Tasmania's Place in the Asian Century Evidence Base

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Chapter 1 Introduction

The White Paper on *Tasmania's Place in the Asian Century* complements and builds on the Australian Government's White Paper on *Australia in the Asian Century* released on 28 October 2012.

The key purpose of the Tasmanian White Paper is to address the question: how can Tasmania best position itself to capture current and emerging economic opportunities in Asia?

By virtue of Asia's sheer geographic and population size and growth capacity, the shift of key Asian countries towards high per capita incomes means that Asian economies are expected to dominate the global economy in the 21st century. This will be one of the most transformative economic shifts of power in history, and Tasmania will need to adapt to the transformation of the global economy that will result from this shift. This represents an unprecedented opportunity for Tasmania to redefine its long-term development trajectory through powerful new avenues for export growth to — and closer integration with — what will be for many years to come the most rapidly growing part of the global economy.

Effective adaptation to this new circumstance will require a change in mindset. It will also require change at both the national and the state level to ensure a more flexible economy and a population that has developed Asia literacy and knowledge and competitiveness in key growth markets, such as food and beverages, education, and tourism. Tasmania will need to continue to build and develop new workplace skills to remain competitive, and maintain and grow its share of exports to, and foreign direct investment from, Asia and the wider region.

This chapter outlines the challenge for Tasmania, the background and provenance of the White Paper, and the structure of the evidence base.

1.1 The challenge for Tasmania

The White Paper is the start of a dialogue within the Tasmanian community about how to position the state to take advantage of Asia's rise. Its preparation has included public submissions and extensive consultation with stakeholders across the community.

There are two significant forces at work that drive the ultimate wealth and power of nations: productivity and demography.

> *Productivity isn't everything, but in the long run it is almost everything. A country's ability to improve its standard of living over time depends almost entirely on its ability to raise its output per worker.*
>
> Paul Krugman, *The Age of Diminished Expectations*, 1994

> *Demography is destiny.*
>
> Australian Treasurer, Peter Costello MP, *Australia's Demographic Challenges*, 2004

Tasmania is unique among the six Australian states in having a substantially larger proportion of its population in the non-metropolitan region, rather than in the greater region surrounding its capital. Fifty-seven per cent of Tasmania's population lives outside Greater Hobart. For Victoria, South Australia and Western Australia, less than 25 per cent of the state's population lives outside the greater region of the capital.

According to the 2011 census, Tasmania is also the oldest state, with a median age of 41 and 16.2 per cent of the population aged 65 or older. This compares to the second-oldest state, South Australia, which has a median age of 39 and 16.1 per cent of its population aged 65 or older. Tasmania does now, however, have a higher fertility rate than the rest of Australia, at a higher-than-replacement rate of 2.1, compared to the national average of 1.8.

Tasmania's demographics have been fundamentally affected by net migration rates. Tasmania has a lower proportion of younger working-age persons due to net migration outwards in search of early-career job opportunities. This is driven by relative economic opportunities between Tasmania and the mainland. When the rest of Australia's economy is doing relatively better than Tasmania's, net migration outflow occurs. Conversely, when Tasmania's economy is performing relatively well, there is net inflow. Net migration is not only a barometer of Tasmania's economic performance, but also a long-term driver of fiscal sustainability in health and other services for an ageing population.

Population is also an important driver of demand and employment opportunities, creating interdependent employment, population and economic growth. This offers Tasmania a key opportunity in the Asian century.

The high Australian dollar has placed a substantial competitive burden on Tasmania's trade-exposed sectors, which include manufacturing, agriculture, tourism and international education. Industries with cost-sensitive products must become more productive to adjust to the competitive international environment.

For an economy with a flexible exchange rate, a failure to meet the challenge of a high exchange rate would ultimately result in the exchange rate falling (with lower standards of living transmitted through high costs of imported goods). For an economy locked into a currency union, as Tasmania effectively is as part of the Australian Commonwealth, a failure to meet the challenge of a high exchange rate can only be met by internal devaluation, falling wages or the movement of resources, particularly labour, to more-productive regions of the economy within the same currency union. Internal migration is likely to have been a key adjustment process in Tasmania's past.

It is only in a country's interest to compete on low labour costs when that is its comparative advantage. This is not a path that Australia or Tasmania can follow in the Asian century.

Many countries in Asia are facing the challenge of moving out of middle-income status and making the transition to high-income status. There is a risk of being stuck in the middle-income trap — where average labour productivity is not high enough to earn the high incomes of the advanced industrial countries, but where a state no longer has access to cheap, low-skilled labour, so it can no longer compete with less-developed countries.

The challenge posed by the middle-income trap is not simply one for emerging economies, but one that must also be faced by regional economies, such as Tasmania.

The middle-income trap cannot be overcome by a simple policy adjustment. The pathways to a high-income, innovative economy and society require many difficult adjustments and investment in its people, institutions and infrastructure.

Strong interaction with dynamic external economies can help in that process. Deepening Tasmania's awareness and engagement with Asia will help make Tasmania a high-income economy in the Asian century.

1.2 Structure of the evidence base

The White Paper examines how Tasmania can best position itself to capture current and emerging economic opportunities in Asia by:

- analysing the current economic and demographic situation, both in Tasmania and Asia;
- identifying potential opportunities in specific private sector-dominated industries; education; and the production of public goods, such as Antarctic science; and
- identifying pathways for change, private and public, which enable Tasmania to capture the opportunities of the Asian century.

Chapter 2 sets out the opportunities and challenges stemming from Asia's rise in the Asian century, including an analysis of specific Asian markets, prospects for the emerging middle-class markets and the challenge of competition in specific markets.

Chapter 3 evaluates the current state of the Tasmanian economy and defines a range of opportunities to improve Tasmania's standard of living and wellbeing in the Asian century.

Chapter 4 examines sector-specific opportunities in agriculture, aquaculture and food processing; forestry; mining and minerals processing; manufacturing; and tourism. It also explains how Tasmania may take advantage of some of these opportunities.

Chapter 5 presents the opportunities arising in education and research as a source of public goods in the Asian century and pathways to add public value through greater Asia literacy and enhanced engagement with Asia.

Chapter 6 looks at Tasmania, and more specifically Hobart, as a locus of public goods in Antarctic science, and ocean and climate research. This includes opportunities for global cooperation with Asian countries to develop Hobart as an international research hub in this field, which may also help facilitate Hobart's waterfront redevelopment.

Chapter 7 examines ways for the private sector to maximise value from the Asian century, including the importance of strategy, scale and market identification, and the role of inward and outward investment, both for Tasmania and Asia.

Chapter 8 sets out pathways that the public sector might take towards realising Tasmanian opportunities in the Asian century, including through policies on: migration, working with business, community engagement, investment in Asia literacy, and trade representation.

Chapter 2 Opportunities and challenges in the Asian century

Main messages

- Asia's impact on Australia is already huge, but the scale and pace of change to come will be of a different degree.
- By 2030, Asia is expected to have a middle class of over three billion people, equal to 60 per cent of the middle class globally. Asia is also home to the fastest growing number of high-income households — in less than a decade, it has been estimated that China and India alone will have over 120 million high-income households.
- China, India and emerging Asia's middle-income class will impact on global tourism, education, food, manufacturing and energy. Global demand for high-end goods and services will be driven by Asia. This is especially important for Tasmania's high-quality exports.
- Asia will be the largest source of international education demand. China already has the most university graduates in the world, with 23 million graduates. By 2020, this is projected to grow close to 60 million graduates (neighbouring India may also have upwards of 24 million graduates). Growing demand for education in these countries will be accompanied by growing demand for education elsewhere.
- Emerging Asia is the fastest growing source of tourists globally, as well as for Tasmania. That trend is expected to continue, with stagnant growth expected for most traditional tourist sources, such as the United Kingdom, New Zealand, Japan and the United States.
- Asia, led by China, will be the largest source of food demand growth, with meat, fruit and vegetables leading the rise. Of particular interest to Tasmania, China is predicted to overtake the United States as the largest consumer of wine by 2015 — accounting for 15 per cent of global wine demand.
- Major Asian retailers are supplying food, services and goods deep into Chinese and Southeast Asian markets, as well as global markets, through the creation or utilisation of supply chains. Linking in to these supply chains through investment and partnerships will be a cost-effective way to become part of the Asian production and supply networks.

2.1 Target markets in Asia

The Asian century is upon us. The rise of Asia has already changed Australia, but the scale and pace of the changes to come will be of a different degree. Asia's impact on Australia cannot be overstated. More than two-thirds of all Australian trade, both exports and imports, is with East Asia. The only other countries in the world that have a higher proportion of their total trade with East Asia are Brunei (at 89 per cent) and Indonesia (at 69 per cent).[1] Overall, Asia features prominently in Australia's goods and services trade (see Table 2.1).

Table 2.1: Australia's top 10 two-way trading partners ($ million), 2011

	Goods		Services			
	Exports	Imports	Exports	Imports	Total	% Share
China	67 589	43 457	5 654	1 793	118 494	20.1
Japan	47 216	18 545	1 926	2 099	69 786	11.8
United States	9 035	26 804	5 125	10 933	51 897	8.8
South Korea	21 883	7 372	1 713	516	31 484	5.3
Singapore	6 106	14 637	3 129	4 010	27 882	4.7
United Kingdom	6 441	6 945	3 923	4 817	22 125	3.8
New Zealand	7 307	7 822	3 329	2 986	21 444	3.6
India	14 587	2 312	2 140	726	19 766	3.4
Thailand	6 525	8 714	963	2 291	18 493	3.1
Malaysia	4 051	8 766	1 644	1 330	15 791	2.7
Total	245 631	234 319	50 104	59 001	589 055	67.4

Source: UN (2010) and DFAT (2012b).

1 Calculations based on UN Comtrade (2010).

Asia's rise as the centre of global economic activity brings with it challenges and opportunities. Societies will have to adapt and be proactive merely to keep pace with the changes that are already occurring. Competition will be fierce, and there will be many new competitors in many new sectors, but the opportunities will be bigger. The Asian century is an opportunity to make changes to policy strategies, build capabilities and change the way we engage with neighbours.

This chapter reviews some of the main trends and markets in Asia that are relevant to Tasmania. Country and market projections are drawn from the Australian White Paper where relevant and supplemented with projections, data and analysis from other sources.

Advanced Northeast Asia

The advanced economies in Northeast Asia of Japan, South Korea and Taiwan are development success stories. These are mature economies that have, and will continue to have, significantly slower growth compared with the dynamic and less developed emerging countries in the rest of Asia. All three have ageing populations (see below) that will dramatically change the structure of their economies and societies.

Yet they are still large and highly sophisticated markets that will continue to demand large quantities of resources, food, and other goods and services, particularly education and tourism. They are important suppliers of technology-intensive goods and high skill-intensive services to the global economy. These countries are characterised by highly educated and skilled workforces and will continue to be major sources of investment into Australia. They are also markets that are closely linked in production patterns and the development of tastes and consumption modes to Asia's rapidly growing emerging markets.

Japan, South Korea and Taiwan are also energy and resource dependent on international markets, where Australia is their primary supplier. While these economies will continue to depend heavily on Australia for their energy and raw material security, their economic relationship with Australia is much deeper and broader than that. They are rich countries by any standard and will be key players in the supply of, and demand for, greener technologies and the management of climate change mitigation and adaptation. They are expected to be major markets for high-value services as their manufacturing bases shift offshore, and as they continue to specialise in high value-add activities, such as design, marketing and supply chain logistics.

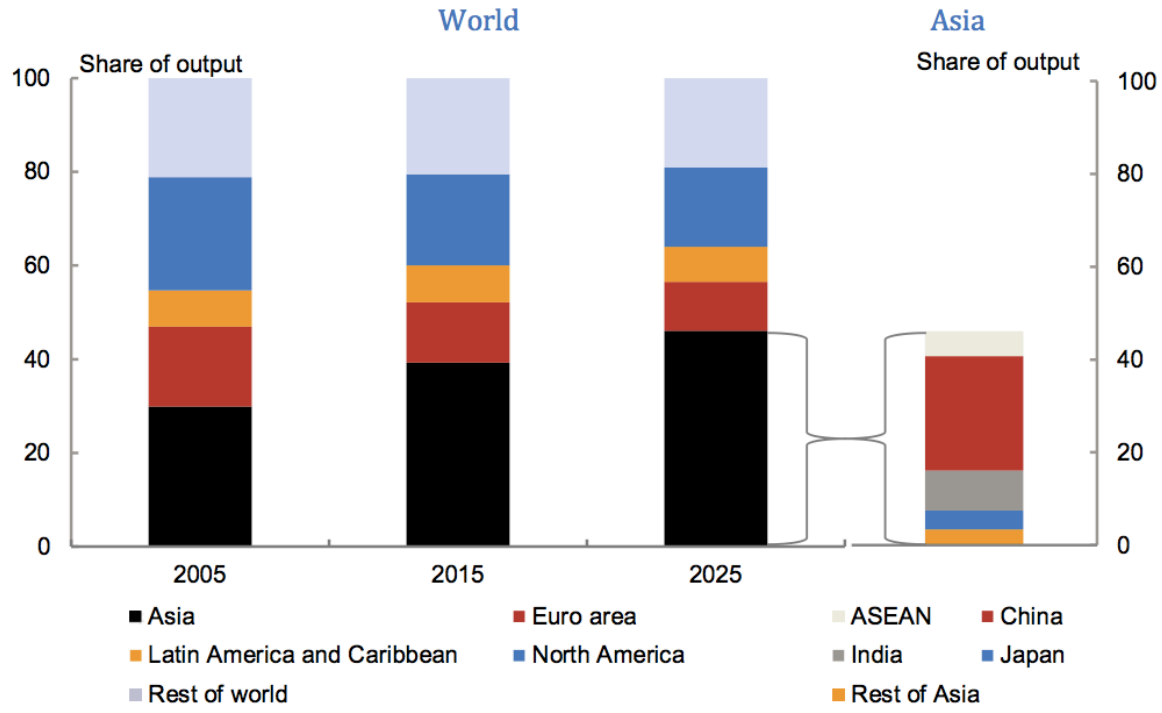
Japan, South Korea and Taiwan are deeply integrated into the East Asian and global economies and have major direct investments into China and (increasingly) into South Asia. Those investments, and the shifting of much of their production bases into China, and to a lesser extent into Southeast Asia, give these countries significant supply chain links, brand recognition and experience in the growing emerging Asian markets. The three countries are now increasingly seen as attractive headquarter locations for operations in China and Southeast Asia. There are opportunities to link up to these supply chains and to already established links into Asian markets.

China

Chinese growth averaged close to 10 per cent a year for three decades after its opening up in 1978, doubling the size of China's economy approximately every seven years. China is already the second-largest economy in the world and is predicted to overtake the United States as the largest economy in real terms (on a purchasing power parity basis) as early as 2014 (AWP 2012).

It is widely predicted that Chinese growth cannot continue at 10 per cent as China becomes more developed, and the Australian White Paper projects an average annual growth rate of 7 per cent between 2012 and 2025 (AWP 2012). That is consistent with what some Chinese economists call the new 'normal' of decelerated Chinese economic growth (Huang 2012b).

Figure 2.1: World output shares



Notes: GDP adjusted for purchasing power parity (2011 prices).

Source: AWP (2012).

Alongside its rapid economic growth, China's integration into the global economy has occurred at an unprecedented pace and scale. China's entry to the WTO in 2001 was one of the most significant events in modern international trade and economic policy (Drysdale and Song 2000). China is now the largest trading partner for all countries in East Asia except the Philippines and New Zealand, accounting for 23 per cent of East Asian trade (UN Comtrade 2010). Figure 2.1 shows that China will account for close to a quarter of world output by 2025.

Chinese household consumption as a share of total income has been relatively low in the past 15 or so years, with investment representing a larger share of the economy. This has meant a concentration of import growth in industrial raw materials to service investment-

led growth. It is now a top policy priority in China to increase consumption's share of GDP for reasons of internal and external balance, and there is evidence that this has started to happen (Huang 2012a and 2012b). With the country's rising middle class (see below) and rapidly growing consumption — as a share of GDP in absolute terms — China's trade shares with other countries will increase, and high-value consumer goods will become a larger share of imports. China will also become a much larger final destination for traded goods (as opposed to a destination for parts and components for processing trade), including services and food.

China's coastal regions have experienced the most economic development. Its major cities are rich by world standards, with large numbers of people earning more than US$100 a day. Yet income inequality, within and between regions (with western regions much less developed), is becoming one of China's biggest challenges. With an average GDP per capita of US$5 400 in 2011 across the whole country,[2] China is still in the middle range of what is considered a middle-income country (GDP per capita of between US$1 000 and US$12 000 a year). China still has room to benefit from catching up to the income levels of advanced economies; hence it is likely to remain among the faster growing economies of the world.

In less than a decade's time, by 2020, it is estimated that China will have in the order of 91 million high-income households with incomes over US$35 000 per annum, an increase from around 24 million high-income households in 2010 (Atsmon et al 2012). These households, including even wealthier ones earning well over US$35 000, are the target consumers of Tasmania's top-quality premium products. The quadrupling of these households over the next decade provides an opportunity for Tasmania to position aspirational products for newly affluent households, including wine, cherries, meats, seafood, premium cheese, education and tourism. China is predicted to overtake the United States as the largest consumer of wine by 2015, with China accounting for 15 per cent of global wine consumption compared to 11 per cent for the United States (Kuiper 2011).

