given the surge in numbers of young people in the cities.

Some conclusions

There's popular frustration in Africa over the perceived skewed benefits from the exploitation of the continent's natural resources. For the development of such resources, read 'the exploitation of Africans and their commodity birthright'. Rather than focusing primarily on protecting the population from elite, transaction-based rent-seeking and ensuring that the incentives encouraging such predatory behaviour are outweighed by the costs, the focus of economic policy regime changes is on the external domain – on attempting to alter the system of global capitalism to ensure that profits are retained domestically. Hence the ongoing African debates about the (dubious) role of multinational companies, for example, or the role of the mining/oil sector. There's an underlying mercantilism to this seeing the world in zero-sum trade and investment terms. This also finds expression in punitive measures, including redistribution and protectionism, rather than in a focus on putting

in place the enabling conditions for local and foreign business.

Even so, Africa has a lot to thank China for. China's growth has driven up commodity prices to the benefit of many African countries, even if this is inevitably temporary, and has opened the world's eyes to opportunities in Africa.

African countries should realise that, in contrast to grand political statements and gestures on South–South cooperation, China seeks terms of engagement principally in its own interests. That much is entirely understandable, as much as it's underappreciated in Africa.

To make full use of this unprecedented opportunity, African states will require a clear development strategy and approach, as much to China as to others. But, above all, the interests of their people must be central to future China–Africa relations.

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Chinese traders: the opaque underbelly of China's presence in Africa

Terence McNamee is the Deputy Director of the Brenthurst Foundation

The 'China in Africa' story brims with ambivalence and ambiguity. Nowhere is this more evident than on the African street. The influx of Chinese products and the proliferation of small Chinese enterprises are affecting ways of life in African towns and cities, but exactly how and to what extent are hotly contested. Their presence has sparked outbreaks of xenophobic violence, led to increased competition with local businesses and prompted calls for tougher regulation and government intervention. They've become the whipping boy for Africa's politicians, merchants and labour unions upset by Beijing's growing ties to the continent. However, Chinese traders have also afforded millions of African consumers the opportunity to purchase a range of goods for the first time. While debate over their impact on Africa's development escalates, they've remained a largely unknown newcomer, scarcely understood and rarely examined.

Between April 2011 and February 2012, the Brenthurst Foundation conducted nearly 200 in-depth interviews with Chinese traders in five countries in Southern Africa – South Africa, Lesotho, Zambia, Botswana and Angola.¹ It was the first study to systematically investigate and compare the perceptions of Chinese traders across several African countries. The interviews revealed a wealth of new insights into the Chinese presence in Africa. The study also raised a fresh question about African business: why have Chinese traders proved successful where local firms have failed or feared to tread?

There's no reliable data on how many Chinese citizens are in Africa, although some estimates put the number at over a million. Of those, we know *least* about the Chinese migrants who are making a living as traders in rural areas and urban marketplaces across the length and breadth of the continent. They've forged their own pathways in Africa and are seemingly entirely divorced from the policies often associated with China's African interests. Yet the experiences of traders could weigh heavily on the

future of Chinese–African relations, more so than even big business or grand politics.

The overwhelming majority of Africans and Chinese meet, interact and explore each other's worlds on the street, at the grassroots level. By restricting our in-depth interviews to this sphere, we exposed numerous findings and insights not captured in the wider 'China in Africa' narrative. At the most general level, this study reveals the complex and multi-layered nature of the Chinese presence in Africa, so frequently misrepresented as one great,

At the most general level, this study reveals the complex and multi-layered nature of the Chinese presence in Africa

remorseless monolith, with large state-owned firms racing in, offering infrastructure in return for commodities. Although there are sharp differences in the opinions and perceptions of Chinese traders across the five countries examined in this study, it's the striking similarities that are most telling.

Africa is the bottom-rung destination for China's migrants. The continent draws the poorest and least educated of the Chinese diaspora. Nearly all are in Africa because they couldn't make a living in the pressure-cooker that China's job market has become. If they had a choice, they'd be elsewhere, but only Africa possesses the minimal entry requirements and constraining regulations that enable Chinese migrants with limited capital and low levels of skills to compete. Still, only a tiny minority intend to make the continent their home. The overwhelming majority of traders long to either return to China or resettle somewhere other than Africa. In one country in our survey, Lesotho, not a single interviewee definitely wished to remain in the country. In part,

this is due to issues such as rampant corruption, high crime and low quality of life, which figured prominently in responses throughout our study. More and more, however, traders have become fearful of the rising tide of resentment among locals, fuelled by China's perceived dominance over many sectors of their economies. This was especially pronounced in Lesotho, Angola and Zambia, and less so but increasingly in Botswana.

This survey paints a bleak picture of the place of Chinese traders within African societies. Only in South Africa did traders express any sense of belonging or attachment to the country. Overwhelmingly, Chinese traders sealed themselves in cocoons, completely cut off from local communities. Their experience suggests that, at least for now, it's pointless to even speculate on the prospects for deeper integration of Chinese migrants into African society. In some countries, just halting the rise of mutual suspicion and tension could prove a colossal task.

Yet this study also sheds light on the values and mind-set that have enabled Chinese traders to succeed where many others have failed or feared to tread. Their capacity to endure hardships and sacrifices to earn a living, not least long separations from their families, seems inestimable.

Evident throughout our interviews were also:

- their abiding commitment to learning a new profession (only one in five had experience in trading back in China), often moving from the lowliest position in a workplace to owning a small business
- a marked tolerance for risk, forging opportunities where none seemed to exist, where profit margins were minimal and supply chains weak
- an ingrained sense that a person is nothing without a job and that only hard work will prevent someone else from taking it
- a willingness to compete.

In the view of most Chinese traders, this mind-set is not shared or understood by the African communities that purchase their goods and work in their shops. Instead, traders feel besieged by charges that they're using illicit means to rob and cheat Africans, rather than simply outcompete them. In some countries, ill-will is clearly growing among their customers over the poor quality of some Chinese goods and

shopkeepers' business practices, particularly their failure to implement or understand consumer rights. As the clamour for action against Chinese traders intensifies, they'll be less able to sidestep the contentious issues that surround their businesses, especially matters related to tax, imports and their failure to establish links with local firms and supply chains.

In some southern African countries, more than half of the traders come from just one province, Fujian, which is home to less than 3 per cent of China's total population. Networks in Fujian have been exceptional in creating opportunities that facilitate greater migration from China to African

This study also sheds light on the values and mind-set that have enabled Chinese traders to succeed where many others have failed or feared to tread

countries – both legally and illegally – yet Fujianese traders have been the source of considerable tension, not least among the wider Chinese migrant community, who are widely critical of their approach to business, if not their character.

