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Australia and resources in the Asian century*

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The Australian Government's White Paper 'Australia in the Asian Century' is the first large-scale official look in the twenty-first century at economic change in Asia and how it affects Australian opportunities and challenges. This paper comments on the analysis embodied in and the objectives defined by the White Paper, especially as it relates to Australian resources. This paper generally endorses the aspirations of the White Paper and notes that their achievement is going to require efforts and changes beyond those that are currently contemplated. It comments briefly on six things: the development context of twenty-first century Asian growth; growth and structural change in Asia and Australia's terms of trade; macroeconomic management of a resource-intensive Australian economy; restoring productivity growth; excellence in education; and linking Australia to Asian opportunity.

Key words: Australian economy, Chinese economy, commodity prices, exchange rate, resource boom.

1. Asian economic growth in the twenty-first century

Modern economic growth is available to all parts of humanity once certain conditions are met. That message started to be learned when Japan became the first non-European society to join the process of modern economic growth in the 1860s. It was reinforced when the preconditions for sustained modern economic growth were established in Hong Kong, Taiwan and Korea and Singapore in the third quarter of the twentieth century. The establishment of modern economic growth in the world's three most populous developing countries in the final decades of the twentieth century set the scene for the Asian Century.

The commitment to growth, the selection of appropriate growth-oriented policies, large gains from trade and the absorption of growth-assisting institutions are all more likely if neighbouring countries are expanding strongly. This is now a support for modern economic growth in all of Asia.

For developing countries with average productivity and incomes well below the global frontiers, growth is about catching up with the economic ideas, institutions, policies, technology and availability of capital per person of more developed countries. This proceeds more rapidly the greater the gap

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between the productivity levels and capital per worker of the most advanced and the rapidly growing countries. Growth rates ease at some point, usually well before the productivity levels of the advanced economies have been reached.

For Japan, the easing of growth occurred in two stages, each marked by macroeconomic recession: one in the nineteen seventies when *per capita* productivity and incomes were around two-thirds of the United States; and one in the early nineteen nineties when *per capita* output was approaching ninety per cent of the United States. The latter, in the context of severe macroeconomic contraction, ended the catching up for the time being. Japan's average output per worker declined relative to the United States in the 1990s and since then has settled at a bit below 80 per cent.

Korea and Taiwan began to slow at a lower proportionate level of income but less sharply. Singapore kept growing at reasonably high rates after United States average incomes had been reached.

Labour market dynamics interact with economic growth in important ways.

Island and peninsula Northeast Asia and coastal China are exceptional in their high ratio of population to other economic resources at the beginning of modern economic growth. This generates the conditions for Lewis-style growth in a labour surplus economy: mutually supporting rapid growth and capital accumulation are underpinned by low real wages until the absorption of surplus labour begins to generate rapid increases in wages (Lewis 1954). From that point, growth depends heavily on structural flexibility.

Amongst people everywhere but in exceptional degree in Northeast Asia, fertility drops sharply with rising incomes and the financial security, confidence in the survival of children and improved education of women that goes with it. Fertility falls below population replacement levels well before the frontiers of global incomes and productivity are in sight. The changes in fertility produce a 'demographic dividend' for several decades after the commencement of modern economic growth. Lower fertility in combination with lower mortality, however, eventually leads to large declines in the ratio of work-age to total population and to ageing of the population, imposing a 'demographic tax'.

Japan, the most mature of the Asian economies, warrants more attention than the White Paper gives it (Commonwealth of Australia 2012). Japan remains the world's third largest national economy and Australia's second largest export market after two decades of slow growth. The Japanese experience provides insights into the eventual destination of growth in other Asian and especially Northeast Asian economies.

Some observers see Japan's slow growth in total output as political and economic failure. But the reality is not so bad for most Japanese. Unemployment is low. Income is high by global standards and more equitably distributed than in the United States, although some Japanese are disturbed by increasing disparities. Health services are excellent and longevity

incomparably high. Japanese enjoy good education and a rich cultural life. There is high private financial and personal and public security – natural disasters aside, although even the disasters are well managed by global standards.

Japan's population decline and ageing reinforce long-standing inhibitions to increased productivity and reduce national economic growth and strategic weight. But if Japan is the end point of modern economic growth, then modern economic growth is no bad thing.