Middle-income households, earning between US$4 000 and US$35 000 per annum, are also potential major consumers of Tasmanian products. Taking advantage of this market requires that products such as processed milk are competitively produced in Tasmania. These may be marketed under corporate brands with intermediaries sourcing globally. Joining supply chains is an efficient way to sell into China and other markets, for high-end produce as well as cheaper goods.

India

India is already the world's third-largest economy in real terms (10th in nominal terms), and is expected to be the third largest in nominal terms by 2025, behind China and the United

[2] Data on GDP per capita are taken from the World Bank.

States. India is projected to grow at 6.7 per cent a year on average from 2013 until 2025 (AWP 2012, 52).

On a per capita basis, India is currently quite poor, with GDP per capita at around US$1 500. However, it has a population of 1.2 billion and is estimated to have had nine million high-income households in 2010. This is projected to increase to 32 million by 2020. Middle-income households are projected to increase from 63 million in 2010 to 117 million in 2020 (Silverstein et al 2012).

Box 2.1: Tasmania's cricket link to India

Through the sporting achievements of former Australian cricket captain Ricky Ponting and others — including David Boon, George Bailey, Ben Hilfenhaus, James Faulkner and Tim Paine — Tasmania is well known in India. Tasmanians visiting India are often asked three questions: do you know Ricky Ponting? do you know David Boon? and have you been to Blundstone Arena in Bellerive? Tasmania's name will again come to the fore as Ricky Ponting plays for the Mumbai Indians in the IPL alongside Indian great Sachin Tendulkar and a number of other Tasmanians playing for IPL franchises.

At an administrative level, Cricket Tasmania has discussed the possibility of forming a relationship with India's Punjab Cricket Association. The initiative is supported by the Association's President, Inderjit Singh Bindra, a former secretary to the Prime Minister of India and head of the Indian public service. Mr Bindra is highly respected throughout India. There is also an opportunity to build on this relationship through team visits and events that feature cricket players and personalities, which could also be used as a catalyst to support trade missions and promotions.

Cricket is undoubtedly India's most popular sport and provides a unique opportunity to establish business links and contacts. It is a forum in which to promote Tasmania, and Tasmanian business and industry in particular, to a vast and expanding Indian economy. The benefits for Tasmania could be substantial and they could extend far beyond the cricket field into education, trade, cultural exchange and immigration.

Prepared by Cricket Tasmania.

Unlike China, India, with a relatively young population, is yet to reap the full benefits of its demographic dividend, meaning that its growth will most likely remain higher for longer (AWP 2012, 32). A demographic dividend occurs when fertility rates fall due to declines in infant mortality rates and a rise in life expectancy. If countries capitalise on that window of opportunity, they can experience rapid economic growth and development with a large proportion of their population in working age and adding to the productive capacity of their economy.

India is projected to have a working-age population of over one billion people by 2050 (ADB 2011), and its working-age population will be 25 per cent higher than China's (it is currently 24 per cent less). Most of East Asia has largely capitalised on its favourable

demographic circumstances. For India and South Asia, making the most of their own demographic dividend will be a major challenge.

India is relatively less open to trade and investment than China (Gilboy and Heginbotham 2012), and has sought to remain self-sufficient in mineral production (AWP 2012, 44). This strategy has meant that Australian exports of strategic raw materials to India, although high, are well under potential. As India continues to develop, its strategy of self-sufficiency will be tested, given the expected size of its economy and expected demand for raw materials relative to domestic endowment. Lack of openness to foreign investment in the mining and minerals sector has meant it is a relatively inefficient industry sector and well below best practice, because it limits the ability to adopt the latest technology and know-how. If and when this industry opens up to more trade and investment, there will be major opportunities.

India dominates South Asia — a region that includes India, Pakistan, Sri Lanka, Nepal, Bhutan and Bangladesh — in terms of economic size. India has successfully pursued a 'Look East' policy of increasing economic links with East Asia ahead of strengthening economic ties within its own South Asian region. South Asia is the least economically integrated region in the world, with intraregional trade at only 2 per cent of total trade — below that of sub-Saharan Africa. If Bangladesh, Sri Lanka and Pakistan can attract investment, open up further and follow the development path of East Asian economies to become low-wage manufacturing bases, as they have started to become, growth in South Asia could take off.

India is currently Australia's eighth-largest trading partner; Australia exported around $14.6 billion worth of goods and just over $2 billion in services to India in 2011 (Table 2.1). This trade with India is skewed towards a few commodities, however, with Australian exports of coal, gold, and copper ores and concentrates dominating trade at just over 38 per cent of Australian goods exports to India in 2011 (DFAT 2012a; UN Comtrade 2010). Currently, education is Australia's largest service export to India at $1.4 billion a year of the total $2 billion services exports. While India will continue to import high volumes of raw materials from Australia, the growth of the middle and upper classes will mean there is more demand for tourism, education, food and other consumption goods over time.

Indonesia and Southeast Asia

Southeast Asia is a diverse region and home to countries at different stages of development, with different political systems and vastly different demographics. With a population of 600 million, the region is now growing in economic, political and demographic weight. It is expected that Indonesia will be the 10th-largest economy in the world by 2025.

As the largest country in Southeast Asia and the closest to Australia, Indonesia is an important Asian neighbour. It is a young democracy and the world's largest Muslim nation. Its large population — estimated at over 240 million — and recent successful economic

growth mean it now has a larger economy than Australia in real terms — and Indonesia's economic growth trajectory means it will soon surpass Australia in nominal terms as well. Trade and economic links between Australia and Indonesia are relatively lacking considering the latter's size and proximity to Australia. Indonesia currently ranks as Australia's 12th-largest trading partner, behind other Southeast Asian neighbours Singapore, Thailand and Malaysia.

Despite this, Indonesia will become a much more important trading partner for Australia given its proximity and projected growth. It currently has a middle-income population of around 45 million people (Oberman et al 2012). By 2030, it is likely to have the world's fourth-largest middle-class spending after India, China and the United States (Kharas and Gertz 2010).

Diversity in the region, with Singapore's average income level 12 times higher than Indonesia's (AWP 2012, 31), is a real strength. Singapore is the highest-income country within Southeast Asia and regularly has the third- or fourth-highest income per person in the world in real terms.[3] Such diversity recommends against blanket strategies for engaging Southeast Asia, let alone Asia more broadly.

Cambodia, Laos and Myanmar have much smaller economies, but will become much more important markets for Australia and Tasmania if their reforms stay on track. Thailand and Malaysia are Australia's 9th- and 10th-largest trading partners. Both countries are facing the challenge of avoiding the middle-income trap. If these countries succeed in graduating to the high-income bracket of over US$15 000 per capita, their markets, as well as demand for higher-quality produce, will grow substantially. Both countries currently have high levels of inequality, and hence the quality of goods and services they demand is varied. They are both, along with Indonesia, important sources of tourists and are key growth markets for value and number of visits.

ASEAN's Economic Community process and other economic integration initiatives are helping to further open up member economies and deepen trade and investment links, not just between ASEAN members, but also with the rest of Asia and the world. Australia can look to capitalise on important aspects of the ASEAN Economic Community, including the free flow of skilled workers. ASEAN member states have undertaken to recognise qualifications across borders, implement more-efficient and lower-cost customs procedures, and introduce many other practical measures. Deeper economic integration and cooperation in Southeast Asia will present new trade and investment opportunities for countries like Australia. Australia can assist in that process, and learn from its experience.

Bahasa, as Indonesia's official language, has been highlighted as a priority for Australia, but other languages and a broad understanding of cultures in Southeast Asia are also

[3] Data on GDP per capita are taken from the World Bank and the IMF.

important. English is the official language of the region's interactions, mostly through ASEAN, but only a minority of ASEAN member populations can speak English.

2.2 Market trends

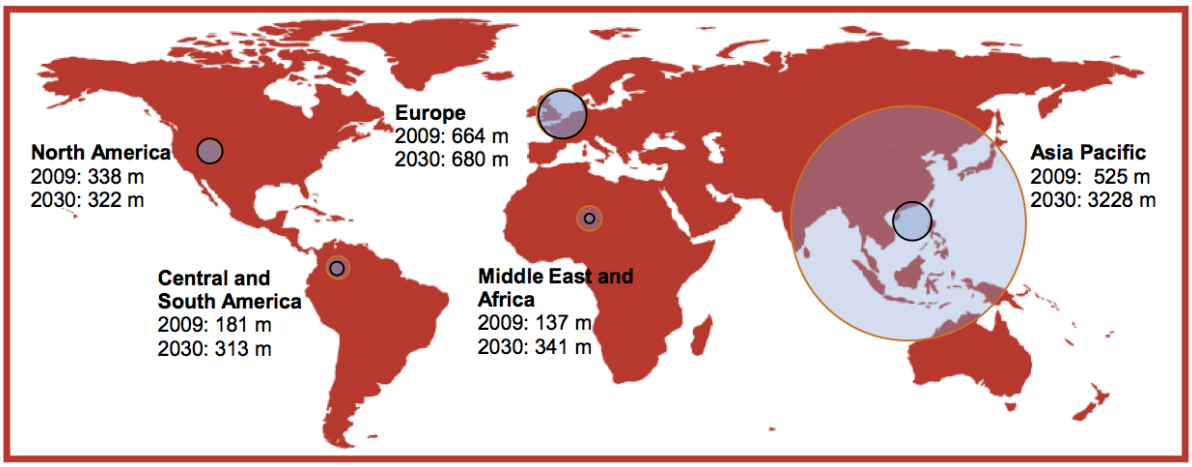
The growing middle and upper class in Asia

There are already many wealthy Asians and they will grow rapidly in number. Tourism, quality produce, wine, high-protein food, services and education consumption will see similar growth. Yet the populations of Asia are diverse. Much of Northeast Asia has an ageing population, while much of Southeast and South Asia has younger populations. The opportunities for Australia stemming from this diversity will be large and they will vary greatly.

Asia is home to the fastest growing middle class and is projected to have by far the largest in the world in 2030 (Kharas and Gertz 2010). The Asia Pacific region will have a middle class of over three billion people by 2030, accounting for around 60 per cent of the global middle class (AWP 2012, 63). The global middle class is defined as people who have disposable incomes at purchasing power parity of between US$10 and US$100 a day.

Of particular interest to Tasmania is the upper end of that scale, as well as higher-income individuals who earn over US$100 a day, including households with more than one income. The large concentration of high-income households already within these averages will grow enormously. Asia already has more millionaires than North America (FT 2012). By 2020, China is projected to be the largest market for luxury goods in the world, estimated at US$245 billion (Silverstein et al 2012).

Figure 2.2: Growing consumer markets of Asia



Notes: The black border circles and orange border circles depict the size of the middle-class population in 2009 and 2030, respectively.

Source: Kharas and Gertz (2010).

Asia's middle class is tipped to increase six-fold in size over the coming two decades, while North America and Europe's middle classes remain roughly the same size. Asia will

become even more of a centre of world economic growth as it develops the largest and most affluent consumer markets.

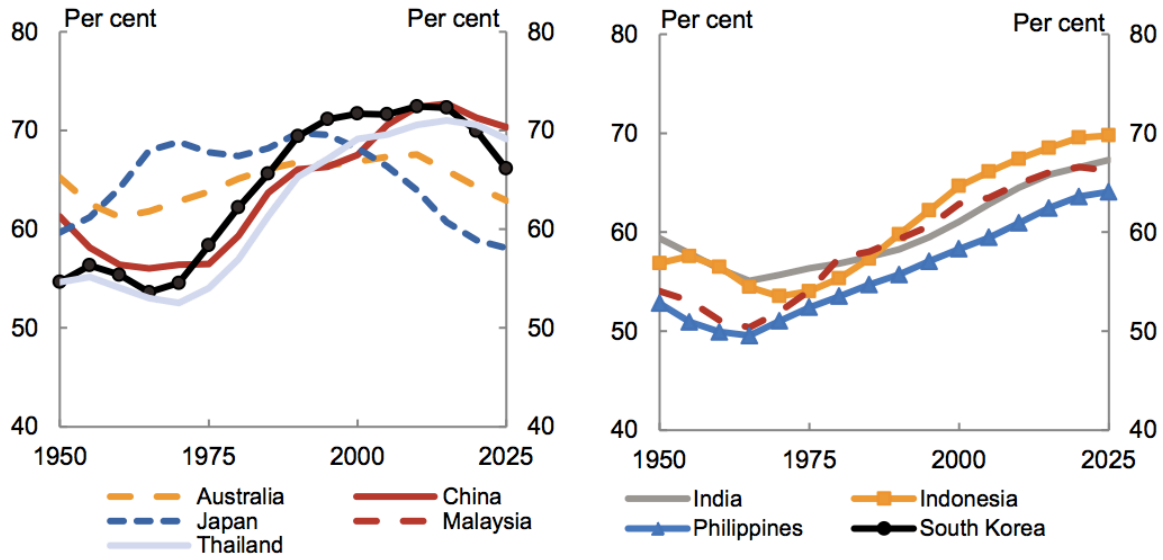
There are already concentrations of high-income households within Asian countries. These concentrations will grow as Asian economies continue their ascent. The high-income class will have very high disposable incomes, and the large numbers of affluent consumers will spend significantly on discretionary items.

Market prospects in older Asia

Northeast Asia — including China — is an ageing region. Japan is ageing the fastest, with a population that has been shrinking since 2007.

Japan, Taiwan and South Korea are high-income societies that will face major challenges from their high dependency ratios (the ratio of the non-working age population to the working-age population). This will require a major restructuring of their economies. Ageing societies do not mean less demand, but rather a shift in products demanded. While many of these economies will face fiscal pressures and rising healthcare costs, they will remain rich countries. The elderly will be larger in number relative to the working-age population, with people continuing to live longer and fertility rates continuing to be below replacement. There will be much higher expenditure on healthcare services, luxury goods, high-quality tourism and technology that assists in aged care.

Figure 2.3: Asia's demographic dividend, share of working-age population



Source: AWP (2012) and UN (2011).

As for China, it has one of the lowest fertility rates in the world at around 1.4 children per woman, well below the population replacement rate of 2.2 children per woman (Wang 2012). The one-child policy has been significantly relaxed, but its legacy, alongside other institutional and policy factors, has meant the working-age population in China (between the ages of 15 and 59) has been in decline since 2010. Unlike the rest of Northeast Asia, China will be old before it is rich. The propensity to spend is very low among today's

elderly Chinese, but many expect that to change and for savings by the elderly to fall and consumption to rise over time (Atsmon et al 2012). This will create major new markets for services, new technology and consumer goods for the elderly. In addition, better pension systems, more-efficient capital markets and cross-border movement of people — including migration and temporary workers — will help alleviate pressures in service delivery and care for the elderly.

Market prospects in younger Asia

While much of Northeast Asia has already experienced its demographic dividend and is rapidly ageing, the working-age populations of India, Malaysia, the Philippines and Indonesia, as well as the rest of South and Southeast Asia, have yet to peak. These countries will most likely experience high rates of growth while enjoying their demographic dividend. With a growing and relatively younger population, urbanisation will be a major driver of demand in the region. These countries will also increasingly be suppliers of innovation to the global economy. The opportunities will be many in these dynamic economies.

The most obvious market for the relatively younger populations in Asia is education. India, Malaysia, the Philippines and Indonesia share a common challenge of confronting the middle-income trap. Moving up the technological and productivity ladder for these countries requires major institutional transformations. One of the most important drivers of this change will be increased attainment in higher education.

For countries to move from low-income to middle-income and then high-income status, with skilled and innovative workforces, widespread basic primary education and a high literacy rate are necessary conditions. Northeast Asia's highly skilled societies started their rapid development stages with a major focus on literacy and universal primary education. Such critical basic education cannot be imported, and requires major investment and societal change within countries. Higher education can be imported to an extent, with established foreign universities supplying education services abroad or in-country.

There will be rapid growth of demand for tertiary education, as well as vocational training, and it will be a policy priority for many of these governments in younger Asia to have highly diversified and skilled workers to maintain growth and development. Once countries reach middle-income status, universities and industry need to closely collaborate to sustain innovation (ADB 2011).

Engagement with younger Asia may have a higher lifetime payoff than selling goods or services to older Asia. As Tourism Industry Council Tasmania points out, it is their belief, "borne out by anecdotal feedback from the industry that a significant proportion of the Asian tourists currently visiting Tasmania are students and their families" (TICT 2012). Younger Asian tourists or students in Tasmania can be seen as potential future Tasmanians (see Chapter 8). Younger skilled migration to Tasmania will add diversity and help address a major policy challenge faced by the whole of Australia — an ageing

workforce and population. Tourism and education are natural complements in capturing new growth markets in Asia.

2.3 Challenges in the Asian century

The Asian Development Bank (ADB) report *Asia 2050: Realizing the Asian Century* suggests that the realisation of Asia's potential is likely, although it is by no means a guaranteed outcome. Yet the growth trajectories of many of these emerging economies suggest that Asia's economic ascendency will continue throughout the century.

The challenges to realising the Asian century are substantial. They include growing income inequality within and between countries, the middle-income trap, increased competition for finite natural resources, global warming and climate change, and inadequate governance and institutional capacity (ADB 2011). These challenges are not new and there is reason to be cautiously optimistic.

Northeast Asia, in particular, has managed to sustain high rates of growth and reach high-income levels by global standards. China has managed to consistently overcome major policy challenges throughout its reform period (World Bank and DRC 2012). And India has yet to reap the full benefits of its demographic dividend. China and India, as well as many of the lesser-developed countries in Asia, are still well behind the technological frontier and have the advantage of catching up to the advanced economies. The shift of economic weight to Asia will continue even in the slower growth scenario of the Australian White Paper (pages 56–57). Even under this scenario, Asia will be the world's fastest growing region by 2025 and have three of the five largest economies in the world.