Revealingly, traders often reserved their harshest comments for their putative guardians in African countries – Chinese diplomatic and consular officials. Ninety-five per cent of our respondents claimed that they'd never received assistance of any kind from their Chinese embassies. With rare exceptions, their perception of 'Beijing' was extremely negative.

Should tensions over traders' activities continue to escalate in Africa's towns and cities, it will become harder for China to remain indifferent to their plight. Sooner or later, Beijing will have to define its relationship with Chinese traders in Africa. The large numbers of Chinese migrants living in volatile countries across the world, not least in Africa, could become China's Achilles heel. The fear is that violence against Chinese migrants abroad could stoke nationalist reactions at home and threaten the country's unity. So the question arises from our study: might China be compelled to involve itself in the

internal affairs of unstable or conflict-ridden countries, including in Africa, to a far greater degree than hitherto? If so, then Chinese traders – the most vulnerable of China's migrants – could find themselves on the front line of their country's foreign policy rather than the furthest margins.

The formidable obstacles Chinese traders have overcome to earn a living in Africa during the past decade, from insecurity and loneliness to language difficulties and xenophobia, are well documented in this study. As for the coming decade, the emergent challenges to their supremacy on the African street are likely to be even more arduous. Prominent among them are changing government policies, new market competitors and shifting dynamics within China. Despite the obvious drawbacks, however, life in Africa still makes *economic* sense for Chinese

traders, at least for now. Research suggests that they're making about three times what they might theoretically earn in China. That essential difference is where much of the Chinese trader phenomenon in Africa starts and stops.

Yet there's an acute precariousness to their existence in Africa that's not generally felt by Chinese migrants elsewhere. It may stem in part from the anxiety evident across Africa over whether the continent can address the manifold challenges that threaten its economic growth, such as high youth unemployment or an unexpected fall in commodity prices. Doubtless it also relates to the lowly place of Africa's Chinese traders in the wider Chinese diaspora: if they don't make it in Africa, they've nowhere else to go.

Endnote

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China and Latin American resources – some trends and implications

Patrick Esnouf is the former Chairman of Anglo American in South America

From a base of close to zero in 2000, China has rapidly become either the number one or number two trade partner for the major Latin American economies. While this is almost to be expected, given China's remarkable appetite for raw materials to support its urbanisation and infrastructure-led economic growth, in researching for this paper the author has been struck by the modest levels of Chinese investments and involvement in the continent, behind the high level of often 'scary' hype that accompanies it.

It seems that to date Chinese investment has grown everywhere, yet remains modest

In Chile, where China now takes 25 per cent of the country's exports by value, Chinese direct investment has barely moved the meter, ranking behind Uruguay and New Zealand. There have been few if any loans into the country; nor have any technical arrangements been put in place. Indeed, the most emblematic deal struck with China ended in controversy and embarrassment for Minmetals and especially for state-owned Codelco (the world's largest copper producer). While Chile and copper might not normally be proxies for Latin America, it seems that to date Chinese investment has grown everywhere, yet remains modest. One is struck by the low monetary levels involved even in counter-trade: Codelco this year expects to increase its purchases from China to a mere US\$50 million, or less than 1 per cent of its goods and services bill. And this with the country to which it now sells 38 per cent of its product.

While there's a general view that the future for resources trade from Latin America is particularly favourable ('a slowdown in China doesn't necessarily mean a recession,' says Vale), growing the Chinese investment base is not in the author's view a straightforward process. Competition for good opportunities

is fierce even from local corporations and particularly in the more competitive countries. Where the state is subservient to the market and transparency is high, such as in Chile, the model of using government-to-government relations for commercial benefit or to acquire 'favoured nation' status does not apply: commerce is on market terms.

The region's relationship with China has certainly provided a critical source of stability both during the global financial crisis and in recent tumultuous times in its traditional trade and investment partners, such as the US and Spain. With the exceptions of Argentina and Venezuela, comparative sovereign risks in the region are at all-time low levels: Chile, Colombia and Peru are better rated than France! There's a primary question about whether the Chinese relationship, revolving around the exchange of the region's abundant and desired raw materials for low-tech, labour-intensive goods, will evolve into a pillar (although not the only one) of sustainable long-term growth. The region, one must recall, has disappointed before. As summed up by the World Bank, it 'has been unable to close the gap with the living standards of the rich world'. The region as a whole has in effect been ensnared in a 'hundred years of growth solitude', as the process of economic

Competition for good opportunities is fierce even from local corporations and particularly in the more competitive countries

convergence has systematically eluded it. For more than a century, its average per capita income has hovered at around 30 per cent of US per capita income. Moreover, the region's growth in the past decade, strong as it was, hasn't yet fully recovered the ground it lost, especially during the 1980s but also in the 1990s. This stands in sharp contrast to the experience of the high-performing East Asian countries

(the 'Tigers') – their per capita income, which was only about 15 per cent that of the US in the 1960s, rose sharply and steadily to reach more than 70 per cent by 2010. Further marking a contrast is the

convergence process evident in the comparatively less dynamic East Asian countries and China since the 1980s.

The nature of the Chinese investor and country-specific direct investment

CEPAL (the Santiago-based UN agency) estimates that 90 per cent of China's investment in Latin America has been in natural resources, with a particular emphasis on securing access to raw materials. Investment for other reasons, such as accessing local markets or to take advantage of lower cost structures, has been negligible. It's easy to see why many Latin American commentators argue for more diversification to achieve equitable long-term growth.

The facts are that in Latin America to date, most Chinese mining investment has been in the more liberal economies

There's a view that China has a uniquely geostrategic approach to natural resources, that Chinese mining companies operate more comfortably in coalition with authoritarian rulers (in Latin America, Cuba, Venezuela, Ecuador and perhaps Argentina would fit in that category) and that together they undermine the purportedly high social and environmental mining standards of Western companies. Concomitantly, there's concern about the risk that Chinese miners, state-owned as they mostly are, would invariably act in a policy-driven, centrally managed manner and wish to prioritise the economic or political interests of the Chinese state, perhaps thereby distorting free market processes.