And Japanese growth performance is not quite as poor as popular perception of it. Incomes and output per work-age person have increased at about the same rate as in the United States since the turn of the century. Total gross national income and domestic product rose more rapidly in the United States because of differences in changes in the proportion of population in the 15–64 years age group. This ratio fell from 68.2 per cent in 2000–63.3 per cent in 2011 in Japan and remained steady in the United States.

The prudent speed limits of growth are lower in other Asian economies than in Northeast Asia, as was revealed in the 1997–1998 financial crisis in Southeast Asia and more recently with growing pains in India.

The White Paper sees the United States as continuing to define the frontiers of global productivity. It sees Japanese average productivity remaining at a bit below 80 per cent of United States levels and Korea's as reaching a maximum at that level. It is more likely that global economic and technological leadership will be shared by many including Northeast Asia.

The United States has some important advantages for continuing economic growth: favourable demographic features supported by immigration; structural flexibility; a business culture that supports innovation; a high proportion of the world's best institutions for higher education and research. I would once have included an innovative financial sector in the list of advantages, but the Great Crash of 2008 has shown this to be at best ambiguous in its implications for long-term growth.

The high quality of the best American institutions for graduate education is distinctive, but this is now a resource from which the whole world benefits. And the United States today carries some disadvantages for broadly based economic growth, including the exclusion of many people of lower socio-economic status from good education. The East Asian high-income countries have advantages in school education that have value at the frontiers of the global economy.

The White Paper's Asian growth projections seem about right for the region as a whole.

It is likely that China will grow at about 6–8 per cent for the next fourteen years, compared with about 10 per cent through the early decades of reform 1978–2011. The accelerating decline in labour supply and moderately lower contributions from growth in the capital stock outweigh the likelihood of a moderately higher contribution from total factor productivity growth.

The White Paper's growth projections to 2025 are about right or slightly underdone for the countries that have been on a slower trajectory of economic growth and fertility decline, including India, Indonesia, the Philippines and Thailand. More could have been said about two other populous countries, Vietnam and Bangladesh.

The Paper correctly draws one of the two most important implications for Australia from the structural change in Asia: the increase in importance of goods and services demanded in much larger volumes by a rapidly expanding 'middle class' in the high-income emerging economies of Asia. Less is said about the other side of the coin to this structural change: the decline in the rate of expansion of opportunity in China for increased resource exports at high prices.

2. Growth, structural change and the Australian terms of trade and export volumes

The Asian economies are more closely complementary to Australia in their resource endowments and patterns of trade than any other parts of the world economy. This is especially true of the Northeast Asian economies: their economies use energy and metals much more intensively than others, and they have unusually low *per capita* endowments of resources for energy, metals and agriculture. India has large iron ore and substantial coal resources and more agricultural land *per capita* than Northeast Asia. Southeast Asia has *per capita* resources of metallic minerals, energy (including coal and natural gas as well as renewables) and agriculture that are much closer than Northeast and South Asia to world averages.

Rapid growth in international purchasing power in complementary economies tends to raise a country's terms of trade; especially rapid growth in developing Asia's and China's international purchasing power has exerted powerful upward pressure on Australia's terms of trade.

Over the first 11 years of the century, the real international value of output per person (current nominal output converted into United States dollars at current exchange rates and deflated by the United States Consumer Price Index) rose a little in the United States (plus six per cent). In the major European States, real international value of output per person grew moderately (France 49 per cent, Germany 46 per cent, the United Kingdom 18 per cent). The other high-income developing countries of Asia fell into the range of the large European economies: Singapore 36 per cent and Korea 51 per cent.

The decline in real international value of output per person in Japan in the first eleven years of the twenty-first century (minus six per cent) was a negative for Australia's terms of trade. However, it was swamped by changes in developing Asia.

The international value of output per person increased over the first 11 years of the century by 339 per cent in China, 246 per cent in Indonesia and 153 per cent in India.

The White Paper notes that the increase in Asian demand for resources has generated the highest terms of trade since comparable data have been available (140 years) and a real exchange rate 40 per cent higher than the average of the first three decades of the floating currency. This average includes the high levels of the past 7 years.