Another major challenge for Asia and the world will be climate change mitigation and adaptation. Severe weather events, including floods, droughts, cyclones and natural disasters, will likely become more frequent. Shifting weather and climate patterns will affect arable land, and increased variation in temperatures will impact food production and infrastructure needs. These challenges will require increasingly more investment and research across a large range of areas related to adaptation. The opportunities involved in overcoming these challenges will be large.

Some of the challenges that the ADB identifies for Asian countries to overcome in order to fulfil the preconditions necessary to realising the Asian century will create opportunities for Australia and states like Tasmania. These areas include:

- education and human capital development;
- increasing access to infrastructure services;
- rural development, including agriculture;
- managing urbanisation on a major scale;
- a radical reduction in the intensity of energy and natural resource use; and
- entrepreneurship, innovation and technological development.

Asia's infrastructure challenge will not be in the financing of hard infrastructure alone. The region will also have to improve its regulatory environment. Importantly for Tasmania, there will be a large service component in the delivery of major infrastructure projects, including management, design and other high value-add areas. The demand in these areas and the competition will be on an unprecedented scale. It is estimated that between 2010 and 2020, Asian investment in infrastructure will be between US$7.6 trillion[4] and US$8 trillion (Tahilyani et al 2011).

A number of Asian countries are already global powers and the region's links with the rest of the world are strong and deep. This will only become more intense over time. But Asia's growth will not automatically come to Australia and its states and territories. The competition for these opportunities will be intense. A stagnant Europe and North America are both looking to Asia for their growth opportunities. Asian entrepreneurs will be looking to use their proximity to, and familiarity with, their neighbours to cash in on the opportunities, and there will be intense competition within countries like Australia for such high-value opportunities.

Asia's rise to date, and its future ascendency, will not automatically lift the rest of the world with it. The rise of Asia creates an opportunity for subnational and national communities to focus their policies and strategies, and to use Asia to help lift living standards and social welfare in the process. The most important message from the Australian White Paper is that domestic action is absolutely central to benefitting from the Asian century. If Tasmania does not ready and position itself — and make the difficult changes that are necessary — it may miss out on significant opportunities.

2.4 Near-term opportunities in the food, tourism and education sectors

Supply chain integration and production specialisation

Trade and investment in East Asian manufacturing is predominantly organised around supply chains (or production networks). Technological advances in transportation and communications, free trade in information communications technology, commitment to openness by East Asian governments, investment in infrastructure, and an open global system underpinned by the WTO have allowed vertical and horizontal integration in production. Value-add at different stages of production and the production of parts and components, especially in manufacturing, take place in different locations around East Asia.

This process allows for specialisation along the value chain, where high value-add, innovative and high-skilled inputs are generally made in countries with higher skill and technology endowments, while labour-intensive, low-wage work is done in countries with lower wage costs and lower-skilled workers. Between those two extremes, production happens where it is cheapest. A simple characterisation of supply chains sees marketing,

[4] Data from Table 4 at: http://www.adbi.org/working-paper/2010/06/25/3915.institutions.asian.connectivity/institutions.for.financing.asias.infrastructure.demand/

supply chain logistics and design take place in Northeast Asian economies, with parts and components to be manufactured, traded and/or modified in Southeast Asia. Assembly can then occur in China.

Producing or adding value at each stage of production (where it is the cheapest) has allowed a number of less developed countries to join production networks, attract investment and find new opportunities within supply chains. It has allowed SMEs in middle-income and advanced economies to specialise in producing niche parts, components or services and to join global supply chains.

The process is not unique to manufacturing, although that is where it is more prevalent. Location matters to a certain degree for participation in production networks if the inputs are physical goods that require low transport costs. But for service inputs into supply chains — for example, to supply design, coordination or marketing — distance matters much less. Supply chains are also important in distribution and retailing. They create ample opportunity for specialisation and the supply of high-value manufacturing services activities, as well as more effective marketing and distribution of produce across the range. Chapter 7 draws out some opportunities for Tasmania.

Production networks present opportunities at all stages of production for SMEs that depend on deep comparative advantage, but they also require intimate knowledge of markets and supply chains in Asia in order to capitalise on the many small but lucrative opportunities. Production networks are able to shift production centres and products rapidly in response to market changes or innovation, and being able to understand where and when those changes are likely to occur is also important for capitalising on the many opportunities.

Australia has not played an active role in utilising these production networks. Countries like Japan and South Korea rely on these supply chains for their manufacturing output, including the delivery of goods and services directly into Asian markets. Importantly, Japanese and South Korean retailers have succeeded in supplying food, services and goods deep into Chinese and Southeast Asian markets through the creation or utilisation of supply chains. Linking in to those major suppliers provides many opportunities for latecomers and SMEs.

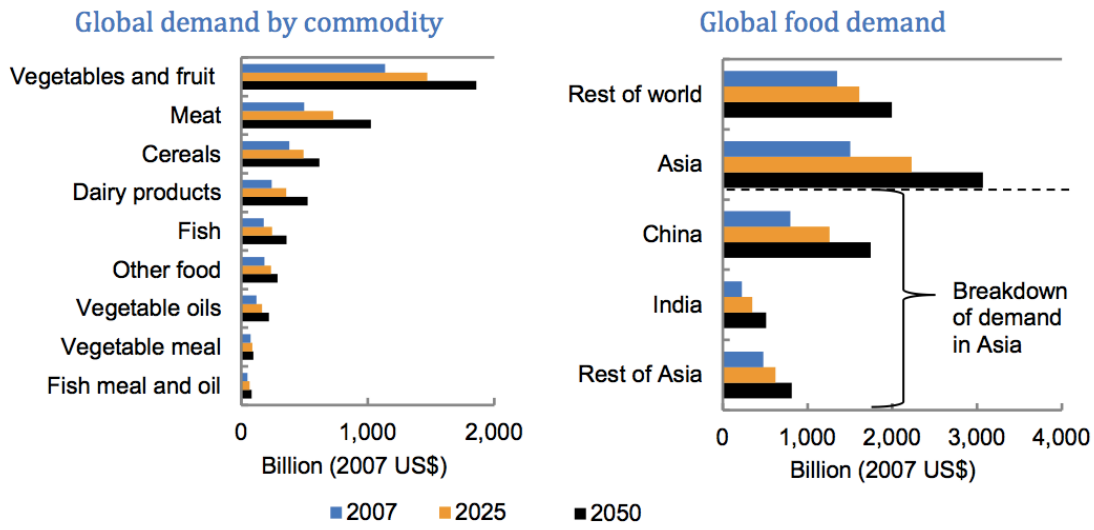
Food

As incomes rise in many of the developing and emerging countries in Asia, the demand for higher-protein diets will further increase. This will put pressure on, and expand greatly, the supply of meat, fish and other quality produce, in addition to basic staples. The most significant challenges for food in Asia will be:

- sustainable food production;
- food safety; and
- food security and reliability of supply.

As Asia becomes more affluent, there will be diet diversification and increased demand for organic and high-quality food. Asia, led by China, will be the largest source of food demand growth, with meat, fruit and vegetables leading the rise. That trend is well under way and is projected to continue past 2050 (Figure 2.4).

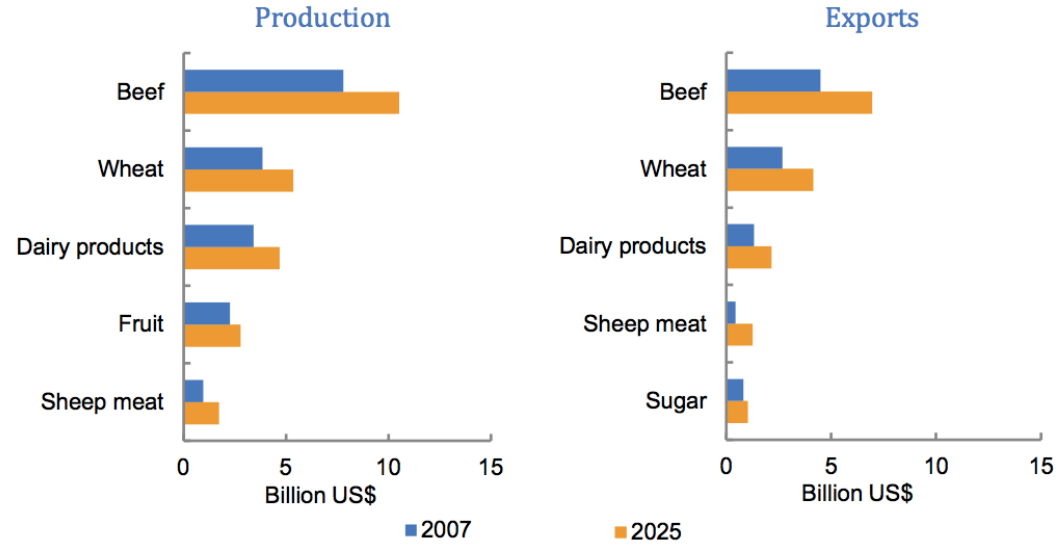
Figure 2.4: Demand for food will grow



Source: Linehan et al (2012).

There are common factors across different countries that can inform rough trends as incomes rise. As consumers become wealthier in emerging Asia, expenditure on food as a share of total expenditure may fall, but it will rise in absolute value. The consumption mix also changes as people become more affluent, but there are many factors beyond income that affect this as well. Higher-quality produce and more foreign varieties will be demanded. Increased foreign varieties means there will be increased intra-industry trade — that is, imports in emerging Asian countries will rise in product categories in which those countries traditionally export (USDA 2001).

Figure 2.5: Outlook for Australian agrifood production and exports



Notes: at 2007 prices.

Source: Linehan et al (2012).

Other challenges in food supply relate to the ability of suppliers to adapt and change output depending on market pressures from increased variability in both climate and supply from other major production markets. Responding to these pressures will require flexibility in supply at a much more rapid pace than is required for the relatively slower changes in demand from rising incomes and urbanisation. Tastes change over time, but more rapid changes will come from disruptions in supply, which are reflected in sudden price rises.

With climate change making weather patterns less predictable and severe weather events more frequent, disruptions to food supplies will occur more regularly (IPCC 2001). The spread of disease, such as swine flu or mad cow disease, among global suppliers also has the potential and is likely to disrupt supply. Suppliers that are able to quickly move in to cover shortfalls in supply will benefit greatly from such changes. This also has implications for the ease with which producers can exit the market when the producer or the market is no longer viable.

New markets will open up and demand will shift rapidly in the Asian century. Producers that can reliably supply high-quality produce and shift rapidly to meet changing demand will benefit the most.

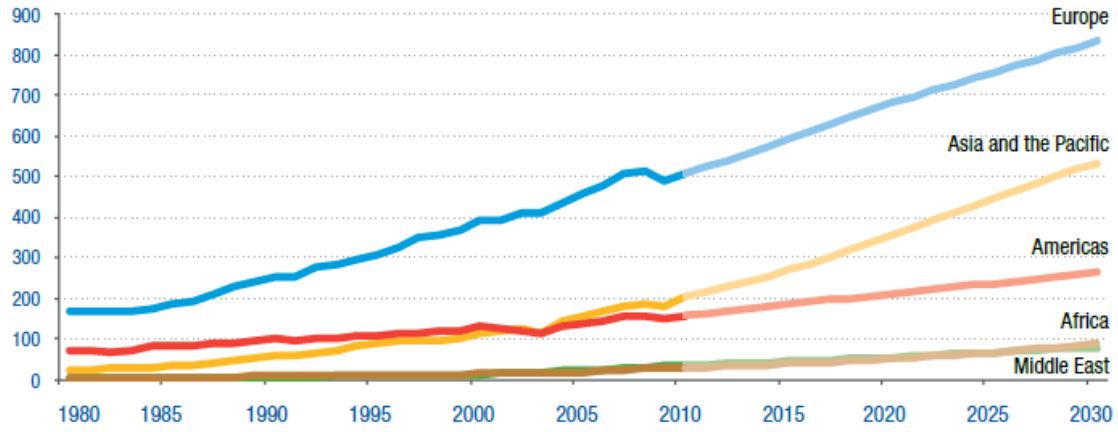
Tourism

With the rapid growth of the middle class in Asia, outbound tourists will grow substantially. China's outbound tourists increased from 4.5 million to 57 million between 1995 and 2010, and India's from 3 million to 11 million over the same period (AWP 2012, 35; UNWTO 2012).

The traditional markets of North America, Japan and the United Kingdom are declining sources of tourism. The Australian domestic tourism market is flat (TICT 2012). Tasmania needs to capture the new middle- and upper-class tourism markets in emerging Asia, and needs to capture them early and with purpose.

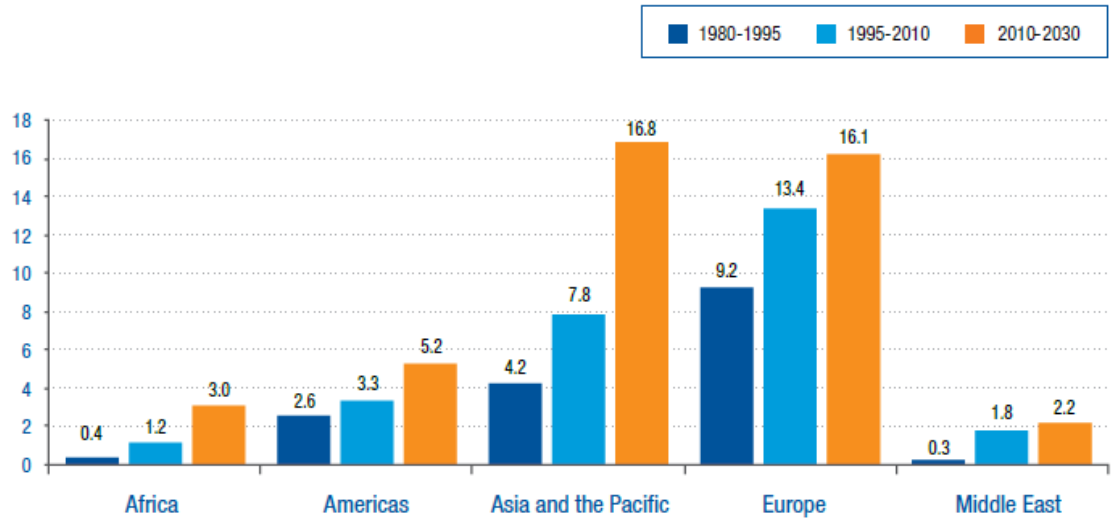
In the next decade, Asian tourist arrivals are expected to grow from 41 per cent to 45 per cent of total arrivals (AWP 2012, 127). Outbound tourism from the Asia Pacific and Europe is expected to drive the global tourism market (Figures 2.6 and 2.7). Most importantly, given Australia's proximity to Asia, Asian nationals have made up, and will continue to make up, the vast majority of visitors to the country (see Figure 2.8).

Figure 2.6: Global tourism: outbound tourism by region of origin, million



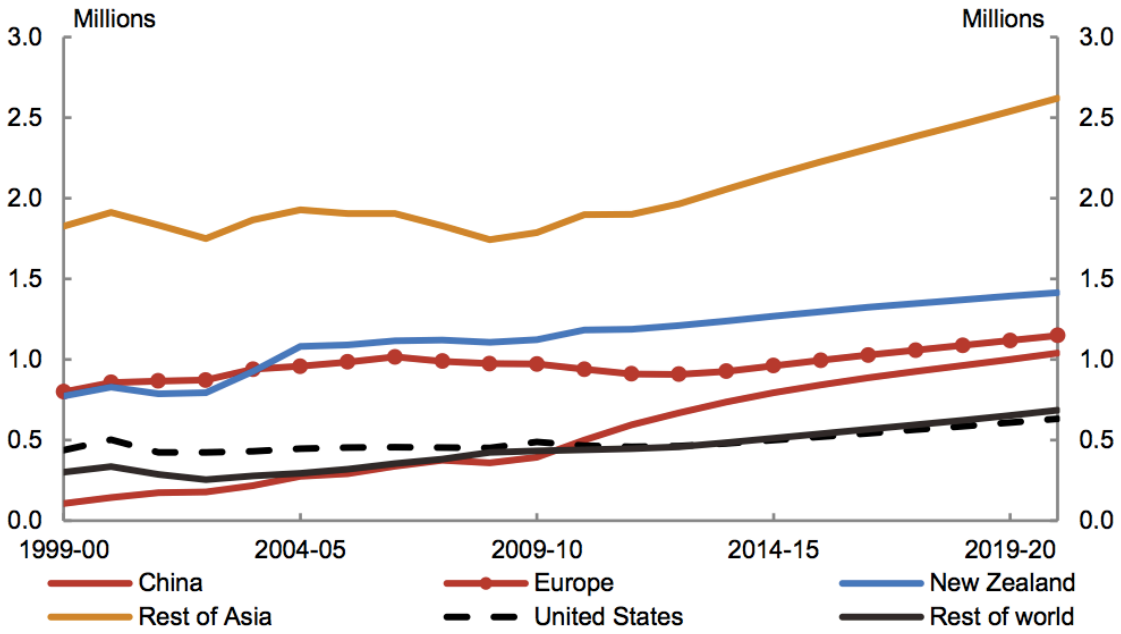
Source: UNWTO, *Tourism towards 2030* (2011).

Figure 2.7: Outbound tourism by region of origin, absolute change over previous period, million



Source: UNWTO, *Tourism towards 2030* (2011).