The facts are that in Latin America to date, most Chinese mining investment has been in the more liberal economies. Peru is the leading destination. Instead, then, of favouring the view that the major investment driver has been a central government, 'big picture' plan, the view on the ground is that the drivers have been management and corporate strategies, access to market information, exposure to

risk and the risk profiles of each individual Chinese mining company. Some have simply been more successful than others. The author's own experience in dealing with Minmetals in its bid to buy into Anglo's Quellaveco copper project in Peru (later achieved by Japan's Mitsubishi) is pertinent. Minmetals adopted a Western attitude in engaging an international investment bank (Rothschilds) and in maintaining confidentiality (especially, it seemed, vis-a-vis their own compatriots and the Japanese competition). They were disciplined in their approach to pricing and showed little in the way of following a geostrategy, being prepared to lose the deal as they did. The deals done to date in mining appear to have had more to do with market processes than obedience to a central directive.

Perhaps the first foreign mining investment made by the Chinese, even before the 'Going Out' policy was launched in 1999, was that made by Shougang in 1992. It acquired a neglected iron ore mine and plant from a Peruvian state-owned enterprise. At the time, Peru was just emerging from the bottom of anyone's investment list: the Shining Path was peaking. A privatisation program, pushed very much by then-President Fujimori, was initiated at the start of his term and this was the first asset sold. A paucity of transparency and the high price paid by the Chinese (over US\$300 million paid versus a base price of \$26 million, with a single bid?) suggested a certain impropriety! Anecdotaly, when Anglo bought the Quellaveco copper project in the second privatisation some months later, no impropriety at all was seen and the bidding was competitive: the winning bid was \$12 million versus a \$9 million base price; it's still at project stage but is now valued in the market at over \$5 billion!

In its first sizeable investment in the continent, the Chinese management team that was parachuted in quickly fell foul of the labour force and of local community groups. Surprisingly to Shougang, but

quite naturally to a Western mind, the Peruvian Government wouldn't agree to take the company's side in the resulting conflicts. The company would probably have gone under had it been allowed to do so by the Chinese authorities. It's become profitable at current prices but is still *the* example of how not to manage operations in Peru. While for the Chinese it had the positive effect of being a launch pad for later expansions in Peru, it would also have taught lessons in the need to manage locally, integrate into the community and expect little government support.

How well the lessons have been learned is debatable. The Chinese now have six copper projects in Peru, and two of them (Galeno and Rio Blanco) are mired in social conflict and according to most accounts are not advancing. On the other hand, their largest investment, the US\$3 billion Torromochu mine, is proceeding through construction smoothly and will come on-stream in 2014 at a capacity of 250 000 tonnes per annum (tpa) copper, making it roughly the world's 20th largest copper producer. A colleague of the author was there recently and was impressed: 'Caterpillar trucks, top-end equipment and engineers ... and no Chinese on site.' Chinalco is the owner: it has a solid reputation in Peru, not least because it took the decision to retain the original team, adapt to local conditions and collaborate with local service providers. 'While Chinese investment in Africa is often accompanied by parallel businesses in construction and engineering, or by infrastructure aid, Chinalco is instead collaborating with other local and transnational companies to develop infrastructure. It is currently negotiating with Ferrocarril Central to improve railway facilities in central Peru.'²¹ Thus, the Chinese seem to have a flagship from which to grow in a manner that would be welcomed.

While there are those like *The Washington Post* that carp 'one third of the minerals sector in Peru is in Chinese hands', the facts are that China has just six advanced mining projects in a country where there are more than 200. It has a single productive unit in the Marcona iron ore mine and a large start-up pending at Toromochu (which incidentally is at +4000 metres altitude, required the moving of a village and is generally challenging). China ranks far behind the Australian and Canadian miners in number and value terms and certainly in quality

terms: to a latecomer, project availability is limited and expensive.

In welcoming a strong Chinese delegation to Latin America's Expomin mining show in Santiago in April 2012 (more than 120 Chinese firms participated), Codelco noted that China had injected US\$340 billion into raw material investments worldwide over the past five years, of which:

- US\$72 billion was spent in 2011
- about US\$10 billion had been committed to Latin America, primarily in projects in Peru and Ecuador
- most had gone into oil and gas
- US\$88 billion had gone into mining in general
- US\$22 billion had gone into copper.

The numbers should not be blinding: they're really quite modest for a highly capital-intensive industry in which most projects either won't become mines or will at best take decades to do so. For example, Quellaveco was discovered in the 1950s and bought by Anglo 20 years ago, but despite being a major decent-grade resource is still just a project on the drawing boards. As a comparison for size, Chile announced at Expomin that it had US\$100 billion of new mining projects (mainly copper) registered for investment.

Caterpillar trucks, top-end equipment and engineers ... and no Chinese on site

Ecuador ranks second in China's mining investment in the continent. The nature of the country's politics, the peculiarities of the president (and, to be cheeky, his predecessors), the power of the few local 'caudillo' families who own the assets, and the belligerent local communities have kept investors away – although oil and gas companies, always the rashest, have been in and out over decades. The author last visited in 2000. Ahead of the visit, he called the leading local oil executive (a friend's father and family of President 'El Loco' Bucaram) and outlined why he was coming. The response was 'I will save you the trip: companies like yours have no business being here!'

Nevertheless, it's widely reported that Chinese investors are preparing to build the country's first significant mine, El Mirador. It was formerly a Billiton project, but Billiton went in, and out, of Ecuador in a short time. The project was taken over in 2010 by Chinese investors and the shareholders are now Tongling Non-Ferrous and China Railway Construction Co., which suggests that the model for

Recipients of Chinese investment must take measures to ensure that China's 'win-win' arrangements don't just mean that China wins twice

development will involve infrastructure. The mining project has grown (100 000 tpa copper in concentrates and capex of US\$1.7 billion, according to the Hong Kong Stock Exchange) and is still being engineered, although agreements have been signed with the country (a political win for its president). Because of the record of Ecuador, the odds must surely be stacked against it coming to fruition for the benefit of the present investors. Yet the potential may be important: it's said to be 'the only major new copper district discovered in South America in two decades'.

In 2010, the Export-Import Bank of China backed SinoHydro for close to US\$2 billion to build a major 1500 megawatt hydroelectric facility. Interestingly, the BBC reports that 'several months on, the construction site seems eerily empty – hardly what one would expect from the government's flagship project.' (One headline at the time barked: 'China has basically purchased its own Latin American country.')

Ecuador ranks fifth of the South American oil producers, behind Argentina. According to the US Energy Information Administration:

Since 2009, Ecuador has agreed to three separate loan agreements with China which were explicitly backed by oil deliveries. Under these agreements, Ecuador is required to invest a share of the loaned amount in infrastructure projects involving Chinese companies and repay the loans

in crude oil shipments. In addition to these formal arrangements, China has made numerous other large-scale loans to Ecuador that have coincided with oil supply agreements.