The White Paper notes that the terms of trade have declined and will fall more, but understates the likely decline in prices of the Australian export staples of the China resources boom: iron ore, metallurgical coal and thermal coal.

Structural change in China is more important than the deceleration of growth to Australian export prices and volumes. Structural change is being driven by China having reached the turning point of economic development, at which wages rise more rapidly than other incomes, the consumption share of expenditure rises and the investment share falls (Cai 2010; Garnaut 2010; Huang and Jiang 2010).

The turning point structural changes in China are being reinforced by government policy. Since 2011, policy has emphasised greater equity in income distribution including through increased provision of rural services, faster growth in domestic demand in general and household consumption in particular, greater efficiency in energy use, and lower greenhouse gas emissions and other environmental impacts.

The White Paper could usefully have drawn a stronger distinction between minerals and energy resources that will be negatively affected by structural change in Asia in the period ahead, and those that will not, or which may benefit from the change. The White Paper is on solid ground in noting that rare earths, uranium, natural and unconventional gas and some other minerals in which Australia is well endowed with resources will benefit from expansion of low-emissions energy and electrification of transport within strategies that emphasise environmental impacts.

But the Paper says little about the other side of the structural change coin. The structural change has its most severe effect on the three commodities which have been at the centre of the Australian resources boom of the early twenty-first century. Steel-making raw materials are affected disproportionately through a Keynesian accelerator by the decline in the investment share of GDP. Thermal coal is affected by the emphasis on reduced energy use and by the increased priority of environmental amenity.

Reductions in Chinese energy use per unit of output and reductions in the emissions intensity of Chinese electricity generation in 2012 have exceeded the ambitious targets of the twelfth five-year plan 2011–15. Total electricity use grew at several per cent age points below the growth in the economy in 2012 (Garnaut 2013a). Thermal power generation increased by only 0.6 per cent in 2012 (Garnaut 2013a), and gas and upgrading of plant reduced the amount of coal used per unit of thermal power generation (Mai and Feng 2013). Low-emissions sources of power have contributed virtually all of the increase in Chinese power generation in 2012: hydroelectric, wind, nuclear and solar in

that order contributing the largest increases in volumes of power production, with solar growing most rapidly from a low base (Garnaut 2013a).

Gas developments will have an important impact on Australian export opportunity. Eastern Australia and the United States have both experienced huge increases in unconventional gas reserves and resources in recent years – eastern Australia proportionately more than the United States. In the United States, restrictions on exports have caused this to bring down the price of gas dramatically. In Australia, freedom to export has had the opposite effect. There is debate about the export restrictions in the United States. The most likely outcome is that the United States will allow some exports but maintain restrictions in an attempt to keep prices below East Asian levels by more than warranted by liquefaction and transport costs. The efficacy of United States export restrictions will be challenged over time by the diversion of gas supplies within North America and the development of export capacity in Canada.

There is febrile activity in China to expand natural gas reserves and output and to utilise unconventional technologies to allow gas production from shale and coal deposits; these will bear fruit, maybe in abundance. China is also taking steps to expand supplies of gas by pipeline from Central Asia and Russia.

These developments are likely to lead to some increase in North American and some reduction in East Asian prices. The expansion of alternative supplies to East Asia will reduce opportunities to expand export capacity in Australia, and lower East Asian prices will feed back into Australian export prices.

Resource prices more generally will be affected by huge investment in expansion of supply capacity over recent years, bringing massive new production to market just as Chinese demand growth decelerates with structural change. The expansion has been led by established exporting countries – for iron ore, especially Australia and Brazil. Some investment in Africa has been encouraged by Australian restriction of Chinese direct investment.

India had been the third largest supplier of iron ore to China after Australia and Brazil. However, restrictions on exports to retain ore for domestic steel-making have led to declines in Indian exports in recent years, followed by the virtual cessation of exports with the tightening of restrictions in late 2012. The Indian retreat from the export market placed a floor under iron ore prices in late 2012 and early 2013, but with once-for-all effect.

Price and volume interact with each other in resource markets: price has to be low enough to equilibrate supply with demand after structural change has diminished Chinese demand growth and investment increased global supply capacity.