Figure 2.8: Visitor arrivals in Australia



Source: AWP (2012) and TRA (2012).

Asia's middle class will demand quality, quantity and increasing variety in tourism. There will be intense competition among tourism providers. The challenge in the international tourism industry will be to provide services that are:

- benchmarked against international standards;
- globally oriented;
- innovative; and
- supplying unique or niche services.

A top priority for attractive tourist destinations will be for infrastructure that connects destinations to international hubs, as well as infrastructure that ensures internal connectivity. As the Australian White Paper suggests, "Australia's natural endowments and position as one of the developed countries closest to Asia provide us with natural advantages" (AWP 2012, 127).

Education

One of the biggest challenges for emerging Asian countries is fostering skills formation and higher education training, which are needed to move workforces out of low-skilled, low-wage labour to higher-skilled work. A policy priority in many countries is to upgrade human capital stock in a significant way to avoid the middle-income trap. Higher education investment is a necessary component in that strategy.

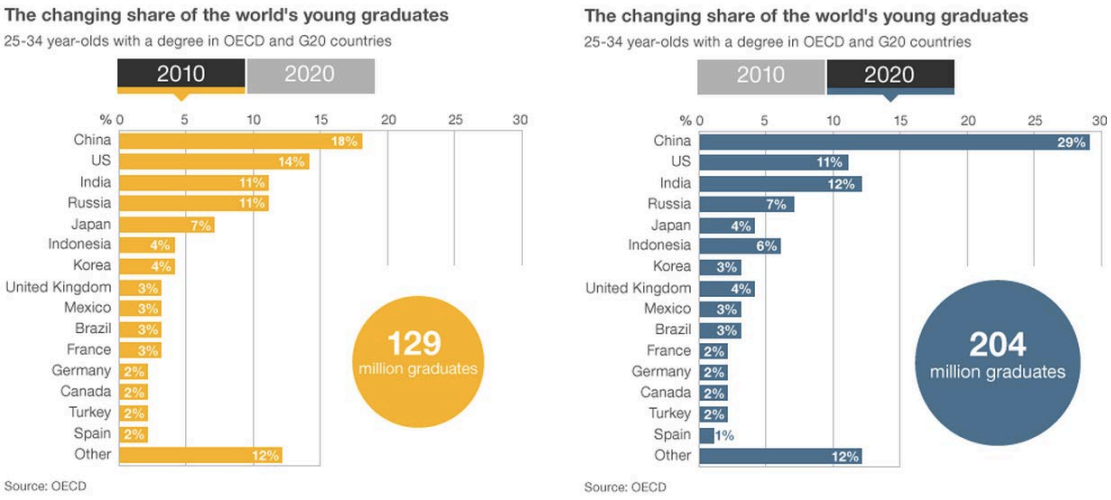
According to the Organisation for Economic Co-operation and Development (OECD), China currently has the most university graduates in the 25–34 age cohort in the world, with 23 million graduates in this age range (out of 129 million graduates in total). This is higher than the United States, which has 18 million. India is third, with around 14 million.

Japan has around 9 million, and Indonesia and South Korea have around 5 million each. OECD projections suggest China will have close to 30 per cent of the estimated 204 million graduates in this age bracket among OECD and G20 members (close to 60 million graduates) by 2020, and India is expected to overtake the United States with 12 per cent. Indonesia could have over 12 million graduates (see Figure 2.9).

Other projections suggest those numbers could be as high as 83 million graduates for China in the next decade, and 54 million for India (compared to 30 million in the United States) (Silverstein et al 2012). Rapid growth in demand for higher education will continue past 2020, as more people seek higher pay and upward mobility in emerging Asia. This growth in demand for higher education will include growing demand for education abroad (for example, Chinese nationals studying in Australia).

In 2009, there were 2.5 million international higher education students. This number is projected to reach seven million by 2020 (Altbach et al 2009).

Figure 2.9: The changing share of the world's young graduates, 2010 to 2020



Source: OECD (2012c).

Demand for international, high-quality education is expected to outstrip supply in the foreseeable future (AWP 2012, 126). Competition for high-quality education will challenge established and new providers of higher education (India already has the second-largest education system in the world). Nonetheless, the international higher education market is, and will remain, very competitive. As with tourism, international benchmarking will be important and will need to be complemented with tailored programs, further linking teaching to cutting-edge research and supply based on comparative advantage.

International rankings and branding, as well as a university's capacity to accommodate students (with high staff-to-student ratios and facilities), will determine the student numbers and fees that universities can attract. Creating attractive and congenial environments around the provision of higher education will be critical: housing, infrastructure and connectivity through transport and high-speed broadband will all need to be part of higher education strategies.

Tasmania will have to compete with other Australian and international education providers in North America, Europe and now Asia. The state should leverage Australia's advantage in this market — rigorous, independent-minded and internationally benchmarked university education in English. Education services will need to be integrated with world-class research. And if Tasmania's advantages can be leveraged, including its quality environment, relative proximity to Asia and location in roughly the same time zone, the state could reap substantial benefits.

Research and innovation

Asia has also become a research and innovation hub. Japan is the largest producer of patents in the world (having overtaken the United States in 2010), and South Korea is the fifth largest (AWP 2012; OECD 2012b; Thomson Reuters 2012). China is already a major producer of science and research as measured by research output and R&D expenditure. Indonesia more than doubled its scientific publications between 2000 and 2010, while Vietnam's publications more than tripled. India went from producing 2.1 per cent to 3.5 per cent of world scientific publications over the same period (Thomson Reuters 2012; AWP 2012).

The sheer number of researchers and centres of innovation has also grown at a rapid rate. In 1993, China had less than half the number of researchers as the United States. By 2007, it caught up to and overtook the number in the United States. With technology and communications advances, research collaboration is becoming easier and research links are becoming stronger. Asia is already leading the world in research and innovation by some measures, and will only become a more important source of ideas, technology and innovation during the Asian century.

Chapter 3 Tasmania and its future in the Asian century

Main messages

- Tasmania's GSP per capita is below that of the rest of Australia. This is partly the result of demographics, and partly the result of lower multifactor productivity, which shows up in lower labour productivity (due to the composition of the Tasmanian mining sector), the structure of the Tasmanian economy, lower workforce participation and fewer hours worked.
- Asia's rise will present both new sources of demand for goods and services that Tasmanian businesses can produce and the opportunity to lift Tasmania's productivity and economic performance. It will be up to individual businesses to take advantage of these opportunities.
- Tasmania should invest in infrastructure and education, and craft an appropriate and flexible regulatory environment, to help capture opportunities in various sectors.
- Expanding Tasmanian business with Asia will require a change of mindset to better understand and appreciate Asia and its diversity, and what can be gained from increased reciprocal flows of goods, investment, people and ideas.
- Taken together, these changes have the potential to dramatically improve Tasmanian standards of living, by increasing productivity and raising employment.

3.1 Asia's rise will create new opportunities

As set out in Chapter 2, Asia's growth is likely to continue unabated over the coming years, creating new markets and opportunities. The complementarities between the Australian and the Asian economies suggest that Australia and Tasmania can take advantage of the rise of Asia. The most well documented opportunity to date has been the increased demand for Australia's raw materials. China is now the world's largest consumer of steel, aluminium and copper, at around 40 per cent of global consumption.

While Tasmania does not have the extremely large deposits of iron ore or coal that other parts of Australia have, the price of its largest export by value, zinc, saw a doubling of its US dollar price between 2001 and 2011 (LME 2013), more or less offsetting the effect of the rising Australian dollar. Although more beneficial to iron ore-rich Western Australia than Tasmania, the 10-fold increase in the US dollar price of iron ore over the past decade has still led to a large increase in the value of Tasmania's iron ore exports.

While demand for mining products is likely to remain strong in the medium term, new opportunities are emerging as Asian societies become increasingly affluent and as the share of consumption within the GDP of Asian economies continues to grow. As mentioned in Chapter 2, one study estimates that the middle class in Asia will account for 60 per cent of the global middle class by 2030, at 3.2 billion people (Kharas and Gertz 2010).

Increasing incomes in Asia will also augment the demand for agricultural products. It has been estimated that food production in 2050 will need to be 70 per cent higher than it is today, largely due to growing demand in Asia (AWP 2012, 70). Importantly for Tasmania, as Asian diets become wealthier and westernised, demand is likely to grow for high-quality and niche food products, with diets including a greater proportion of meat and dairy.

Among the other important opportunities presented by Asia's growth and the expansion of its middle class will be in the provision of services in sectors such as tourism; sport; education; the arts and creative industries; professional, banking and financial services; and science and technology.

It will take work to make these opportunities materialise

The opportunities created by the Asian century will not materialise automatically. Businesses, government and society will need to engage with Asia and prepare Tasmania for the Asian century. Currently, Tasmania is arguably less well prepared than other states to take advantage of Asia's rise, which is reflected in the state's trade performance relative to other states (see Box 3.1). Our task is to overcome Tasmania's challenges and develop strategies that allow Tasmania to surge ahead in the Asian century. A failure to seize the opportunities presented by the Asian century will represent not only a missed opportunity, but will likely lead to a relative decline in standards of living in Tasmania.

Box 3.1: Trade performance

To measure Tasmania's trade performance with Asia and the rest of the world relative to other states and territories and other countries in the region, it is not enough to look at trade shares or trade values alone. To tell whether Tasmania is exporting what is expected given its location in the global economy and its size, it is important to measure the state's trade against an appropriate counterfactual, or benchmark.

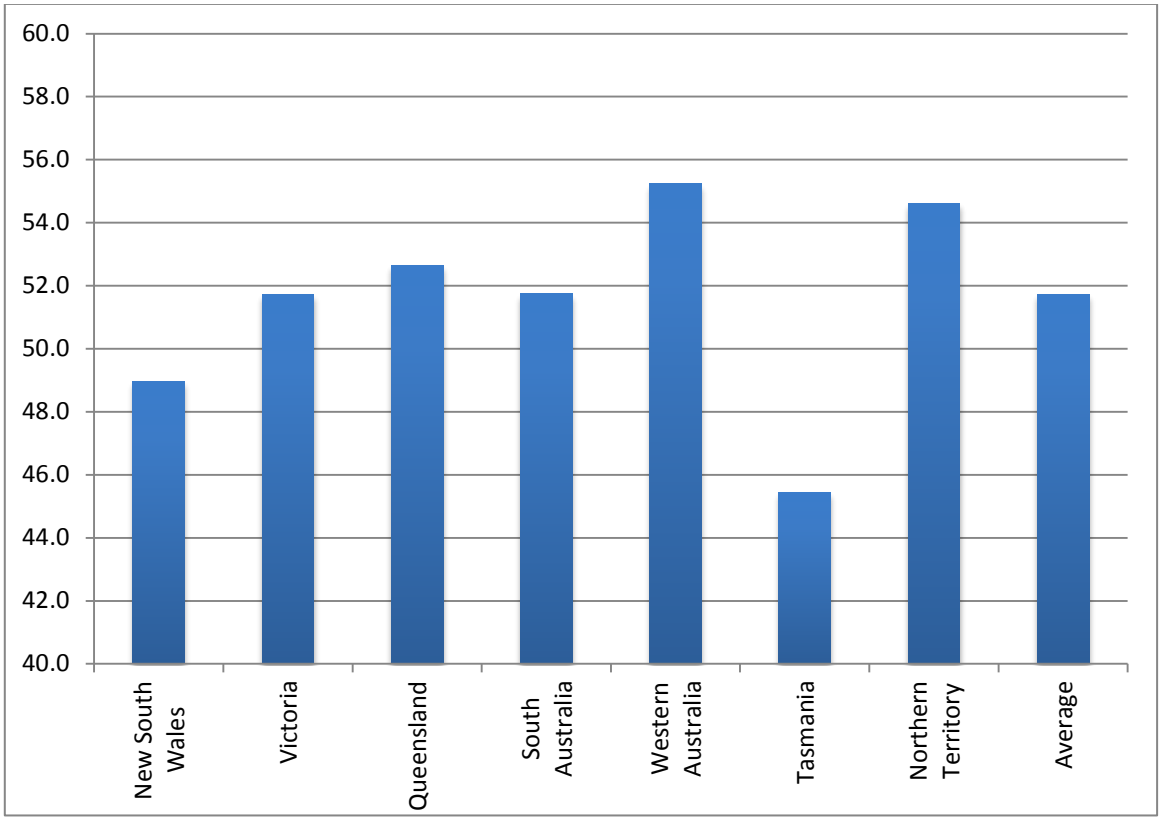
The gravity model of trade is a workhorse of international economics.[1] It says that, on average, the larger an economy is, the more it trades, and the further it is apart from a trading partner, the lower the rate of trade. To assess performance, the gravity model is applied using a stochastic frontier approach that measures a potential amount of trade given trade determinants (Armstrong 2007 and 2012). Trade performance is given by a ratio of actual to potential trade (that is, trade performance measures the extent to which actual trade achieves a state's or country's trade potential).

For the period 2005 to 2010, where Australian states' trade data is available with the rest of the world (but not intra-Australian trade), the Australian state average trade performance was estimated at 51.7 per cent. Tasmania was the worst performer at 45.4 per cent on average for that period.

Trade potential is estimated using GDP (or gross state or territory products), distance, common land border and common language. These variables determine what the maximum potential value of trade would be if trade impediments were removed and other policy measures affecting trade flows were improved. Tasmania's lower trade performance suggests that there are institutional and infrastructural barriers to Tasmania achieving its trade potential. Lower trade performance as measured here is not because of Tasmania's more isolated geographic location compared with other states: its place in the world relative to other Australian states is already accounted for in its lower potential trade. The difference in Tasmania's trade performance can be interpreted as reflecting higher local institutional and infrastructural impediments to trade relative to other Australian states and territories.

Figure 3.1: Tasmania's trade performance in comparison, per cent of potential 2005–10

1 For a detailed discussion of how the frontier gravity model has been used to evaluate Tasmania's trade performance, see Appendix 2.



Source: Calculations by authors.

The challenge of the Asian century is already evident in sectors transformed by the rise of Asia over the past 10 years. Asia has become the centre of global manufacturing, accounting for 40 per cent of global production in 2010. The rise of Asian manufacturing has seen the creation of large-scale transnational production networks, with intra-Asian trade projected to account for some 20 per cent of global merchandise trade by 2025 (AWP 2012, 60). This fragmentation of the production process has seen different elements move to different countries. Higher-skill parts, such as design and R&D, are located in the region's advanced economies, while the more labour-intensive activities, such as assembly, are located in those countries with abundant low-cost labour.

Tasmanian manufacturing businesses cannot escape the fragmentation of production processes. Businesses that do not succeed in integrating themselves into regional supply chains are likely to find themselves increasingly uncompetitive. This, however, is no cause for alarm, as Tasmanian businesses have shown they are able to adapt to this change. The case of Blundstone, the footwear manufacturer that successfully relocated part of its production to Asia, demonstrates this point (see Chapter 7).

Yet Tasmanian businesses will not automatically be able to integrate themselves into regional supply chains. Infrastructure, including the NBN, will be a key element of this move — it lowers transaction costs between Tasmania and other parts of the supply chain. At the same time, Tasmanian businesses will need to be sufficiently flexible to take advantage of business opportunities as they arise — the government can contribute to this by ensuring that regulation allows for rapid adaptation.

Current patterns of comparative advantage will not endure forever and Tasmanian businesses will need to work hard to insert themselves into regional supply chains in high value-adding activities, such as design and innovation. Asian countries and cities are increasingly centres of innovation, with many of them having the best-performing education systems in the world. If Tasmania is to be able to compete, it will also need to improve educational outcomes in the state.

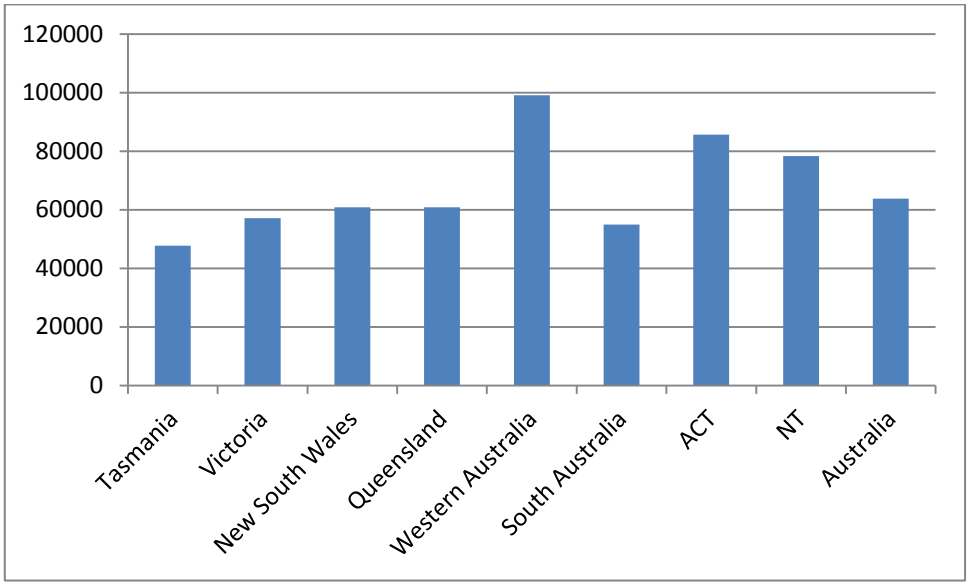
Tasmania will therefore require proactive government strategies to create the conditions in which businesses have both the incentive and the ability to take advantage of the Asian century's opportunities.