The country lacks refining capacity and must import refined petroleum products. In a joint venture, with its ally Venezuela (with which similar deals have been struck), a new facility began to be built but construction was stopped when the money ran out. It's reported that China's Sinopec may step in. Will the money come through and will it be used effectively? The track record of Ecuador and Venezuela, the two biggest local recipients of Chinese credit, often as a 'last resort', suggests not. It's the absence in these countries of institutional controls and responsible, democratic macroeconomic planning which makes this so. It's all too easy for Snrs Correa and Chavez to waste the money on populist programs and, once they're out of power, the well-constructed loan/investment agreement, often backed by product, will remain ... and the recipient country will lose. As one observer puts it, 'Recipients of Chinese investment must take measures to ensure that China's "win-win" arrangements don't just mean that China wins twice.'²²

This paper runs the risk of paying too little attention to Cuba and Venezuela. The logic is that the prospects for regime change are clear and imminent and thus warrant separate discussions. In Venezuela, especially, China has become a major force with a \$16.3 billion joint venture between PDVSA and China National Petroleum Corp. to develop the Junin-4 block of the Orinoco oil belt. Details are characteristically sketchy. China features prominently in Chavez/Castro-speak, but its importance in those two countries will surely not be factors in how things play out in the short term. This may be the appropriate place to note that Transparency International ranked China second lowest out of the world's 28 largest economies in 2011 (above Russia!) in its Bribe Payers Index report.

It's noteworthy that China has played a neutral political role in Latin America to date and hasn't challenged US hegemony in any way. The US remains by far the dominant power – no serious commentator suggests otherwise. Nor is there an overt political branding to China's investments or

trade. A leading official of a Chilean think tank says that 'Engaging in the region has been aimed at securing resources, markets and profits, not votes at the UN.' His perception is that the less robust institutions of Africa, compared to, say, Chile, makes them more vulnerable. More than 120 bilateral agreements and cooperation initiatives with Latin American and Caribbean nations have been signed since 2000, which indicates a concerted effort by China to engage the region. Thus, while the US became less active in

The Japanese groups are privately owned, long established and highly regarded by Western majors

the region as it focused on Iraq and other problems, China's influence grew. Most countries in the region would regard it as an ally and as an additional partner beyond US and Europe, much like Japan is, but it's a distant third to the US and EU.

Brazil, the sixth largest economy in the world and the largest exporter of iron ore ('always the country of the future'), has had China as its major trading partner since 2009, when the US was displaced. In 2000, trade between the two countries was a paltry US\$2.5 billion and investment was close to zero. From there on, the figures are all over the place: well-regarded Central Bank figures put Chinese foreign direct investment from 2005 to 2010 at just US\$3 billion. Bradesco Bank talks of US\$12 billion to the end of 2009, and *Business Week* said in May 2011 that 'Chinese companies invested US\$17 billion in 2010 ... \$300 million a year earlier ... and just US\$83 million in 2009.' Figures from other sources are also confused, but the central conclusion for this paper is clear: Chinese investment's growing fast from a low base, accounting for around 35% of foreign direct investment to Brazil last year, and the pace seems to be continuing. The principal investments directed at establishing export supplies of commodities to China are in steel (Wuhan: US\$5 billion), oil and gas (Sinopec buys 40 per cent of Repsol-YPF for US\$7 billion and Sinochem: US\$3 billion), and arable land. Notably, there's no standout investment in mining. Brazil is traditionally a complicated country for foreigners to invest

into, and formal and informal restrictions (access to debt through BNDES, for example) have historically applied. The strength of local investors, who naturally seek to retain the better projects for themselves, is a fierce barrier.

One of the features of Chinese investment into Latin America is that investment is commercially based and does not, with few exceptions, follow the African model of being bundled in with aid packages and loan programs. What one has seen are more complex product off-take arrangements, whether or not linked to equity shares. The Japanese model for two decades or more has been to acquire minority stakes in projects in silent partnership with multinational miners, providing Japan's share of finance (and often Japanese equipment loans, state development loans etc.) while securing long-term product off-take arrangements. Lenders to the megaprojects require that off-take be secured, so this works to everyone's satisfaction. The Chinese companies have not, to the author's knowledge, adopted this model yet. One wonders why. Is it perhaps that their credibility with multinationals is still not adequate? The Japanese groups are, after all, privately owned, long established and highly regarded by Western majors.

The 2005 Minmetals-Codelco deal mentioned above was quite close to the Japanese model, but it collapsed amid considerable controversy, much of it publicly aired. China's Minmetals advanced US\$550 million to cash-strapped Codelco in exchange for product (55 750 tpa copper for 15 years), largely at fixed prices. Concomitantly, an option to acquire up to 49 per cent of Codelco's Gaby mine, which was then about to be built, was awarded. The powerful trade union at Codelco and political opinion in general caused the option over Gaby to be cancelled at the 11th hour. Instead, a nebulous agreement between the two state-owned companies was announced, to '... explore opportunities for commercial developments globally, especially in Latin America and Africa'. It was clearly a 'face-saver', in which even the President of Chile was involved. Minmetals could have sued for performance but in the event declined to do so. At least one reason was that the off-take contract remained intact and was most lucrative for China: the contracted price at around \$1.50/lb copper (present price \$3.80) has

resulted in hedging losses for Codelco (realised and unrealised) of perhaps US\$3–5 billion.

There were multiple reasons for the adverse reaction in Chile to the Minmetals option over Gaby. Certainly, there had been a lack of transparency in the negotiations, and resource nationalism (which is very much alive and well in Chile) played a part. Additionally, there was scepticism about the credentials of Chinese miners, including their safety and environmental practices, and transparency ('How are these companies run?' was asked). There were also questions about how accommodating the Chinese would be of the expectations of local and regional communities. At least the track records of

the Canadian and Australian investors in Chile were clear, but for the Chinese there was nothing to go on, bar some bad press in Peru. These challenges, essentially relating to credibility, remain for Chinese miners looking offshore.

One difference from the Japanese model has been the willingness of the Chinese to take minority stakes in listed miners and explorers in the hope that this may lead to both profits and access to raw materials. The failed bid by Chinalco for a share of Rio is the best documented, but there are a plethora of examples in which they've been successful: a 20 per cent stake in the ASX-listed Pan Aust, which is developing a copper project in Chile, is one.