The White Paper provides medium, high and low projections of export volumes out to 2025 for iron ore, thermal and coking coal, and liquefied natural gas (LNG), drawn from the Bureau of Resource and Energy

Economics. It projects large increases even in the low cases and much larger increases in the medium and high. Iron ore goes from around 400 million tonnes in 2010 to about 900–1080 in 2025; metallurgical coal from around 150 in 2010 to 250–300 in 2025; thermal coal from around 140 to 260–380; and LNG from 20 to 80–150.

The White Paper seems to assume that announced Australian investment proposals proceed to production and that Australian installed capacity operates at full capacity. However, low prices will lead to postponement or abandonment of some proposed investment, some closure of existing capacity and operation of some mines at less than full capacity while the market adjustments are being made. The reluctance of market participants to accept the losses involved in closure of capacity – and each firm's hopes that others will close capacity first – may lead to periods in which prices do not cover recurrent costs of many producers. Some of the decline in production from established plants will occur in China but, as in Australia, there will be efforts to keep production going by lowering costs and in politically sensitive locations by public subsidy.

The White Paper correctly draws attention to expanding markets for high value agricultural produce. Australian agriculture has been damaged by the proliferation of discriminatory arrangements for agricultural trade in Asia in the early twenty-first century, after the breaching of the earlier Asian commitment to nondiscriminatory multilateral trade. The White Paper appropriately supports open approaches to foreign investment in the sector, with a primary focus on nondiscriminatory trade liberalisation.

The White Paper took for granted that Australia's agricultural production capacity will allow it to take advantage of strong Asian import demand. Climate change has already affected winter crop production in parts of southern Australia (Garnaut 2008; see chapters 5 and 22; Garnaut 2011a, see chapter 10). The two degrees of warming that now seems the likely lower bound of temperature increases would expand these changes. While export markets in Asia for agricultural products are likely to expand strongly and prices to be well above historical levels on average, Australia's production capacity for grain, dairy and other temperate products will be affected by climate change and the global mitigation effort. The focus in the White Paper on expansion possibilities in the Northern Territory and Tasmania can be seen as an adaptation to climate change in the southern mainland, but the extent of the possibilities is as yet poorly defined.

3. Australian macro-economic stability

From 2002 to 2011, the China boom underpinned the second decade of the longest unbroken economic expansion and gave us prodigious increases in average incomes. The terms of trade started to decline in late 2011, and resources investment will fall from 2013 or 2014 (Garnaut 2013b).

If Australia fails to manage well the adjustment to the end of the China resources boom, it faces a long period of economic stagnation and uncomfortably high unemployment.

The White Paper prematurely praises Australia's success in macroeconomic management during the boom. It is complacent about the great challenge that lies ahead.

Let me hasten to endorse the White Paper's support for the 'three pillars' of contemporary macroeconomic management: the floating exchange rate; the independent Reserve Bank of Australia; and the setting of fiscal policy to avoid increases in public debt on average over the business cycle.

The White Paper's flaw is the failure to recognise future problems from the huge appreciation of the real exchange rate that has accompanied the China resources boom.

The White Paper laments that in earlier booms, the increase in the terms of trade 'was spread through the economy through a centralised wage system, leading to inflation and to a considerable loss of competitiveness in industries not linked to the boom' (White Paper, Box 3.5). While we avoided general inflation, industries producing tradable goods and services and not linked to the boom experienced a much bigger loss in competitiveness than in the resources booms of the early 1950s, 1970s and 1980s. This time, the appreciation of the real exchange rate came not through an increase in the average price level, but through a combination of nominal exchange rate appreciation and rates of domestic nontradable price increases in excess of the rest of the world. The real exchange in March 2013 was 69 per cent higher than early in 2002. This was by far the highest real exchange rate since Federation in 1901 (Garnaut 2013c).

The high real exchange rate through the resources boom has caused low investment and exports across most of the trade-exposed industries outside the resources sector. Those changes must go into reverse with the end of the China resources boom.

The immediate agent of adjustment will be the nominal exchange rate. A lower exchange rate raises inflation as measured by the general indices and compresses real incomes. Downward adjustments on the required scale are immensely difficult. Their achievement this time without recession and high unemployment will require political leadership and analytical economic skills of a high order.

4. Productivity growth

The reduction in average Australian incomes required in the adjustment will be lower the higher the increase in productivity.