3.2 The state of the state

The Australian White Paper sets a clear objective to develop a productive and resilient economy, with Australia's GDP per person to be in the world's top 10 by 2025, up from 13th in 2011. Achieving this objective requires improvement in Australian productivity. For Tasmania, meeting the challenges presented by the Asian century is also fundamentally a challenge to improve average productivity in the state.

Data on GSP published by the ABS for 2011–12 show that Tasmania's GSP per capita, at $47 686, was 75 per cent of the national average.

Figure 3.2: GSP per capita, 2011–12



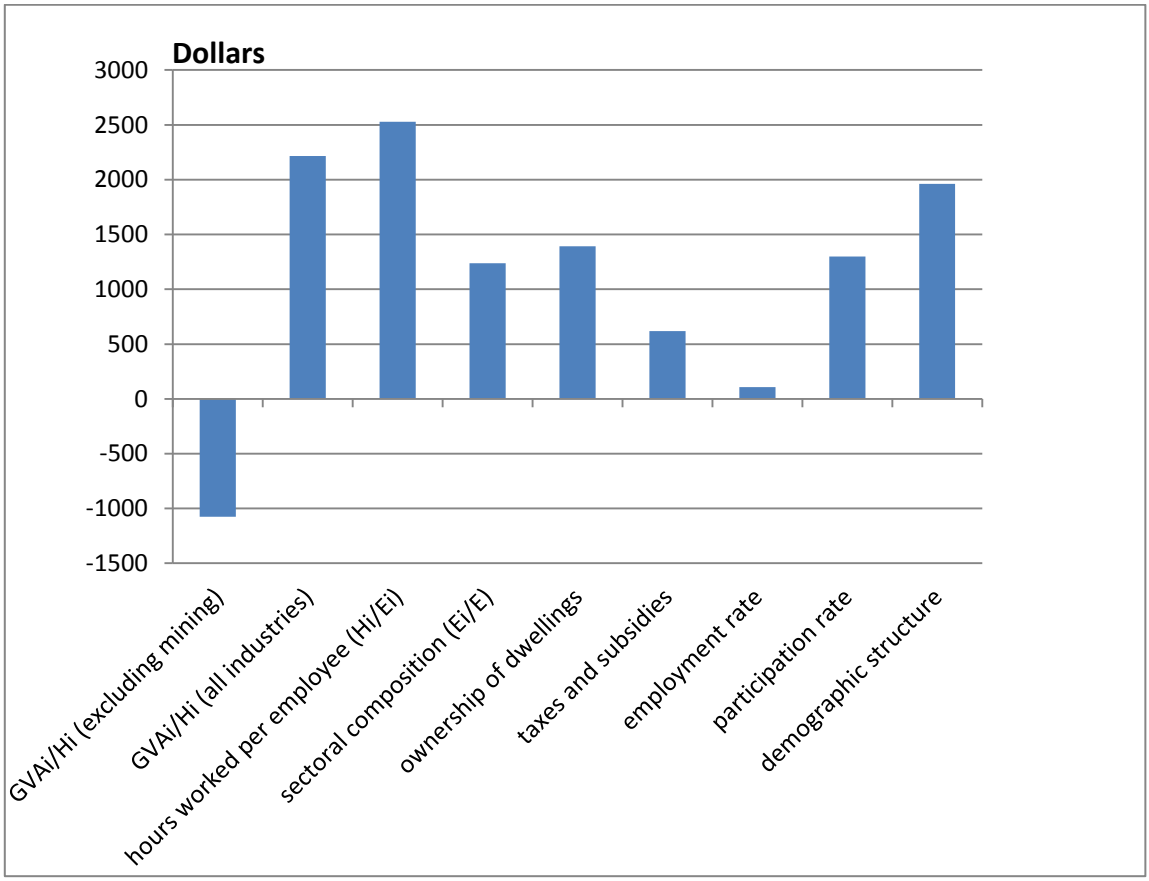
Source: Australian National Accounts: State Accounts, ABS Cat No 5220.0.

Figure 3.2 shows that the highest GSP per capita is in Western Australia, which has benefited most directly from Asia's rise through the mining and energy resources investment boom (ABS 2012b). Figure 3.3 allows some understanding of the sources of Tasmania's relative underperformance. It shows what effect raising components of GSP

per capita to Australian levels would have had, on average, on Tasmania's GSP per capita over the past five years:[2]

- increasing value-added per employee in the Tasmanian mining sector: $3 300;
- increasing workforce participation on an age-adjusted basis: $1 300;
- increasing hours worked per employee: $2 500;
- altering the sectoral composition of the economy: $1 200; and
- rejuvenating the demographic structure: $2 000.

Figure 3.3: Potential contributions to improving Tasmanian GSP per capita



Source: Author calculations from ABS data.

It is clear from Figure 3.3 that part of the gap between Tasmanian GSP and Australian GDP per capita is largely outside the control of government or business. This is true of the contribution of labour productivity in mining, which is largely a function of the price of different minerals and Tasmania's existing mineral composition, as well as the imputed value of living in one's own home and the demographic profile.

2 For a detailed discussion of the components of GDP and GSP, see Appendix 1.

Nevertheless, a large part of the discrepancy in GSP per capita between Tasmania and other states is due to the lower productive capacity, or multifactor productivity, of the Tasmanian economy.[3] Figure 3.3 shows that, outside the mining sector, Tasmania's average labour productivity by sector, measured by gross value added (GVA) per hour worked, is not lower than Australia as a whole. This means that Tasmania's lower productive capacity reduces Tasmanian GSP per capita indirectly, rather than lowering labour productivity directly.

The effect of the lower productive capacity of the Tasmanian economy on Tasmania's GSP per capita therefore shows up in the lower amount of work the Tasmanian economy can support. As Figure 3.3 shows, raising the workforce participation rate for each age group to the national average, even while leaving Tasmania's demographic structure unchanged, would raise average incomes in Tasmania by $1 300. Increasing the number of hours worked to Australian averages would increase average incomes by almost twice this amount. Figure 3.3 also shows that the Tasmanian economy is more heavily composed of low-productivity sectors — if labour productivity in all industries were to remain the same, but the composition of the Tasmanian economy were to shift to match that of the Australian economy, Tasmanian GSP per capita would increase by $1 200. These are the indirect effects of Tasmania's lower productive capacity.

Governments can improve the productive capacity of the economy through three channels: by providing *incentives* for firms to innovate and expand, by developing the *capabilities* of firms to innovate, and by making sure that regulation gives firms the *flexibility* to take advantage of a changing economy (Banks 2012, 8). Tasmania's Economic Development Plan has elements relating to all three channels to help improve Tasmania's productivity but the challenge to identify new pathways remains (DEDTA 2012b).

As Asian economies become more advanced, Tasmania is likely to face greater competition for a range of the goods and services it currently produces. The challenge of increased competition makes it more urgent for Tasmania to implement policies to improve productivity. Tasmania must also refrain from policies that counteract the incentives for firms to innovate or that protect comparatively unproductive firms. It will need to encourage investment that improves the capabilities of Tasmanian businesses, which will in turn strengthen the competitiveness of goods and services that embody a high intellectual content, such as higher education or advanced manufacturing.

The government can also make a significant contribution to businesses' capabilities by improving Tasmania's connections to Asia. Increased capital stocks, including physical infrastructure, and improving the performance of the education sector will be critical in this regard, as will increasing Asia's awareness and understanding of Tasmanian businesses. There is also a need to provide a flexible regulatory environment for firms to take advantage of evolving opportunities in the Asian century.

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[3] For a detailed discussion on, and explanation of, productivity (in its various forms), see Appendix 1.

3.3 Strengths and weaknesses

The opportunities presented to Tasmania in the Asian century derive from its endowment of resources (both given and created) and the scale at which existing businesses operate. While it is important to be conscious of the state's current endowments, it is important to understand how endowments, particularly those in human capital and areas of expertise, might change over time and what further opportunities these might create.

Strengths

As it stands, Tasmania has a number of natural attributes that are a source of current and potential comparative advantage in the Asian century. Much of its existing trade with Asia and the world is in primary goods, embodying relatively little intellectual content. Tasmania's comparative advantage in this area arises from its natural endowments, with exports of services only around 12 per cent of exports of goods. Many of these strengths will endure for years to come. Tasmania also needs to build on the strength of its other endowments, as well as identify and develop its future comparative advantage.

Minerals and metals

Exports of ores, concentrates, processed metals and metal products make up over half of Tasmania's goods exports, or $1.8 billion in 2011–12 (DEDTA 2012f, 5). Asia's demand for such goods is likely to continue for several decades. However, as other sources of supply are developed in Africa and South America, returns in mining are likely to be lower. This sector, due to technological innovations (for example, driverless trucks), is also likely to employ fewer workers relative to output. Tasmania cannot rely on minerals alone for its future prosperity. Tasmania's mining and minerals processing sector is further analysed in Chapter 4.

Food and agriculture

Currently, exports of food products represent around one-sixth of Tasmania's total international goods exports, or $520 million in 2011–12. Tasmania has an established comparative advantage in high-end food production, due partly to the state's reputation for producing clean and disease-free food — which should be carefully maintained — and also to Tasmania's natural endowments. With rising incomes in Asia, demand will rise for counter-seasonal, high-quality and niche products that Tasmania can supply.

Tasmania has about 12 per cent of Australia's fresh water, although it comprises just 1 per cent of Australia's land mass and has 2 per cent of its population. The Tasmanian Government aims to capitalise on its comparative advantage in water-intensive activities through the multi-stage development of the state's irrigation infrastructure. Investment of $310 million by the Tasmanian Government, the Australian Government and private investment in 10 irrigation schemes makes up the first tranche of this development.

The Tasmanian Government's August 2012 submission to Infrastructure Australia included a proposal for a $130 million public contribution to the second tranche of investment.

When combined with a $54 million private contribution, this investment would enable an additional $220 million of on-farm private investment and 310 direct and indirect jobs.

Box 3.2: Irrigation infrastructure and dairy farming

An example of the potential from new irrigation schemes was identified in the Tasmanian *Northern Regional Economic Development Plan*. Four irrigation schemes within the Dorset region (Great Forester, Winnaleah, Upper Ringarooma and Scottsdale [formerly Great Forester-Brid]) have a potential combined capacity of 26 680 megalitres (ML). With 58 per cent of the water intended for dairying, this equates to more than 15 000 ML that could be utilised for milk production. Other irrigable areas in the northeast where there is potential to increase dairy farming include the Waterhouse and Gladstone regions.

Farmers have demonstrated strong interest in taking up water rights from these new irrigation opportunities. Expression of interest surveys returned to Tasmanian Irrigation by landholders in Dorset indicated that 58 per cent of new irrigation water, or 15 000 ML, will be used for expanding dairy enterprises. The Dorset municipality schemes alone could deliver an additional 92 on-farm jobs in a district suffering from closure of major local enterprises (DairyTas 2011, 2).[4]

This investment in irrigation, combined with growing demand for higher-protein diets in Asia, make dairy production an attractive opportunity in the Asian century. Other opportunities include cropping and intensive horticulture, such as salad leaf vegetables and soft fruits. Opportunities in agriculture are analysed further in Chapter 4.

Electricity

Tasmania produces sustainable electricity through the generation of renewable energy, with more than 80 per cent of Tasmania's grid electricity generation capacity being hydroelectric. Hydro Tasmania is currently the most significant contributor of renewable energy to the national electricity market, generating 60 per cent of Australia's renewable energy supply (Hydro Tasmania 2012a). The development of Tasmania's hydroelectric capacity has been a major driver of Tasmania's economic development, particularly in the minerals processing sector.

Hydro Tasmania is constructing a $400 million wind farm at Cape Portland, near Musselroe Bay. When completed in July 2013, the Musselroe wind farm will have 56 wind turbines with a generating capacity of 168 megawatts (MW), which will meet the electricity needs of up to 50 000 homes, reducing greenhouse gas emissions from alternative generation by around 450 000 tonnes each year (Hydro Tasmania 2012b).

[4] The employment figure is derived by taking the 15 474 ML of new irrigation water being requested for milk production and applying an industry benchmark of 5 ML per hectare, which equates to 3 094 hectares of new dairy enterprises. Applying a further industry benchmark of 2.8 cows per hectare, this would mean 8 665 additional cows would be required, and at one on-farm job per 94 cows, this would equate to 92 new on-farm jobs.

The high proportion of electricity generated from renewable sources presents a dual opportunity. Continuing growth in Asian economies and increasing carbon constraints are likely to increase the relative price of electricity in Asia, maintaining and extending Tasmania's comparative advantage in producing energy-intensive goods like zinc and aluminium relative to countries without the same access to renewable energy. As economies in Asia continue to grow, efforts to reduce greenhouse gas emissions and make growth sustainable will also intensify. Tasmania's long experience in renewable energy therefore positions it well to export this expertise to developing Asian economies.

Government reforms to deliver retail competition in the electricity industry from 1 January 2014, for all customers, will create greater competition in Tasmania and provide greater choice and flexibility for consumers and businesses alike, helping to keep energy costs down.

Services

Many of the greatest opportunities of the Asian century lie in the services sector. Currently, Tasmania's service exports are only equal to a small fraction of its goods exports, at around 12 per cent, but there is much potential for growth, especially in education and tourism.

International education and research

Emerging Asian countries see education as imperative to acquiring the skills and expertise necessary to create more highly paid jobs and to overcome the middle-income trap. As Asia's middle class grows, the demand for overseas education and research collaboration is likely to grow with it. This is particularly true for students coming from countries where incomes are still in the low- to middle-income category, such as India, Indonesia or Vietnam. This represents an opportunity for the Tasmanian higher education sector.

Tasmanian higher education is well priced relative to its academic standing. This, combined with the opportunity it gives Asian students to study in an English-speaking environment, is a source of attractiveness. The University of Tasmania is also recognised for its research in many areas in which demand from Asia is likely to be strong. Yet Tasmania arguably attracts fewer international students than it could. Many of the opportunities present in higher education are covered in greater detail in Chapter 5, and the research opportunities presented by Tasmania's Antarctic connections are the focus of Chapter 6.

Tourism

Personal travel services are Tasmania's sixth-largest export category, at $198 million in 2010–11. Currently, only 14 per cent of visitors to Tasmania are international, and of these just 45 per cent are from Asia. This is an area where the growth of the Asian middle class represents significant opportunities (see Chapter 2 and Chapter 4).

Challenges in the Asian century

Whether or not the opportunities of the Asian century are realised will depend on whether the Tasmanian Government and businesses are able to create the right climate to take advantage of them. Tasmania must therefore get the settings right, improving the productive capacity of the Tasmanian economy through better infrastructure and education, and create the specific conditions needed to succeed in Asia by creating links between Tasmanian and Asian businesses and by making sure Tasmanian businesses have the right understanding of Asian markets.

Connections to market

Well-targeted and efficient investment in infrastructure can increase the competitiveness of Tasmanian businesses through the creation of more-efficient supply networks. Good communication and transport infrastructure can overcome some of the disadvantages of low population densities by increasing the population that can economically be drawn upon in the production of goods and services, allowing for increases in the scale of production.

Many submissions to the Tasmanian White Paper identified that the cost of freight is a major impediment to exporting goods. Freight costs may be higher in Tasmania than some other parts of Australia because of Tasmania's distance from markets; the lack of direct links to Asia also means that goods exported to the Asian region must pass through at least one extra intermediate node, compared with goods from the mainland.

Infrastructure Australia notes in a recent report to the federal Minister for Infrastructure and Transport that there is "prima facie evidence of inefficient use of infrastructure in Tasmania" and highlights the need for the development of a cohesive statewide transport strategy for Tasmania's future freight system, including ports, road and rail freight (Infrastructure Australia 2012, 25).

In March 2012, the Australian Government announced that it would provide a $20 million Exporters Assistance Package to assist Tasmanian exporters. The Government has allocated $1.5 million to the establishment of the Tasmanian Freight Logistics Coordination Team. The Team will use their expertise to guide the development of a long-term freight strategy and provide recommendations to the Tasmanian Government.

A major part of this work will be the development of a principal freight network plan. The plan will cover the major freight corridor between Hobart and the northern ports, together with key intraregional linkages. It will be multi-modal. The overall aim of the plan is to support an integrated and efficient freight network between Tasmania's key export ports, freight-generating areas and distribution centres, and to deliver long-term productivity improvements.

Sea

More than 99 per cent of Tasmania's export movements (by volume) are by sea (DIER 2009). There are four major ports in Tasmania: Devonport, Burnie and Bell Bay in the

north, and the Port of Hobart in the south. These ports are all managed by the state-owned company TasPorts. The three northern ports are operated as a single port with three terminals, although the division of activity arguably means that operation is below an efficient scale. Infrastructure Australia has noted that, like most small port operators, TasPorts receives a negligible return on its port infrastructure (Infrastructure Australia 2012, 17). There are also several privately owned ports that are important for different industries, including Nyrstar's port facilities at Lutana and Port Latta in the north.

The main shipping services for most of the state's freight demanders are interstate container services operating from Burnie and Devonport. Bell Bay does not currently have a regular container service, but such services have operated out of the port in the past, and there is capacity for a service to do so in the future, subject to demand. Shipping and logistics services (excepting TT-Line) are provided by the private sector on a commercial basis.

The majority of services go to the Port of Melbourne, where Tasmanian freight is estimated to comprise around 20 per cent of annual throughput. From Melbourne, international shipping lines connect Tasmanian exporters directly to Japanese, Korean, Chinese (including Taiwanese and Hong Kong), Malaysian and Indonesian ports, as well as Singapore.