Chinese raw materials appetite and some pointers on its impact

Two introductory facts: first, the US and the EU are still Latin America's largest two-way trade partners; second, of the 32 Latin American and Caribbean countries, 24 still send less than 5 per cent of their exports to China (Mexico sends just 0.5 per cent and 22 bring in less than 10 per cent of their imports from China.

China is catching up and is expected to overtake the EU in three years. It's become the world's largest consumer of minerals, taking at least 40 per cent of copper, zinc, aluminium, lead, steel and seaborne iron ore, much of it from Latin America. Exports from the region to China grew at 28 per cent per year from 2005 to 2010, faster than any other region. Although China has emerged as the largest export destination for many Latin American countries, it still takes just 8 per cent of the region's exports (the US takes 18 per cent)³ This is a comfort factor for those who see advantage, rather than dangerous dependency, in the major growth patterns in China trade. Exports to China are overwhelmingly (80 per cent raw materials and agricultural commodities). Essentially, one is talking about just three products: copper, iron ore and soya. Conversely, Chinese exports to Latin America, which are generally industrial and manufactured goods and increasingly motor vehicles, comprised 5 per cent of the region's global imports. One wonders what the 2012 numbers will be!

China consumed 7.5 million tonnes or 40 per cent of the world's copper in 2011, up from just 13 per

cent in 2000. Brook Hunt cites 15 per cent per year growth in consumption over the past decade: Codelco has a conservative projection of China's *additional* consumption in 2021 being 6.5 million tonnes ... or an implied growth of nearly 700 000 tpa. This is the equivalent of an additional Zambia every year! These forecasts are echoed elsewhere: in September 2011, Goldman Sachs stated 'We expect three quarters of

The bullish tone for the industry in the long term needs a note of caution, as in the shorter term the price of product is highly inelastic

global copper demand growth to 2015 will originate from China with the remainder from other emerging countries, while developed market demand should decline marginally.' The bullish tone for the industry in the long term needs a note of caution, as in the shorter term the price of product is highly inelastic. Capacity, once installed, has its own momentum and production is quite independent of the metal price. This was most recently seen during the global financial crisis when copper prices fell precipitously, by two-thirds, while mine output barely changed.

This isn't a paper on the outlook for the copper industry, but clearly for Chile and Peru (which together produce 40 per cent of the world

supply) and to a lesser extent Argentina, Brazil, Mexico and soon Ecuador (Latin America contains 45 per cent of known resources), the implications are highly positive. The surge in copper prices from less than US\$1/lb to US\$4/lb and more came about overwhelmingly as a result of Chinese demand growth. While China is itself a growing miner of copper (larger than Zambia and at 1.2 million tpa fourth in the world), it has a huge deficit in refined copper and in concentrates for its smelters – deficits met squarely from Chile and Peru.

It would be a herculean task to trace the benefits or measure the disadvantages that have flowed through from the Chinese-led raw materials boom to Latin American living standards, education, health and income distribution. Each country would be different. Chile, however, may be an ideal proxy from which to draw some conclusions.

Mining produces about 60 per cent of Chile's exports and constitutes close to 20 per cent of GDP. Output has been flat at about 5.5 million tonnes of copper, so the key component is the copper price. In real terms, it has been at its highest level since 1966, courtesy of Chinese demand. Chilean exports to China are 25 per cent of its total exports (Peru and Brazil are the next highest exporters from the region, at 15 per cent). In this sense, Chile is perhaps the Latin American country least diversified away from China. However, as India and 'other Asia' are also fast growing markets, the exposure isn't regarded with concern. What is of concern is an over-reliance on raw material exports in general. Diversification hasn't been helped by the strengthened currency (a feature of the other primary material exporters, too), which is a direct consequence of the boom. The country's second-tier industries, such as forestry, wine (China is a growing market and a local producer, Bisquit, is now Chinese owned) and salmon, have had leaner times as a result. A long-term challenge for countries of the region, which Chinese dollars tend to cloud, is to increase the added value of exports to China and the world.

One may debate whether Chile has benefited more or less from the China-led boom or from sound macroeconomic policy and effective governance over the extractive sector. But there's no debate that it has benefited hugely, diversification issues notwithstanding. The country's growing now at 6 per cent per

year, there's low unemployment (7 per cent) and in several categories there are skill shortages across the board. This is one of the reasons why the country's deficient educational system has been brought under the spotlight: of the OECD countries, Chile ranks highest in the 'how long to obtain a primary university degree' category, at 6.3 years! But the Chinese demand for its raw materials has put Chile firmly on track to be the first Latin American country to graduate to developed country status. Complacency – staying the course – may be the biggest hurdle still to overcome.

What is of concern is an over-reliance on raw material exports in general

There are US\$100 billion of mining projects in the pipeline in Chile and close to double that in Latin America as a whole. The conversations are now about problems with the availability of water, power and skills. They're not about how to take advantage of Chinese demand – that question was answered when Chile reformed its economy, moved away from a state-dominated model and encouraged private sector developments in mining, forestry, airlines etc. It's the private sector miners that have largely met the demand growth from China: from a total of 5.4 million tonnes produced in 2011, Codelco supplied 1.7 million or 35 per cent and the private miners 65 per cent, whereas Codelco had supplied 90 per cent in the late 1980s. Peru, too, following the same model (and more: Centromin, its Codelco equivalent, was privatised entirely) has emerged as the second copper producer. An easy figure to remember is that Chile and Peru supply 40 per cent and China and India consume 40 per cent of world copper, and the 50 per cent marker is fast approaching. As significant as China's impact has been, endowments of resources on their own, without appropriate government policy, won't yield results for a country. If one tracks, for example, the growth of Colombian coal exports against the decline in Venezuela, the point is clearer still.

The rise in metal prices from the China effect could be seen clearly in about 2004. For copper, as for other metals such as zinc, nickel and iron ore,

this coincided with an inflection point in the mining industry. Projects that had hitherto been regarded as 'next generation' because of low grade, difficult location or process issues found a pricing regime in

China is emerging as a new kind of business partner for countries of the region and as an alternative to traditional Western companies, further increasing competition

which they were worth developing. The all-important 'long-term' prices that companies use to model and to invest in projects changed from 80c/lb copper in the early 2000s to \$1.00, \$1.20 and now even \$3.00 – the 'next generation' is now. The same

impact was felt in iron ore: low-grade and magnetite mines in Peru, Chile and even Argentina, which lay deserted for decades, are now worthwhile and highly competitive. In Brazil, projects with grades that once rendered them unlikely in our lifetimes are now being mined, and logistical infrastructure construction (slurry pipelines, new ports) is having a considerable multiplier effect.