The White Paper sets challenging goals for productivity growth – much the most challenging quantitative targets that an Australian government has ever set. Here, I will focus on the central macroeconomic goal: to raise *per capita* real incomes from $62,000 now to $73,000 by 2025.

To reach this goal even with the moderate decline in the terms of trade anticipated by the White Paper would require lifting Australian productivity growth to the rates of the 1990s – then at the top of a world in which productivity was growing strongly by the standards of the preceding and following decades. This would follow a dozen years in which total factor productivity has been virtually stagnant. It would require strong performance through an era of generally low productivity growth in the developed countries (Gordon 2012).

In Australia, there are recent signs of recovery of labour productivity but not yet of multifactor productivity growth after the dismal outcomes of the new century's first decade.

Increasing average real incomes by 17 or 18 per cent over 13 years may not sound that much. After all, we have seen mean Australian real incomes in international currency (US dollars deflated by the US Consumer Price Index) rise by 108 per cent from 2000 to 2011 – through the tech-wreck recession in the United States and then the Great Crash of 2008 and its recessionary aftermath in the North Atlantic. But the target of increasing real incomes per person by 18 per cent is from an extraordinarily high base.

The White Paper notes that Australia's terms of trade will fall somewhat by 2025 (and remember that I expect them to fall further than the paper anticipates) and that ageing will slow growth in economic output. It notes that this increases the challenge of meeting the target. That adds up to a strong headwind.

Before we reject the White Paper's goals as unattainable, let us consider what would be necessary to attain them and whether their attainment would be worth the necessary disruption of temporary contemporary comforts. They are worth a serious national conversation. If we agree that their attainment would be worth the effort, we might be ready to sign on to that effort and to invite governments to put us to the test.

I have no quarrels with the White Paper's suggestions for productivity-raising reform so far as they go. The heavy emphasis on transport, communications, energy and other infrastructure is warranted by problems and opportunity. But the White Paper does not go far with prescription.

There are a few things close to the heart of Australian resource economics that could be part of a program of productivity-raising reform.

The Henry Tax review made a good deal of the inefficiency of most established resource royalty regimes and proposed replacing them by a tax on rents. It was right to see this as an area in which substantial efficiency gains could be made. Distortions in the royalty regime could be important in determining how much Australian potential output becomes part of the global contraction of production to reconcile output with demand after the China resources boom. Regrettably, the public policy fiasco surrounding the Henry recommendations in 2010 would seem to rule out an early return to these issues.

In an error, the White Paper asserts that 'Australia's Energy Sector is one of the most reliable and low cost suppliers in the world'. That statement would have been true once, but not now for electricity – with rising transmission and distribution costs moving overall prices to users from the lowest to the highest ranks of the developed world between 2006 and 2012 – prior to introduction of carbon pricing (Garnaut 2011b). The higher electricity prices reflect fundamental flaws in price regulation in privatised and corporatised monopolies. The productivity-destroying distortions can be corrected technically; the influence of special interests makes policy reform difficult.

For gas, we once had low domestic prices by developed country standards in eastern Australia. Despite even larger proportionate increases in reserves and resources in eastern Australia than the United States, differences in export policies are making gas in eastern Australian much more expensive than in America. This reflects errors in United States rather than Australian policy, but still has a major effect on the international opportunities of energy-intensive and petrochemical industries in Australia.

The largest productivity problems and opportunities for improvement are now in the supply of nontraded goods and services. Reform in the most important of these areas requires close cooperation between Commonwealth and state governments – transport infrastructure, electricity, education, health. Regrettably, reform of Commonwealth–state fiscal relations is a precondition for good outcomes in most of these areas.

Given the importance of transport infrastructure to national productivity – appropriately emphasised in the White Paper – we should put one other big issue onto the reform agenda. It has become common for agencies evaluating transformational infrastructure investments in Australia to apply discount rates derived from those thought to be relevant to the weighted average cost of capital for investments funded by firms listed on equity markets. Rates of around 8 per cent in real terms are often applied, when the real costs of borrowing to the Commonwealth have been below the long-term average of about 2 per cent over the past decade. We need a serious discussion on the appropriate discount rate to apply to government investment in transformational infrastructure.

Where there are large advantages in private management of infrastructure assets, we need to find mechanisms for allowing at least part of the investments managed by private entities to be funded off the public balance sheet.