Since the AAA Consortium ended its weekly service to Singapore in 2011, Tasmania is no longer served by direct international container shipping services. Currently, there are several potential barriers to the reintroduction of international container services, including having sufficient freight volumes to justify direct international services, scheduling problems and international shipping trends, including the introduction of very large (post-Panamax) vessels which cannot currently be accommodated in Tasmanian ports. Channel depths at the three ports in the north of the state are around 10 metres, well short of the minimum 14 metres needed for such vessels. The cost of dredging a channel to a Tasmanian port is expected to be uneconomic.

Many large exporters charter their own ships and have not been affected by these changes. The cessation of direct international shipping services reflects the reduction in overall volumes, and the fact that some major exporters had already changed arrangements to using transhipping services through Melbourne.

However, for some exporters the loss of direct shipping, along with increased port fees in Melbourne, have raised freight costs at a time when Tasmanian exporters are having difficulty maintaining competiveness with exporters from other countries, due to the high value of the Australian dollar. The Tasmanian Freight Equalisation Scheme (TFES) is relevant in this regard. It provides a subsidy to companies moving freight across Bass Strait in order to reduce the costs of sea freight to a cost roughly equal to that of the equivalent road journey.

However, the scheme only applies to freight between mainland Australia and Tasmania. Under the current TFES rules, exports are ineligible for TFES assistance, either as direct

exports or through transhipment. The Australian Government has made it clear that it will not extend the TFES to exports. In this way, the scheme is effectively a tax on international exporters who freight by sea to Melbourne, likely increasing exports to the mainland at the expense of exports overseas and to Asia. It is also not clear that the scheme fixes any particular market failure (Infrastructure Australia 2012, 13). The scheme likely acts, therefore, as a disincentive to innovation and change, lowering productivity.

While shipping and logistics are essentially commercial matters for those who move freight, the Tasmanian Government is exploring options for assisting Tasmanian businesses to better access markets interstate and overseas. Freight costs are a significant component of total costs, and the loss of the AAA Consortium's service to Singapore is adding to these costs. The Freight Logistics Coordination Team will be tasked with exploring possible opportunities for the reintroduction of international shipping services to Bell Bay, or improved links through a mainland port.

Land

The majority of Tasmanian freight is moved on the state's extensive road network, which is used by both freight vehicles and passenger vehicles. Providing a safe, efficient and reliable road network is a key aim for the Tasmanian Government. Continual refinement of this network should be a priority for the Government to help move freight efficiently and cost-effectively.

Although heavy-vehicle registration charges are set to cover past expenditure on roads used by these vehicles, there is currently little direct relationship between the volume of traffic on the road network and road funding allocations. Aligning road use and funding will result in a better and more efficient allocation of funding to parts of the road network that are used the most. This will support continued improvements in road productivity.

Rail complements the road network in moving large volumes of bulk commodities (mineral ores, coal and cement) and in the intermodal market (containerised goods — for example, paper products, zinc ingots and retail products), primarily on the north–south line between Hobart and the Port of Burnie.

In the past, the poor condition of Tasmania's rail infrastructure, including rolling stock, has contributed to the system's inefficiency and lack of reliability. As a result, there was an overall reduction in rail freight from 2002 to 2012. Since 2008–09, the Tasmanian and Australian Governments have invested over $205 million in Tasmanian rail infrastructure and $130 million in rolling stock (DIER 2011, 13). These investments, along with the Tasmanian Government's takeover of rail operations in 2007–08, have led to improvements in the productivity and reliability of the rail network, and the proportion of freight moved by rail is now projected to increase.

Air

More than 88 per cent of Tasmanian passenger arrivals and departures are by air. Air transport is also crucial for time-sensitive interstate and international freight (Engineers

Australia 2010, 24). The two principal airports in the state are in Launceston in the north and Hobart in the south. Both of these airports accommodate important volumes of passenger and freight services to the mainland, and have seen upgrade work in the past decade.

Based on current demand, regular direct passenger services between Asia and Tasmania are unlikely to occur in the near future. Logistics also pose a problem. While Launceston Airport's runway is suitable for heavy jet aircraft, passenger and cargo aircraft types are currently unable to fly the distance to Asia from Hobart non-stop, or are restricted in their operations due to the length of the Hobart runway.

Aircraft flying to Asia from Tasmania require a refuelling stop, and the cost and practicality of this make direct services unattractive or unviable. The runway length could also prove limiting if Asian or other countries want to base a significant Antarctic program in Hobart (see Chapter 6 for further details). Hobart International Airport has indicated that, based on current projections of future demand, it would not be commercially feasible for the private operator to invest in extending the runway. The combination of factors discussed in this White Paper might encourage re-evaluation of this position.

Marketing

In order to take advantage of the opportunities to export goods and services to Asia, Tasmanian businesses will need to expand their operations to a scale where they can supply Asian markets profitably, and where it will be possible to meet demand.

Operating in Asian markets requires a detailed knowledge of local market conditions and opportunities in order to be successful (see case studies in Chapter 7). Fruit Growers Tasmania's submission to the Tasmanian White Paper pointed out that Tasmanian producers often fail to exploit existing opportunities for a lack of capital, marketing knowledge, relevant consumer research and cultural appreciation. Forming partnerships with Asian enterprises will help Tasmania overcome these obstacles to deeper business engagement with Asia. Attracting investment from Asian partners will be one of the best ways to form the deep links necessary to enter Asian marketplaces.

As well as allowing Tasmanian producers to scale up their production to access new markets, producing at a greater scale generally makes production more profitable. For primary industries, combining increasing scale with foreign investment may enable additional processing facilities. These higher value-adding activities would further lift the productivity of, and employment in, the Tasmanian economy.

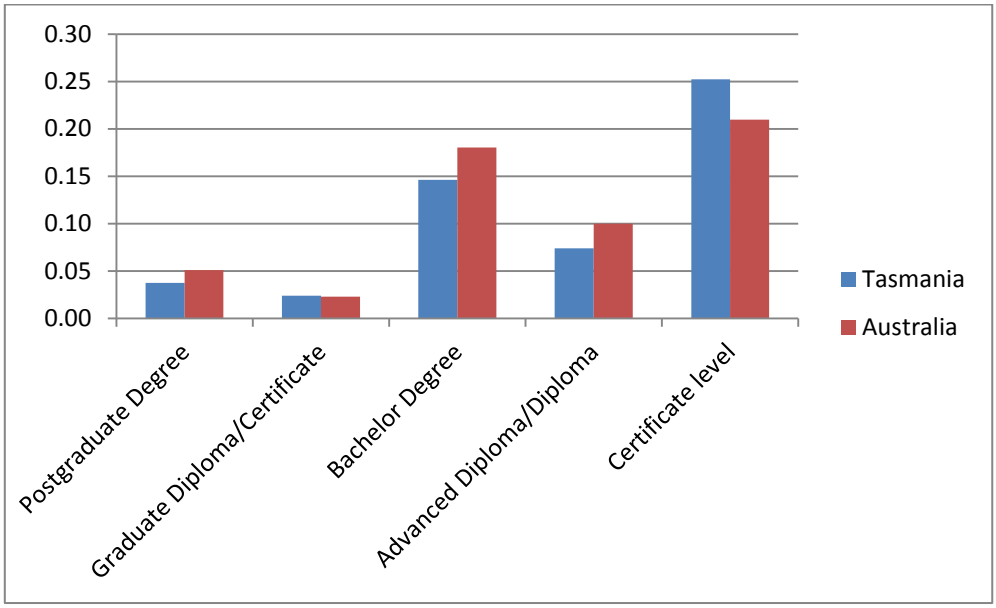
Education

An educated and skilled workforce is, along with infrastructure, essential to raising productivity and participation. A better-educated workforce allows for both an expansion of activity in high-productivity sectors, such as information media and telecommunications or financial and insurance services, as well as more innovation through invention and the ability to adapt new technologies in productivity-increasing ways.

The Australian Government has recognised the importance of education to improving national productivity, and has set targets for schools and higher education in the Australian White Paper. The Australian Government has set a target for Australia to be ranked in the top five countries for reading, science and mathematics by 2025, and for 90 per cent of Australians aged 20–24 to have a Year 12 or equivalent qualification. Currently, only 54 per cent of Tasmanians aged 20–24 have a Year 12 or equivalent level of schooling.

Focusing on qualifications more broadly, it can be seen from Figure 3.4 that the proportion of Tasmanians aged 15–64 with a bachelor degree, postgraduate degree or diploma is lower than the Australian average. However, at the Certificate level, Tasmania ranks higher than the Australian average (ABS 2012c). Part of the explanation for Tasmania's lower rate of educational attainment could be attributed to the nature of economic activity in a regional economy, and Tasmania's older demographics. The Asian century presents an opportunity to move beyond the current economic structure into higher-productivity areas. Preparing for this change will require continued investment in Tasmania's educational base.

Figure 3.4: Qualification attainments in population aged 15–64, 2011

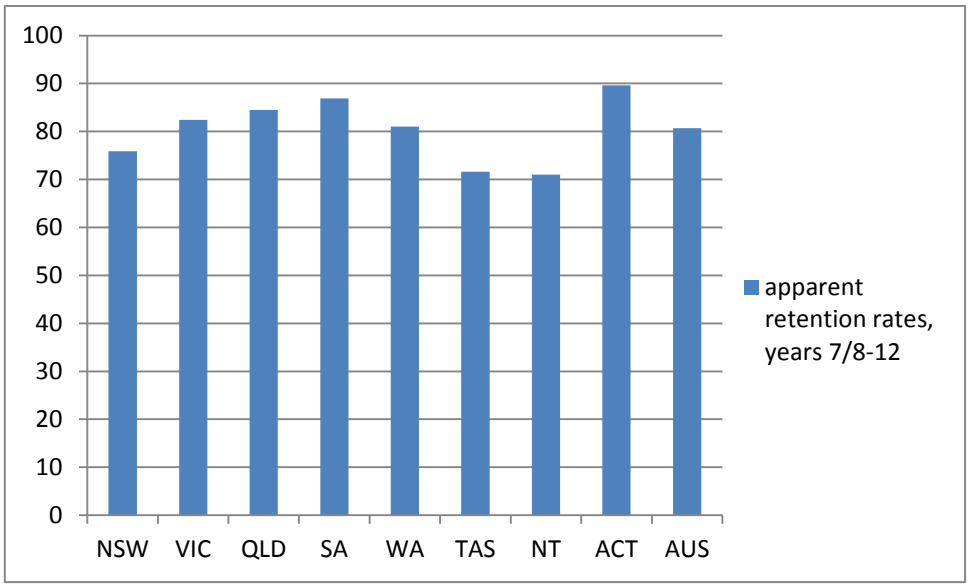


Source: Calculated from *Education and Work, Australia*, ABS Cat No 6227.0.

To take advantage of the Asian century and raise its productivity accordingly, Tasmania should set targets in educational attainment in line with those of the Australian White Paper. These will be all the more important and challenging for the fact that some of Tasmania's current educational outcomes are lower than Australia's average. The Years 10–12 apparent retention rate in Tasmanian government schools in 2011 was 4.6 percentage points lower than the national figure, while the rate for Tasmanian non-government schools was 17.6 percentage points below the national figure. According to the ABS, Tasmania had the second-lowest non-indigenous apparent school retention rates from Years 7/8 to Year 12, 9.1 percentage points below the national average in 2011,

shown in Figure 3.5. Noting these challenges, the target must be to improve educational outcomes.

Figure 3.5: Interstate comparison of school completion, 2011



Source: *Schools, Australia*, ABS Cat No 4221.0.

Performance within schools is also lower in Tasmania than in Australia as a whole, with results below the national average for mean scores and national minimum standards in all areas of testing for the National Assessment Program — Literacy and Numeracy (NAPLAN) in all school years tested in 2011, with some improvement in 2012.

Part of this underperformance is due to socio-economic factors, given that by comparison to Australia as a whole, Tasmanian per capita incomes are lower, unemployment higher, workforce participation rates lower and school completion rates lower. However, Tasmanian students from lower socio-economic backgrounds underperform even students from comparable backgrounds elsewhere in Australia.

The Tasmanian Government, through the Department of Education, is implementing a range of programs to improve educational outcomes in Tasmania, including the Raising the Bar program, programs to improve instructional leadership in schools, and improving the resources available to schools through school amalgamations. The Department of Education is also working with the University of Tasmania to improve the literacy and numeracy skills of high school students, targeting the transition from primary to high school.

Strategies to improve Year 12 retention, consistent with the goals established in the Australian White Paper, are under development, including a review of Year 11 and 12 education in regional schools.

Importantly, however, improving education at all levels will depend on a larger change of mindset, where the importance of education in seizing future opportunities in the Asian century is properly appreciated.

Regulatory barriers

Several submissions to the Tasmanian White Paper suggested that regulation adds to the difficulties Tasmanian businesses face. In its submission, the TFGA claimed that Tasmania has the most stringent regulatory requirements of any Australian state, while Fonterra, a multinational dairy company, claimed that regulatory uncertainty, inefficiency and high-cost operating structures are currently present in a variety of sectors, including power and water.

The importance of regulation for business is threefold: it influences the profitability of current activities (compliance costs), affects the ease with which new investment takes place (approval process), and can contribute to the perceived quality of the production environment through its effect on Tasmania's brand as a pristine environment.

Given the importance of foreign direct investment in forging partnerships with Asian businesses, regulation that discourages investment will hamper Tasmania in pursuing the relationships it needs to create to profit from business opportunities in the Asian century.

Two areas of regulation affecting investment decisions received particular mention in the submissions received. The first is the need to improve the farm conversion approvals process. Speedy approvals are necessary to encourage investment in agriculture, particularly dairy farms, which will help develop partnerships between Tasmanian businesses and Asian markets. The second area is in giving greater certainty about future zoning laws, so that investors have greater certainty over their long-term ability to expand their investments.

Effective regulation also supports Tasmanian businesses in operating in a sustainable and profitable manner, particularly by protecting Tasmania's comparative advantages due to natural endowments. Regulation governing the price of energy and access to irrigation water for farmers are both examples of regulation designed to help Tasmanian business to remain competitive, by ensuring both sustainable supply and cost-reflective pricing. An appropriate level of health and environmental regulation, and the maintenance of biosecurity, is essential to protect the state's reputation as a clean, green and pristine environment in which to grow high-quality food.

Population

Tasmania is Australia's smallest state by population, and has historically had the lowest population growth rate of all jurisdictions. Its share of Australia's total population probably peaked in 1834 at around 36 per cent, and has declined almost continuously since. As of March 2012, Tasmania's share of the national population stood at 2.2 per cent (ABS 2012a).

Since 1971 (the start of the current ABS demographic data series), Tasmania's annual population growth rate has generally lagged behind that of Australia as a whole, with Tasmania's so-called 'decade of decline' in the 1990s seeing very weak and even negative population growth, exacerbating the state's declining population share.

Tasmania's small population poses some challenges to its participation in the Asian century. With a small population comes small-scale economic activity, implying higher average costs and a lower density of activity, making investments in physical capital and infrastructure potentially uneconomic.

Tasmania's demographic distribution has important consequences for the state's fiscal sustainability. An older population places an increased burden on the state's health and hospital services, where cost pressures continue to rise faster than in the economy as a whole. A smaller proportion of the population in the 20–34 age cohort will create skilled-worker shortages for some industries; reduce the state's birth rate, housing demand, property transactions and conveyance revenue to government; and also reduce demand for services, particularly those more highly utilised by younger adults.

3.4 Successfully realising opportunities in the Asian century

There are a number of causes for Tasmania's lower output per capita and lower rate of employment, some of which are outside any government's control. While both the Australian and Tasmanian Governments are working to improve productivity through infrastructure investment and education reforms, it will ultimately be up to individual businesses to prepare themselves to take advantage of the Asian century.

Outlook and mindset

Many of Tasmania's largest businesses compete globally, and will only stay in Tasmania if it allows them to remain globally competitive. Tasmania's largest exports — zinc, aluminium, iron ore and copper ore — fit into this category. Based on submissions and stakeholder feedback to the Tasmanian White Paper development process, Asia is not the highest priority for many Tasmanian businesses. The domestic Australian market is, according to the majority of submissions, both more prospective and more profitable. This is borne out in Tasmania's export statistics: of Tasmania's $11.4 billion of exports, only $3.2 billion was exported internationally, including $2.3 billion (72 per cent of international exports) to Asia.

At current exchange rates — and noting other constraints, such as scale and logistics — this outlook is entirely reasonable. As part of positioning Tasmania in the Asian century, the creation of strong businesses and brands across Australia is a logical development path that will complement and support international engagement. In the long run, however, Tasmanian businesses are increasingly likely to adopt a portfolio approach that allows greater exposure to international, and particularly Asian, markets. An Asian export base allows business to continue expanding when the Australian economy slows.

Many of Australia's major logistics companies already have international networks. They, along with Australian banks, are in a position to support international opportunities for Tasmanian companies. Tasmanian companies can utilise networks of Australian companies already operating in Asia as a way of managing risks. Collaboration between Australian companies in this area will also spread the benefits of Australia's existing strong commercial ties with Asia.

A reorientation of outlook towards economic activity in Asia, particularly the potential associated with demographically well-placed economies like Indonesia, away from problems elsewhere in the world, would also be beneficial for confidence and the Tasmanian economy. A rebalancing of media coverage and government analysis towards Asia would spur greater cultural and commercial understanding, and help reorient businesses to opportunities in the region.