The impact of the higher prices on exploration has also been significant, particularly in countries where governments have been supportive. The contrast between Chile and South Africa is a good example: even though Chile has twice in recent years raised its royalty formula, the credibility of the government and the country's commitment to a sensible economic model⁴ have allowed US\$600 million to be spent on exploration (5 per cent of the world's total, matching Peru), more than double that in South Africa.

Concluding remarks

China's involvement in Latin America comes largely without excessive enthusiasm or exaggerated suspicions. Aside from trade and investment, in the area of 'economic cooperation' just 5 per cent of its spend is directed to the region (close to 30 per cent goes to Africa). Its non-interventionist foreign policy approach and its business methods result in friendly relations with the ruling elites of host countries. As a trade partner, it's played the lead role in driving commodity prices up, to the advantage of producer countries in the region. Some have dealt with the bonanza better than others – those with liberal macro policies and democratic systems are clearly outperforming those without.

While its appetite for raw materials is unabated and will probably remain so, China's role as an investor and direct player in the region is relatively small and still evolving. There are significant opportunities to grow the relationship, particularly in infrastructure development. China is emerging as a new kind of business partner for countries of the region and as an alternative to traditional Western companies, further increasing competition.

In January 2012, the Raw Materials Group stated:

Chinese mining investment outside of China is still marginal. China's scramble for resources in Australia, Africa and elsewhere, which has come into clearer political focus, still represents minimal investment values despite rapid growth in recent years – but it is a growth from an almost zero start position. It will take years before Chinese companies become global players in the mining industry, but it will eventually happen.

Numbers for that 'marginal' Chinese foreign direct investment in the region vary considerably. The Peterson Institute cites the lowest figure (US\$18 billion for the period from 2003 to 2011), which is in telling contrast to the value of US\$24 billion that third parties recently put on Anglo American's Los Bronces mine.

While resource-rich countries have clearly benefited from China's growing demand and investment, the more manufacturing-based economies in Latin America, such as Mexico and Guatemala, are decoupled from that demand. What they experience instead is stiffer global and indeed domestic competition from Chinese firms. Backlashes against cheap Chinese imports are common: Mexico was after all

‘the China before China’ of the North American Free Trade Agreement countries.

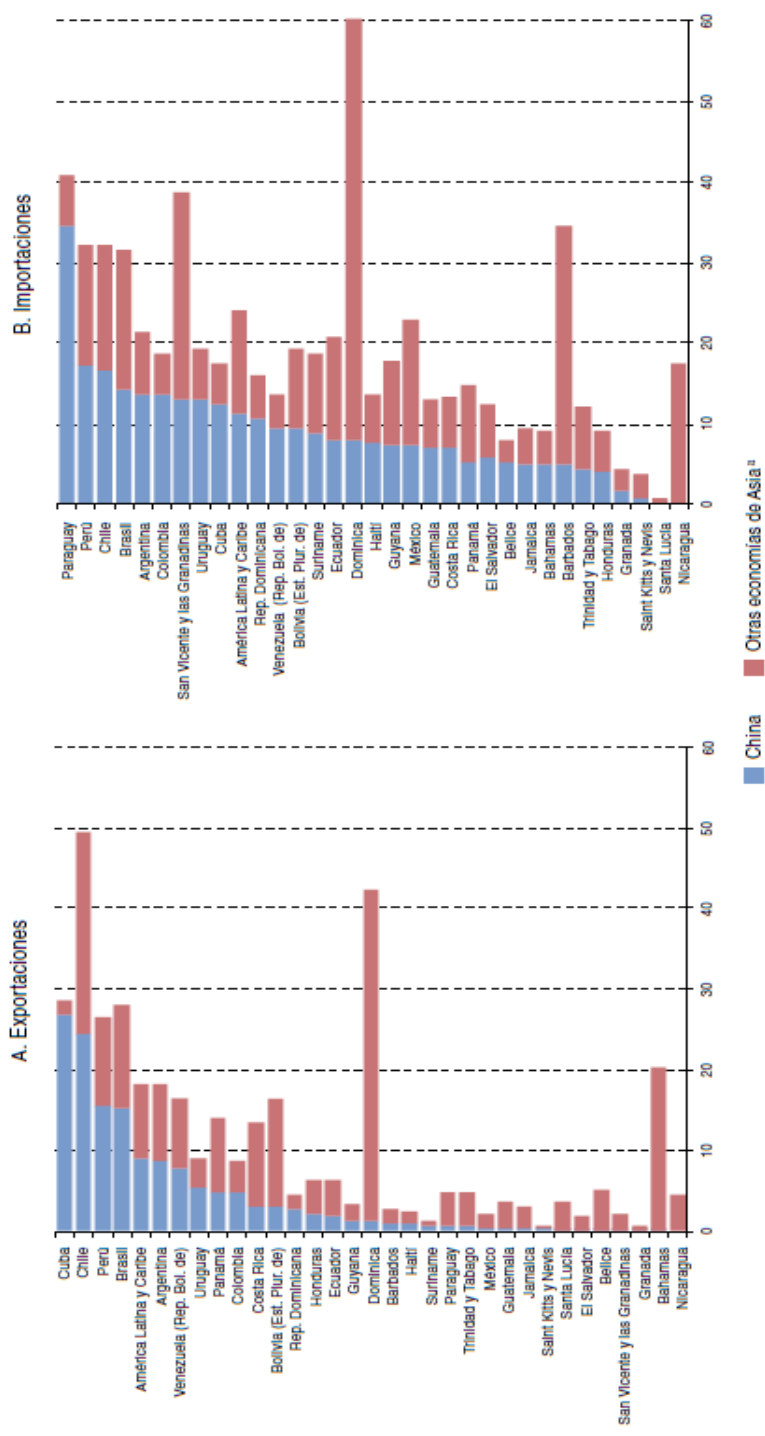
This point was nicely made recently in the context of Brazil, which also competes in certain sectors: ‘There is a misbalance in our relations with China,’ said President Rousseff, ‘Brazil exports commodities and imports too many knick-knacks. This happens particularly between Christmas and Carnival. I am

told that 80% of this year’s Carnival costumes came from China.’

Perhaps she will have more success than President Christina Kirchner who recently announced a tax on cheap Chinese shoes (not for her, be assured!) – which was matched, post haste, by China suspending a 2 million tonne soya oil deal! On such issues does the world sometimes turn.