The provision of rail and road infrastructure is largely a state responsibility, but much funding comes from the Commonwealth. Dysfunctional federal financial relations greatly complicate efficient expansion of transport services. One single innovation would allow a reform-oriented Commonwealth government to contribute to correction of the discount rate and federal financial relations barriers. The Commonwealth could withdraw from direct involvement in transport infrastructure decisions, establish an inde-

pendent expert authority to conduct cost–benefit analyses of transport projects and offer to on-lend to a state government a specified proportion of the cost of any major transport infrastructure project that has met rigorous cost–benefit tests and is proposed by the state.

5. Education

The White Paper rightly places high priority on the quality of Australian education in preparation for the Asian Century. It sets two astoundingly ambitious targets: by 2015, we should have one of the world's top 5 school systems in reading, mathematics and science; and 10 of the world's top one hundred universities.

The setting of these objectives for school education is an example of the positive demonstration effect of our being located in the Asian region. If our comparators were the large old economies of the North Atlantic, we might feel comfortable about the standards of our schools.

On reading, we currently rank 9th amongst the OECD's members plus 29 partner economies (OECD 2012). Neither the United States nor any of the major European economies sit above us. But Shanghai (the Chinese member of the group), Korea, Hong Kong, Singapore and Japan all do.

In mathematics, we sit equal 15th with Germany and Estonia, and way behind the top 5, which are all East Asian.

In science, we are 10th, again with big gaps to the top 5, amongst which Finland alone is not East Asian (all data from OECD 2012). The gap between the top performers and Australia has been increasing in recent years. To reverse that tendency and to enter the top 5 in the three specified areas would require fundamental change.

For the universities, the tops of the established rankings are dominated by United States and British universities in both of the best known lists. Nine Asian and six Australian universities make it into the Times top 100; four Asian and five Australian into Shanghai Jiatong. This rate of exclusion of leading Asian universities is unlikely to survive for long. Chinese, Indian and other Asian universities with some of the world's most brilliant student enrolments are not on either list. More top Chinese, Indian and Southeast Asian universities will be pushing into higher world rankings in the decades ahead. I would think it a highly satisfactory outcome if Australian universities held their current numbers in the top 100, and a couple of them pushed higher in the lists.

The quality of our universities will depend critically on their attractiveness to top students from Asia and on intense interaction in research with the best Asian universities.

6. Linking to Asian opportunity

The White Paper says that the growth of Asia replaces the tyranny of distance by the power of proximity.

Blainey has pointed out that many major cities in Europe are closer than Sydney and Melbourne to Beijing (Blainey 2012). That is true, but many parts of Australia are closer than any European cities to some major Asian, including Chinese, cities. Besides, time zones matter for services trade, and Asian time zones overlap with Australian, but not European or American zones.

In addition, relative as well as absolute distance matters for the intensity of trade, and Australia is relatively close to Asia (Armstrong 2013).

We could make ourselves economically closer to Asia by unilaterally removing remaining tariffs and other restrictions on trade on a nondiscriminatory basis. This would have resource allocation as well as proximity advantages. It would allow us to participate more intimately in the fine specialisation in production processes that has contributed the most rapidly growing elements of Asian trade over the past two decades.

Inefficient international telecommunications and civil aviation infrastructure needlessly increase economic distance.

Unnecessary economic as well as natural distance affects Australia's capacity to utilise opportunities in the Asian century. This argues for giving priority to reform of regulatory arrangements that are artificially raising the quality and cost of international movement of people, goods and services.

The White Paper has its own big and important agenda on reducing cultural difference. The exposure to knowledge of Asia including and in addition to language at school and university is important to building the confident familiarity which will allow individual Australians to make the most of their Asian opportunities.

The White Paper reminds us of the importance of the intense interaction with Asia that has come from our large nondiscriminatory immigration program and the presence of so many international students in our education institutions.

It is our proximity to Asia in ideas and attitude to change as well as opportunities for trade that leads us into the audacious thought that we might preserve a considerable part of the recent increase in incomes through recommitting our country to productivity-raising reform. That is what the White Paper invites Australians to do.

Once we have thought about the alternative, the recommitment to reform will seem the more attractive option.

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