Internationally focused businesses face substantial challenges in remaining competitive. For some businesses, continuous innovation is required to stay ahead of the competition. Deep and ongoing customer relationships must be established. Only a small share of Tasmania's current exports to Asia is based on Tasmania's special value-add or brand. Increasing brand-based Tasmanian exports to Asia will require the development of substantial new relationships in the Asian region. This requires an investment in marketing that must be led by the private sector, either in Tasmania or from the Asian region.

The emerging Asian middle class is deeply concerned about food quality and safety, and would be willing consumers of Tasmanian products if they are recognisable and available at the right price. While effective environmental regulation can help, making these opportunities profitable will also require a combination of investment in marketing (including identifying appropriate downstream product segments), customer identification, product development, logistics, as well as an efficient cost of supply. Bellamy's Organic baby food is a successful example of this sort of positioning.

Asia literacy

A precondition for taking advantage of the Asian century will be ensuring that Tasmania has the intercultural skills, or Asia literacy, to successfully interact with Asian partners and potential customers. Asia literacy is a difficult concept to measure. As several submissions pointed out, Asia literacy is not just the ability to speak an Asian language — it is an understanding of cultures and how Asian people think and behave.

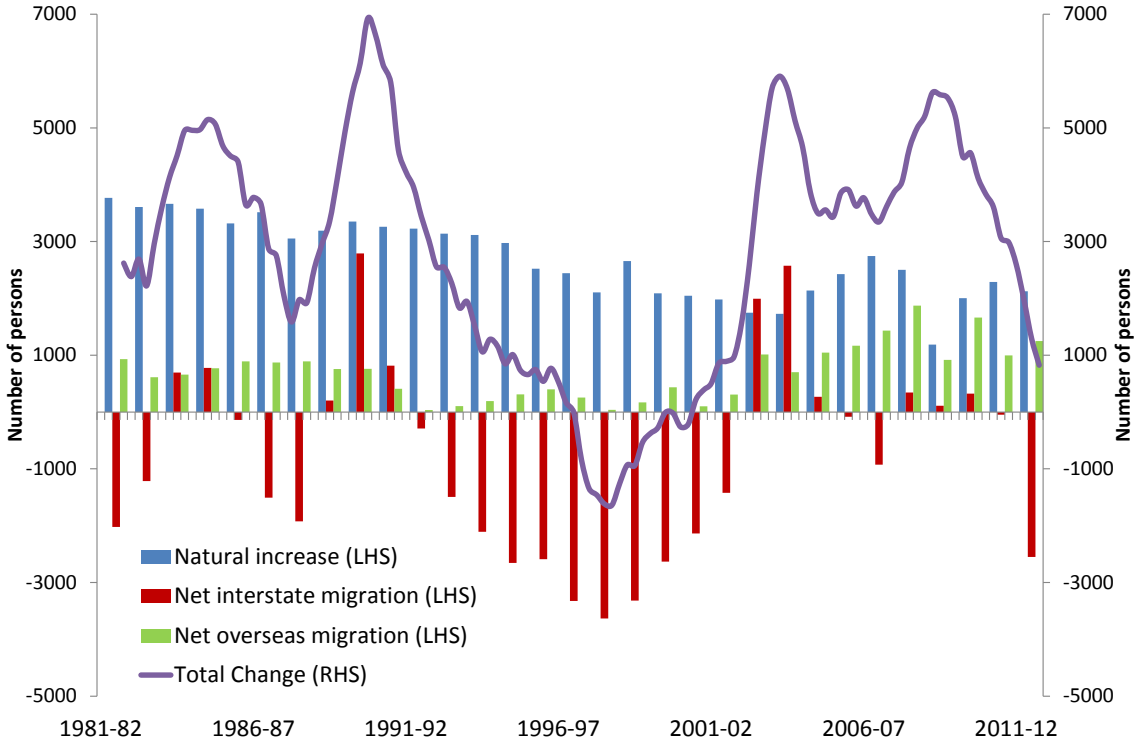
There is a strong perception in the submissions received that Asia literacy — conceived of as a general understanding of the region and its history, cultures and customs — is essential to successfully taking advantage of business opportunities in the region, with the engineering firm GHD noting in its submission that "success comes from a foundation of cultural respect". There is also a link between the ability of educational institutions at all levels to develop Asia literacy and their engagement in exporting education services by hosting international students.

Some submissions suggested a reluctance on the part of some Tasmanian high schools and polytechnics, for a range of reasons, to accept international students. Tasmania may be lagging behind other jurisdictions in creating an education system that improves the Asia literacy of its students.

Migration

To achieve the goal of a growing economy and population, Tasmania can establish a virtuous cycle of migration, employment and Asian engagement. There are three components of population increase: natural increase (births minus deaths, shown in blue on the figure below), net interstate migration (interstate arrivals minus interstate departures, shown in red) and net overseas migration (net overseas arrivals minus net overseas departures, shown in green). Figure 3.6 illustrates the components of Tasmania's population change since 1981–82 (ABS 2012a).

Figure 3.6: Components of Tasmania's population change since 1981–82



Source: Australian Demographic Statistics, ABS Cat No 3101.0.

Unlike other states, where overseas migration makes a significant contribution to total population growth, overseas migration has had minimal impact on Tasmania's. This is due to the small intake of international migrants that the state receives relative to total population share.

The main source of overseas migration to Tasmania has been from international students and skilled migrants (ABS 2012d). This feature points to the other benefit of international migration in the Asian century: focusing on business, skilled, entrepreneurial and younger migrants can increase the skills base of the Tasmanian economy. Focusing on migrants from Asian countries in particular will also have a beneficial effect on Tasmania's Asia literacy. At around 2 per cent of the state's total population, the proportion of Asian-born individuals in Tasmania's population is a quarter of the national average, undoubtedly lowering Tasmania's capacity to engage with Asia relative to other states and territories.

Chapter 4 Sectoral opportunities

Main messages

- Tasmania is well placed to seize the opportunity to lift incomes and create jobs in key sectors by accessing growing markets in the economies of Asia.
- Tasmania's average income can be increased through a combination of growth in higher-productivity and higher-wage sectors, such as mining and R&D, as well as increasing labour participation and hours worked in industries that have lower average wages and lower productivity.
- Increasing jobs in regional areas through tourism, agriculture and other primary industries is a key goal in the Asian century.
- Tasmania already has strong links to Asian markets in mining and minerals processing, forestry and seafood — these markets represent a significant share of existing international exports. Building on established export strengths in these sectors will remain an important goal for Tasmania in the Asian century.
- Tasmania's Economic Development Plan sets out a number of actions and pathways to lift supply capacity and efficiency across a number of sectors, including the development of Tasmania's irrigation schemes and implementation of the Agriculture Industry Skills Plan.
- The growth of demand in Asia for premium high-quality food products provides an opportunity to increase Tasmanian exports of food and beverages, built on increased exports to Asia's growing middle class and the focused marketing of premium products to Asia's high-income consumers.
- Opportunities can be maximised through Tasmania's ongoing investment in irrigation — increasing agricultural supply capacity and scale — and by ensuring the right balance is struck between compliance with health, brand and environmental protection, while still lowering the costs of doing business.
- Critical to developing Asian markets will be links with Asian supermarkets or other intermediaries that leverage the Tasmanian brand into Asia, and that enable Tasmania to continue to expand supply in dairy and other sectors.
- Maintaining Tasmania's longstanding focus on biosecurity, and supporting exporters leveraging Tasmania's relative pest- and disease-free status in marketing quality produce, will be a key element of Tasmania's brand.
- High-income Asian households are an excellent opportunity for Tasmania's premium food and beverage offering, and provide a new opening for tourism. By working with industry and Brand Tasmania, there is potential to develop 'Tasmanian Gourmet' food branding initiatives that bring together cheese, wine, cherries, salmon and seafood as a premium offering to high-income Asian customers and supply chain intermediaries.

- The future growth of mineral and other exports requires that access arrangements for Tasmania's mineral estate and other natural resources be clear and transparent.
- There are many synergies between different sectors of the Tasmanian economy and different policy pathways arising from the Tasmanian White Paper. Support for migration and business investment opportunities will increase tourism opportunities oriented towards the Asian market.
- China is set to become Tasmania's most important source of international tourists.
- Tasmania currently receives very few package tours, which facilitate regular visits by Asian tourists to Australia's mainland gateways.
- Opportunities for growing tourism include building on Tasmania's reputation on the back of major tourist developments and Tourism Tasmania's existing reach into Asia.

4.1 Agriculture, aquaculture and food processing

Tasmania has a strong agricultural tradition. The agricultural sector is highly diversified, underpinned by excellent growing conditions, affordable land, relative freedom from disease and pests, abundant water resources, and a strong R&D capability.

The State Government envisages Tasmania substantially increasing its food and agricultural production to become a major supplier of Australia's premium food products. A key focus here is how this vision can be connected to the rise of Asia's middle class, and how to leverage increased awareness of food safety and food security.

Industry must take the lead in establishing new business relationships and expanding production to meet opportunities in the decades ahead. The primary role of government is to support industry and to lead in key areas, such as:

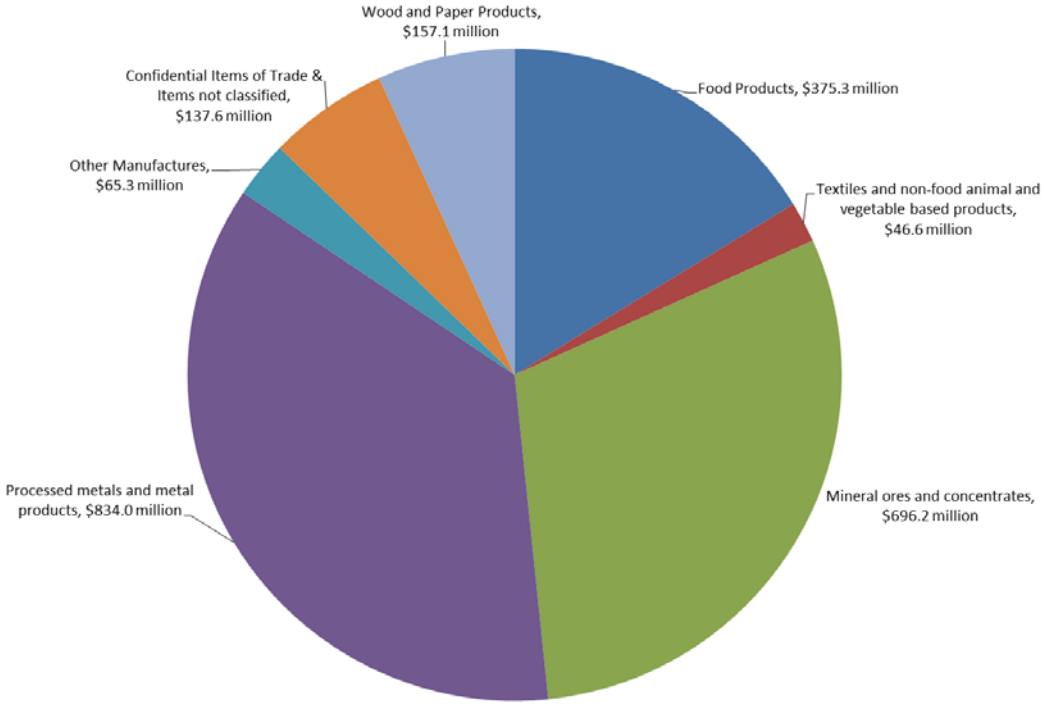
- engaging with government agencies and officials in target markets to facilitate trade, recognising that many overseas authorities prefer to deal at a government-to-government level;
- promoting Tasmania's capability, quality of produce and its relative pest- and disease-free status;
- working with Australian Government departments to secure market access and develop trade agreements; and
- assisting industry in identifying new customers by referral to Austrade offices, and promoting a better understating of the culture and preferences of Asian people.

Tasmania has a diverse agricultural sector, comprising dairy, fruit and vegetables, poppies, beef, lamb, and wool. Agro-forestry is another important contributor to farm incomes, from both plantation and sustainable private native forests. Tasmania's aquaculture industry is poised to grow strongly, particularly in salmonids.

Asia is the most important region for Tasmania's international food exports. In 2011–12, Tasmania's food exports to Northeast Asia, ASEAN and India amounted to 72 per cent of international Tasmanian food exports ($375 million out of a total of $520 million).

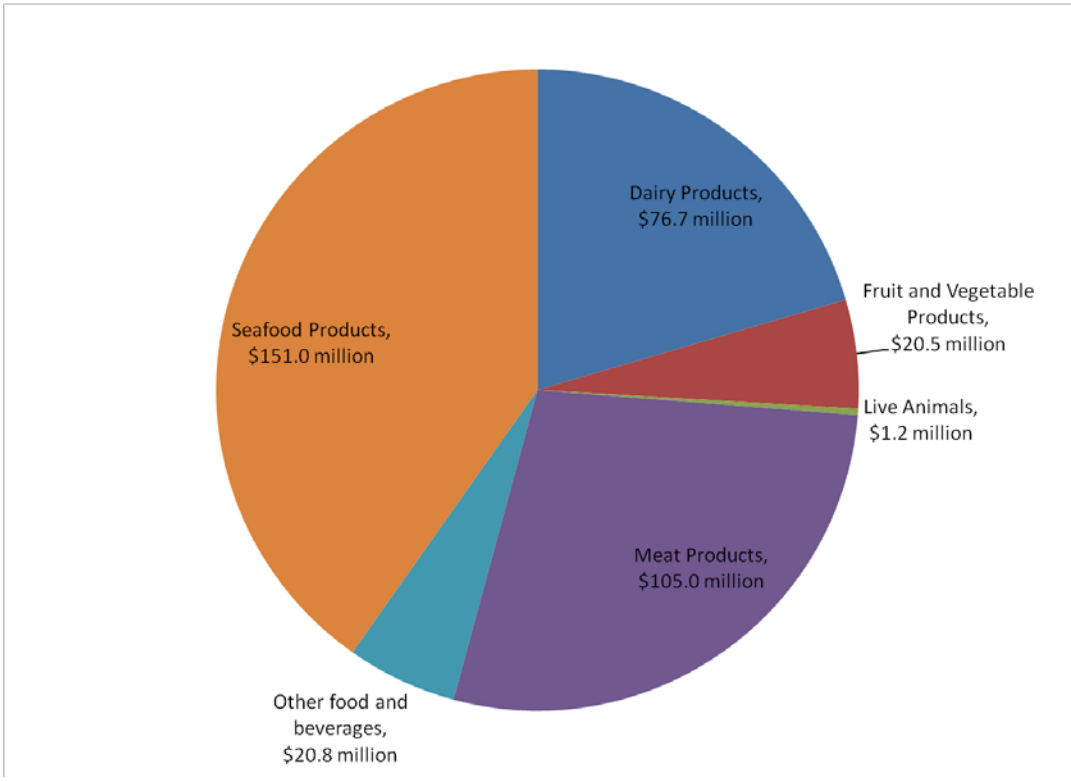
With regard to exports to Northeast Asia, ASEAN and India, Figure 4.1 sets out the division of Tasmania's total exports in 2011–12, and Figure 4.2 sets out the structure of Tasmanian food exports in 2011–12.

Figure 4.1: Tasmania's 2011–12 merchandise exports to Northeast Asia, ASEAN and India



Source: Tasmania's international exports 2011–12, DEDTA.

Figure 4.2: Tasmania's 2011–12 food exports to Northeast Asia, ASEAN and India



Source: Tasmania's international exports 2011–12, DEDTA.

The Tasmanian Government has made a substantial investment in helping the agricultural industry to expand through an irrigation infrastructure rollout scheme. The initiative is being delivered through Tasmanian Irrigation Pty Ltd and has been supported by the State Government through the Wealth from Water Program, which helps identify new agricultural opportunities made feasible by irrigation investments. The Tasmanian Government has also provided funding and support to the TFGA to commence development of the Tasmanian Agricultural Industry Strategic Plan, and is providing research, development and extension services through the Tasmanian Institute of Agriculture.