Some countries in the Caribbean and Latin American region continue to maintain weak commercial relations with China, despite its undeniable importance as a trading partner*

■ Gráfico 14 ■
América Latina y el Caribe: participación de Asia y el Pacífico y China en el comercio, 2010
 (En porcentajes de las exportaciones e importaciones totales de cada país)



Fuente: Comisión Económica para América Latina y el Caribe (CEPAL), sobre la base de Naciones Unidas, Base de datos estadísticos sobre el comercio de mercancías (COMTRADE) para 2000 e información oficial de los países para 2010.
 *Otras economías de Asia incluye a Hong Kong (Región Administrativa Especial de China), China se refiere solo a la República Popular China.
Nota: Los datos para los países del Caribe son del Fondo Monetario Internacional, Department of Trade Statistics (DOTS) (excepto para la República Dominicana).

* These graphs indicating imports and exports to the region from China and other Asian economies have been left in the original Spanish.

China: Some WOW facts

Description	Data
Engineers graduating annually from schools in China	2 120 000
Average cost of a licence plate in Shanghai (RMB)	49 000
Cabs driving around Shanghai every day	50 000
Chinese MBA students expected to graduate in 2011. The number in 1998 was 0.	36 000
Mobile phones in circulation in China in 2011	986 million
Coal-fired power plants to be built in China in its 12th Five-year Plan	270 million KW 966 million KW
Cities in China with populations that exceed 1 million. There are nine in the US and just two in the UK.	125
New airports to be built in the 12th Five-year plan, bringing the total number to more than 230 by 2015	70
Percentage of the world's zippers produced	60
Percentage of the world's toys made in China (there are more than 20 000 toy factories)	70
Percentage of the world's pork eaten in China	50
Children born every minute in China	31
Percentage of Chinese adults living with their parents	30
Nuclear power plants being built in China	6 (built); 10 (being built); 27 (planned)
Passenger cars registered in China. The number in 2004 was 2.4 million.	14.5 million
Students graduated from Chinese universities in 2010. The number in 1977 was 270 000.	6.14 million
Chinese estimated to visit ski resorts in 2011. In 1997, only 500 people in China could ski.	6 million
Average number of credit cards a Shanghainese owns	1.05
China's foreign exchange reserves at the end of 2011	US\$3 181 billion

Acronyms and abbreviations

CEPAL *Comisión Económica para América Latina*
(Economic Commission for Latin America)

EU European Union

GDP gross domestic product

OECD Organisation for Economic Cooperation
and Development

tpa tonnes per annum

Endnotes

1 *The China Quarterly*, March 2012.

2 Myers: Inter American Dialogue.

3 Figures from *Comisión Económica para América Latina*.

4 Summarised by the Fraser rankings, where on the Policy Potential Index (a report card to governments on the attractiveness of their policies to mining investors) Chile ranks 7th out of 79, Botswana 14th, Zambia 57th and South Africa 67th.

Conclusion

The dialogue on *Natural resource demand and China's economy* was convened in part to assess the impact on Africa of China's possible future course. China's rise over the past three decades – which since 1990 has outstripped the 20th century growth records of Japan and other East Asian states, such as South Korea and Singapore – has had an enormous impact on national and regional economies in all parts of the world. The combination of this sustained growth with China's enormous size has produced a phenomenon that's only been witnessed once before (and to a much lesser extent) in the Japanese recovery after World War II.

Unqualified labour has become much more abundant, while basic natural resources have become relatively more scarce

Because of China's size and its particular factor endowments, its entrance into the world market has fundamentally altered global patterns of production, trade and pricing. Unqualified labour has become much more abundant, while basic natural resources have become relatively more scarce. The sharpest reflection of this is a change in the terms of trade (the relative prices of exportable to importable goods) that damaged other nations with much unqualified labour (like Mexico) or with little minerals and other raw materials (like Costa Rica), but benefited resource-rich places like South America, Australia and Africa.

The terms of trade will be beneficial to mineral producers for years to come, even under the more pessimistic forecasts for Chinese growth. China could keep growing fast for years, as it's far from the income levels at which the other 'East Asian miracle' countries 'converged'. Chinese demand for minerals is already massive, and the capacity of world resources, or the mining industry, to meet even existing demand is limited.

None of this is to say that China is free of problems – far from it. It must confront some serious

political challenges to internal stability, in addition to major social changes posed by the ageing of its population, rising inequality and a widening urban–rural divide. Moreover, its exposure to complications in the global economy has shed further light on the poor quality of many of its banks and state-owned enterprises. In the mining sector, cost overruns and delays are increasingly common in Chinese operations, and many are struggling to show that they've the managerial skills, local knowledge and expertise to operate in environments very different from China.

In a way, China has a 'reverse Midas touch': since it's such a vast force, whenever Chinese enterprises enter a market they make whatever they offer cheap, and whatever they demand expensive. The more they grow, the more acute this problem becomes.

China is investing part of its enormous reserves in acquiring natural resources or the companies and facilities that produce them. This is a way of hedging its bets: the better it does economically, the more damaging the reverse Midas touch is going to be for it and the more important it will be to be able to counter that phenomenon through the valuation of those investments. This means that, increasingly, China will be an investor and operator of mineral, grains, oilseeds and petroleum resources, and not only a buyer of the end products.

China is investing part of its enormous reserves in acquiring natural resources or the companies and facilities that produce them

The improvement in the terms of trade that takes place as a consequence of Chinese growth reaches all countries, regardless of whether there's a direct bilateral link. For instance, if Zimbabwe sells platinum, and Chinese growth increases the demand for platinum, then Zimbabwe will be able to sell China more at a higher price, whether the mine is operated by locals, Chinese or third-party investors, and whether the platinum in question ends up in China or not.

This is the most immediate impact of China in the African world, and we've seen much of it already. Compared to that, the precise shapes of bilateral relationships are less important. Nevertheless, the direct relationship exists, insofar as much of the raw materials in question will end up mined, grown or otherwise extracted by Chinese companies.

Can African countries develop the institutions and rules that will enable them to conduct their relationships with the Chinese as effectively as Australia has?

The potential hosts of this phenomenon need to be prepared for that, and this is where Australia's experience in negotiating with Chinese firms is of enormous value for African countries. Can African countries develop the institutions and rules that will enable them to conduct their relationships with the Chinese as effectively as Australia has?

There's no doubt that China has been highly pragmatic in operating according to whatever the rules of the game are in a particular environment. In Australia, where there are transparency, rigidly enforced laws and so on, the Chinese adapt and do things by the book. In Africa, where power is concentrated and deals happen under very different circumstances, they're willing – if not happy – to 'do as the Romans do'.

The main effect of Chinese growth on African performance has been through terms-of-trade benefits. The impact can't be underestimated, and neither can the negative impact on other countries. In Costa Rica, for example, every 1 per cent of extra Chinese growth costs the country, through a worsening of trade prices, about 0.1 per cent of its own growth. It is important to consider other impacts when a country has a terms-of-trade bonanza:

- *Dutch disease.* Access to foreign exchange tends to overvalue the domestic currency, limiting the competitiveness of industries that aren't benefiting from the boom and making diversification harder. For example, Australian industries not

directly linked with raw materials are experiencing difficulties because of problems in adjusting to a strong currency and the systematic (and efficient) redirection of resources and labour to the mining industry.

- *Fiscal revenue.* Countries with a terms-of-trade bonanza often have a fiscal bonanza (but not always – it depends on how the rules for revenue sharing are cast). Optimally, the extra fiscal resources can be invested in the kind of infrastructure and human capital creation that would benefit the population, and also yield a more fruitful environment for competitiveness and diversification. But in some cases, tragically, the impact has been the opposite: to fund bloated bureaucracies that are hard to pay for and even harder to bring back to size when the resources are spent or prices return to normal.
- *Complacency.* Some countries in the developing world seem to lose focus in the presence of a terms-of-trade bonanza, as the population and government mistakenly believe that the mineral wealth can be a substitute of the wealth created through diversification and growth. This is always a flawed perception because raw materials are so volatile in price and employ so little labour and other inputs relative to their value. Raw materials can help to facilitate development, but they aren't substitutes for it. True development requires concerted effort to raise labour productivity, the presence of key infrastructure and logistics processes, and stable rules. Oil or minerals can help to pay for those things, but can't replace them. That Australia was already a developed and diversified democracy when the current surge in raw materials demand started is a key differentiator with Africa.

No-one can know for certain whether the boom times will continue for countries reliant on mineral exports to China. China's growth could begin to slow, and perhaps even trail off quickly due to unforeseen events. Arguably, the most fundamental issue for supply countries is how they'll cope if the more pessimistic forecasts for China's resources demand eventuate.

The dialogue on *Natural resource demand and China's economy* did not reveal anything new in

exposing how African countries remain the least prepared for a slowdown in Chinese growth compared to resource-based economies in Australia, Latin America and elsewhere, which have generally used their mineral endowments more wisely and developed other sources of export revenues and domestic incomes.

In pursuit of their own development goals, African governments have become fixated with beneficiation – probably to their detriment. That focus can be costly and even a hindrance to realising comparative advantages. Beneficiation should be separated from the imperative to spread benefits, and the best way to do so, at least initially, is to pump up production and so make the best use of resource endowments.

Africa would do well to follow the example of Chile, Australia and others by increasing its competitiveness in productivity, improving its regulatory environment and investing more in human capital and infrastructure. And last, but certainly not least, the dialogue continually stressed the importance of diversification and what that actually means in developing economies.

Diversification should preferably mean trade (the emergence of industries that are locally and globally competitive in areas other than oil or mining), rather than isolation (using the foreign exchange from minerals to pay for import substitution efforts that are doomed to failure). And it should imply that a country is willing, while still weak economically, to grow in the kind of industries (light, lowtech and so on)

Africa would do well to follow the example of Chile, Australia and others by increasing its competitiveness in productivity, improving its regulatory environment and investing more in human capital and infrastructure

that tend to be strong in poor environments. Only by getting wealthier – that is, by doing well in those industries – can an economy graduate to the next stage of industrial development and develop ‘better’

industries. There’s been a tendency within some African governments, which gaze starry-eyed at the likes of Taiwan and Singapore, to think that they can or should skip stages of development (as if the earlier stages of the process were undignified).

Africans aren’t alone in struggling to formulate a coherent understanding of the ‘China factor’ in their vision for their countries’ futures

Diversification requires countries to be cost-competitive – no easy task on a continent with very poor, and expensive, logistics – and to develop a suitable environment for local and foreign companies to flourish. In some respects, the mining industry isn’t a good reference point for that task. Typically, miners will go to wherever the resources and minerals are, even if those resources are in corrupt and dangerous environments. Other industries, which can find opportunities everywhere, are less tolerant of such conditions and so will go elsewhere. Hence the stark absence of non-resource foreign companies in so many African countries.

Africans aren’t alone in struggling to formulate a coherent understanding of the ‘China factor’ in their vision for their countries’ futures. Australians often exhibit a kind of cognitive dissonance about Australia’s relationship with China: it has very strong economic ties with China, yet it aligns itself with the West. It would be wise for both to try to avoid singling China out – for good and bad – simply because it’s China, while of course realising that China’s a competitor, and not always a benign one.

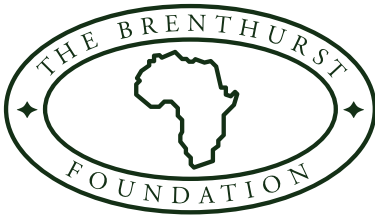
One question that emerged at the end of the dialogue is of great significance to Africa, but perhaps to a lesser extent to Australia: what happens in the world when ‘China ceases to be China’?

If China maintains its current rate of growth for about a decade, most of its provinces will enter the middle-income stream. At that point, most of the Chinese economy will no longer be competitive (or desire to be) in the low-complexity, low-tech and labour-intensive industries that it’s currently supplying. As China enters the next stage of industrial

development (cheapening those types of goods in the world market, like the Taiwanese and Koreans did before them) and exits the earlier stage, basic manufactured goods will recover in price. When that happens, countries that are currently prevented by Chinese competition from entering that kind of basic manufacturing will be relieved of that limitation, and face an interesting shift of relative prices in that direction.

If they're prepared to take up that challenge, some African nations could begin the fast industrialisation process they all aspire to by occupying the space left behind by China – in other words, by *becoming more like* 'China' while China is becoming something else!

Greg Mills, Director of the Brenthurst Foundation, *Alberto Trejos*, Professor at the INCAE Business School in Costa Rica and *Peter Jennings*, Executive Director of ASPI



The Brenthurst Foundation is on the frontier of new ideas and innovative actions for strengthening Africa's economic performance. Our activities are focused in three areas: encouraging key decision-makers and experts to share experiences and insights at private meetings and seminars; delivering relevant, practical policy advice to governments; and generating new thinking and thought-leadership to address Africa's development challenges.



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