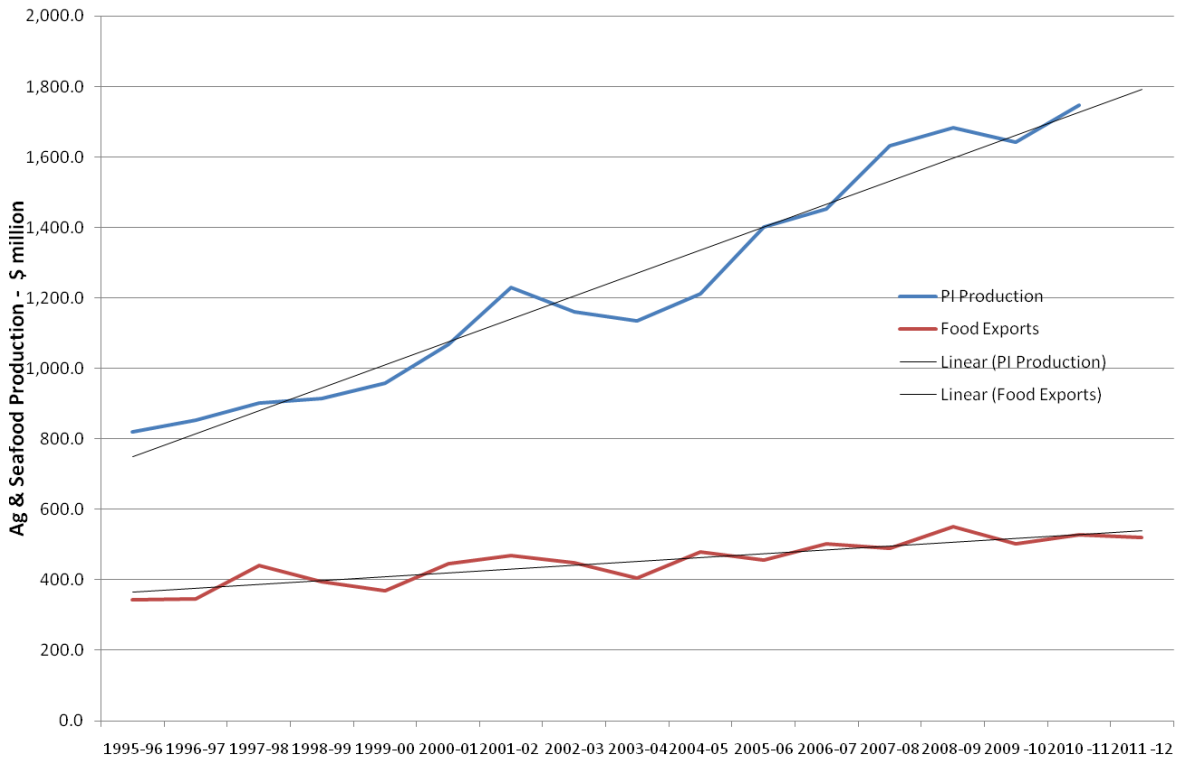
There have also been substantial investments in marketing and promotion, including Tasmanian branding initiatives that seek to develop a cohesive and consistent message centred on premium-quality goods and services. Specific activities currently include Savour Tasmania; the Springboard to Market Program; international and interstate trade exhibitions, promotions and missions; hosting buying groups to the state; and the Export Marketing Assistance Scheme.

Not all food exports to Asia have equal opportunities to grow

The small scale of production in Tasmania means that exporters face many challenges in competing with low-cost, high-volume exporters from countries like the United States and China. Tasmania's export prices often compete with world commodity base prices that are below the cost of production in Tasmania, resulting in local producers prioritising interstate, rather than international, markets. In addition, transport costs for Tasmanian

exports are higher than some other agricultural regions due to the lack of direct international shipping services from the state.

Figure 4.3: Comparing primary food production and international exports, 1995–2012*



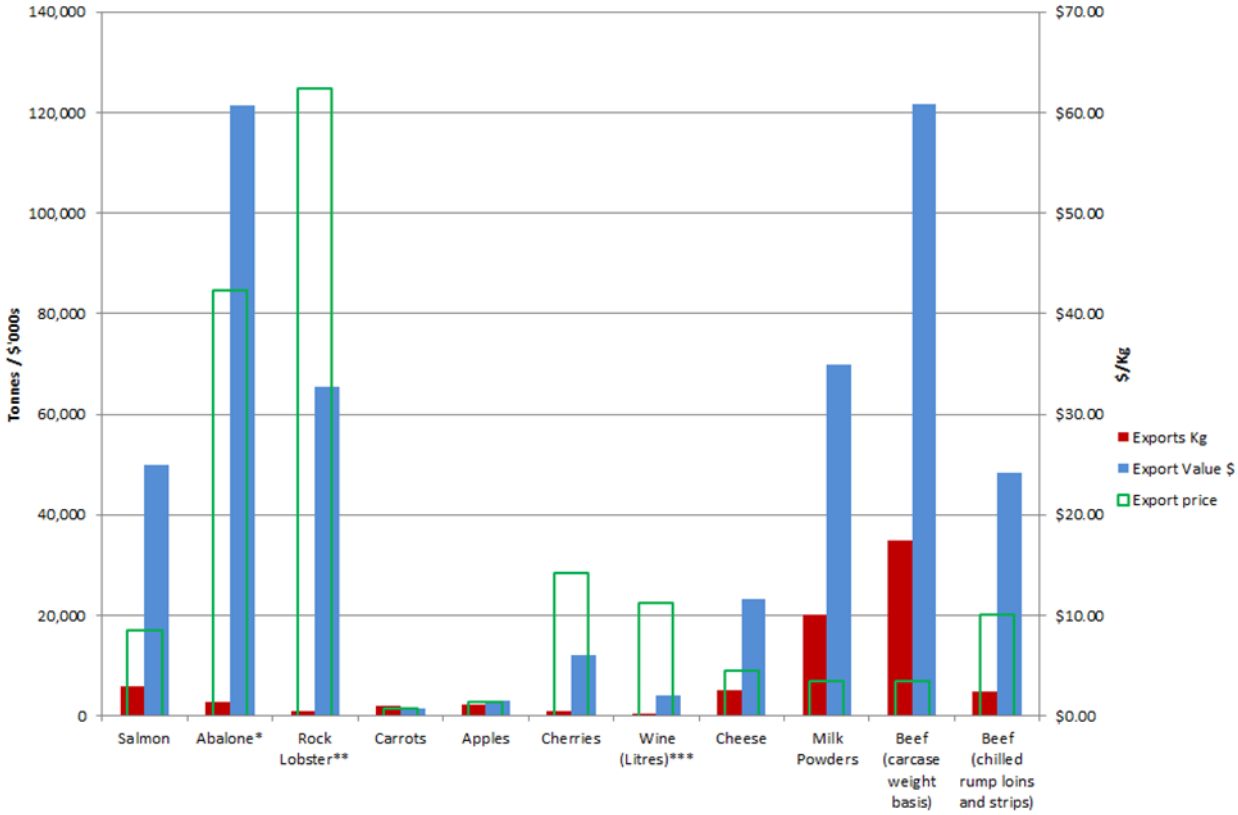
* Agricultural and seafood production.

Source: Data based on DPIPWE calculations.

Figure 4.3 above highlights the challenges currently faced by food exporters. Over the last 15 years, food production growth has not facilitated a parallel increase in international exports. This is largely attributable to low global prices for food commodities. Low international export returns, compared to returns from domestic markets, have also served to limit export growth. In many instances, export returns have not covered variable production costs. Hence, producers of apples, vegetables, cheese and salmon have focused more on the domestic market in recent years. For products such as abalone, rock lobster and cherries, on the other hand, the export market is by far the most lucrative. These are high-value products sought after in Asian markets, and can be air freighted to arrive in Asian markets in premium condition.

There are opportunities for the Tasmanian Government to work with industry and Brand Tasmania to develop 'Tasmanian Gourmet' food branding initiatives that bring together cheese, wine, cherries, salmon and seafood as a premium food and beverage offering to high-income Asian customers and supply chain intermediaries. This would also have positive flow-on benefits for tourism, education and other sectors.

Figure 4.4: Tasmanian international food export quantities and prices



Notes:

* Exports based on DPIPWE estimate that 99 per cent of production is exported (includes sales by interstate exporters).
** Exports based on DPIPWE estimate that 80 per cent of production is exported (includes sales by interstate exporters).
*** Production in litres is based on DPIPWE Scorecard estimate of tonnes of grapes processed in Tasmania.

Source: DPIPWE, compiled for 2010–11 Food and Beverage Industry Scorecards.

Figure 4.4 shows total exports by quantity in kilograms, their value in Australian dollars and export price per kilogram for major Tasmanian exports for 2010–11. It can be seen that unless volumes are substantial, a relatively high export price in dollars per kilogram is required to overcome the costs of export, including the investment in developing connections to market and freight costs. For example, while exports of apples were substantially larger than cherries and wine when measured in kilograms, the export value was far less significant due to the low price.

Figure 4.4 supports a strategic direction for Tasmania in the Asian century that acknowledges:

- the importance of scale and volume in enabling exports to be competitive, particularly for those products with mid-range export prices (such as dairy and beef) that will be accessible to the burgeoning Asian middle class;
- the importance of the Tasmanian brand and biosecurity to maintaining Tasmania's very high value 'gourmet' exports, such as abalone, lobster, salmon and cherries; and

- while the total export value and volume of wine are still relatively low, there is clearly potential if volume can be increased and premium branding is maintained.

Figure 4.4 is, however, based on a single year of exports, and it should be noted that export prices and volumes can be volatile and change from year to year. For example, between 2010–11 and 2011–12, export prices fell for salmon, abalone, carrots and apples, while for cheese, cherries and wine export prices remained stable and export volumes fell. These movements reflect a number of factors, including the value of the Australian dollar, market conditions and competing opportunities to sell products into the domestic market, but underscore the continuing competitive challenges facing Tasmania's food exporters.

The *National Food Plan* Green Paper released in July 2012 points out that food producers and other food businesses will experience significant opportunities as food demand and prices increase in the long term. However, this is likely to be complicated by individual trends in product supply and specific regional markets. Ongoing research and analysis will be required to understand the impact of future demand and supply relationships, technology and climate change on the opportunities ahead for Tasmanian farmers, food processors and exporters.

Table 4.1: Change in exports between 2010–11 and 2011–12

	Quantity	Value	Price
	%	%	%
Salmon: fresh and chilled	–14	–26	–16
Abalone: live chilled	2	–2	–4
Carrots	23	10	–10
Apples	8	–26	–3
Cherries	–7	3	10
Cheese	–9	–8	2
Wine	–44	–44	0

Source: DPIPWE 2010–11 and 2011–12 Food Industry Scorecard data.

Success in agriculture and rising food demand will increase the value of agricultural land. International investment in Tasmania's agricultural sector is also critical to realising many of these opportunities.

Greater use of land leasing is a pathway to enable agricultural enterprises to increase scale and address generational change, while recognising the rooted connections that tie many Tasmanian families to their land. Younger generations often want to explore opportunities in other sectors, while maintaining ownership over family farmland. Leasing allows existing owners to increase scale and efficiency, but does not force retiring farmers

to sell or new or expanding farmers to take on additional debt. It could also speed up transition in agricultural industries and allow young farmers a way in as self-employed contractors rather than employees. The growth of plantation forestry on agricultural land is an example of how leasing structures can quickly enable new agricultural subsectors to grow. The long-term benefit is more-efficient farms and more-sustainable rural communities.

The role of government in land leasing is one of encouragement and facilitation, similar to its role in residential tenancy. The Tasmanian Government could provide assistance in many ways, including through:

- consultation with industry and a review of legislation to provide a good balance of safe-haven rights and responsibilities for lessees and lessors;
- the promotion of land leasing as part of agricultural information service provision; and
- an annual survey and the publication of data on current land-lease rates to support market price discovery and preliminary investment evaluations.

Seafood and aquaculture

Tasmania's most valuable food export sector is seafood products, dominated by abalone and, to a lesser extent, Atlantic salmon and rock lobster. Ninety-five per cent of Tasmania's international seafood exports go to Northeast Asia[1] and ASEAN — these exports were worth around $151 million in 2011–12. However, only Atlantic salmon, with Asian exports of $32 million in 2011–12, has the opportunity to substantially increase export volumes. Wild abalone and lobster volumes are constrained by the total allowable catch (to ensure sustainability).

There are three major Tasmanian salmon producers: Tassal Group Ltd, Huon Aquaculture Company Pty Ltd and Petuna Aquaculture Pty Ltd. Each producer has vertically integrated production and processing systems, and produces a range of value-added products for the domestic and export markets besides salmon. These major operators employ in total around 1 200 people.

The industry has a strategic plan to double salmon production from 2012 to 2030. Approximately $60 million has been invested in a major expansion of salmon production in Macquarie Harbour that will occur over a five-year period. The expansion will create around 100 jobs in construction and 165 jobs in farming and processing. While the expansion in Macquarie Harbour will make international salmon exports more viable, Asian exports will compete with Australia's growing domestic appetite for salmon.

Asia is already the world's largest producer of fish through aquaculture, producing 53.3 million tonnes in 2010 — representing 89 per cent of global aquaculture production (FAO 2012). Per capita fish consumption in emerging Asia, and particularly China, is

[1] Northeast Asia comprises China, including Hong Kong, Japan, Taiwan and South Korea. It would also include Mongolia, North Korea and Macao, although exports to these economies are negligible.

growing strongly. Between 1990 and 2009, per capita consumption in China grew at 6 per cent per annum, reaching 31.9 kilograms in 2009. Japan remains the largest global importer of fish, with a very high, but slowly declining, level of per capita consumption. With effective branding, the rising Asian middle class will augment demand for Tasmanian salmon and trout. Balancing Tasmania's expansion in supply with increased domestic demand and international opportunities is likely to be a challenge for the state's major salmon producers.

Across all seafood sectors, effective brand positioning will be critical to increasing the value of Tasmania's exports in the Asian century. For example, Tasmania can compete by differentiating between the value of Tasmanian wild abalone (which is scarce) and farmed abalone, and by supporting the development and retention of a Tasmanian brand premium for salmon, potentially building on synergies with other Tasmanian products as part of a Tasmanian Gourmet initiative.

Meat

The second most valuable food export is meat, dominated by beef exports to Japan. In 2011–12, Tasmania exported $105 million of meat to Northeast Asia and ASEAN, representing 75 per cent of international meat exports. Fresh, frozen and chilled beef represents 87 per cent of Tasmanian meat exports to Northeast Asia and ASEAN, the majority going to Japan. The Australian domestic market currently consumes 33 per cent of total Tasmanian meat production, but accounts for 58 per cent of total value received, providing a buffer against exchange rate volatility.[2]

Tasmanian chilled beef exports represent 20 per cent of total beef exports and are relatively high value, at around $10 per kilogram. They achieve a significant premium compared with other Australian chilled beef exports, which average $6.2 per kilogram. However, frozen or manufactured beef exports, which have a much lower per unit value (around $3.6 per kilogram), still comprise nearly 70 per cent of total beef exports (by weight). Tasmania does not receive any price premium for frozen or manufactured beef exports.

Tasmania's hormone growth promotant-free status provides a point of market differentiation from other Australian states and territories for Tasmania's beef exports both domestically and overseas. This needs to be leveraged and marketed appropriately to improve Tasmania's brand name.

As indicated in Chapter 2, the growth of Asia's high- and middle-income households presents an opportunity for Tasmania to increase exports to Asia in the medium term. Increasing production in the beef sector based on improving productivity is supported by the Red Meat Targets, an industry-directed program aimed at growing the red meat industry through research, development, extension and marketing projects (Thompson et

[2] This statistic was supplied by the Red Meat Council of the TFGA and reported in the *Regional Economic Development Plan: Northern Tasmania*.

al 2009). Increasing the share of Tasmanian agricultural land used for beef production will also depend on the returns available to farmers in comparison to other crops or livestock.

Dairy

Dairy is now Tasmania's single biggest agricultural industry. Tasmania's temperate climate, fertile soils and reliable rainfall support low-cost, pasture-based milk production and the processing of a range of dairy products for domestic and international markets.

Dairy products represent the third most significant Tasmanian food export sector. In 2011–12, Tasmania exported $100.5 million in dairy products internationally, with 76 per cent heading to Northeast Asia, ASEAN and India. Eighty-four per cent of Tasmania's $21.5 million international cheese exports went to Northeast Asia, while ASEAN was the most significant regional market for powdered milk, with exports of $31.3 million. Powdered milk exports to India totalled $10.2 million.

The dairy industry has recently made significant investments in expanded processing capacity and upgraded plants. The industry plans to increase production by some 40 per cent to capitalise on the expected increase in global demand. While there are several new dairy farms being established, many more dairy farm conversions will be needed to meet additional factory capacity. Farm milk production was 788 ML in 2011–12, an increase of 66 ML over the previous year. The industry is on track to achieve its production target goal of 860 ML in 2015.

The dairy industry has been very successful in achieving productivity gains. Milk production per cow has increased largely as a result of improved pasture production and feed management. While the number of dairy farms is much lower than 10 years ago, Tasmanian farms are much larger and more efficient. An annual dairy farm benchmarking initiative points to increased productivity as a driver for improved returns and farm expansions (TIA 2011). Dairy exports are poised to increase, with substantial investments already being made to increase processing capacity by 40 per cent, requiring the establishment of an estimated 65 new dairy farms.

The Tasmanian Government should continue to promote investment in the dairy industry, in partnership with DairyTas and milk processor companies that are committed to increasing throughput by some 30 per cent. Production can be boosted by dairy conversions if returns remain higher than alternative land uses. Much of the increased production is likely to be exported to Asian markets.

Biosecurity

Tasmania's longstanding focus on biosecurity is critical to the state's primary industries and export markets, as well as the island's natural environment. Biosecurity is the protection of public health, wellbeing, industry and the natural environment from the negative impacts of pests, diseases and weeds. Tasmania's high level of biosecurity is a result of its island status and geography, as well as regulatory quarantine systems that have been in place for many decades.

In many cases, the development and maintenance of lucrative domestic and international export markets is based on the demonstrated absence of certain pests, diseases and weeds. Access to these markets is built on the Tasmanian brand, as many Tasmanian exporters are able to take advantage of our relative pest- and disease-free status in marketing quality produce. For example, Tasmanian cherries have unique export market access to customers in South Korea, Japan, Taiwan and now China because the state is fruit-fly free. Most other cherry exporters have to fumigate their fruit, which raises costs and reduces fruit quality.

The absence of major pests and diseases means that Tasmanian farmers use less chemicals to protect their crops and animals. This trait is identified in the marketplace, for example in Japanese supermarkets, where consumers are very discerning about how their food is produced.

Fruit

The Tasmanian fruit industry comprises three key subsectors:

- pome fruit (pip fruit): primarily apples, with some pears produced;
- stone fruit: primarily cherries and apricots, with some nectarines and plums produced; and
- berries: strawberries, raspberries, blackcurrants and blueberries.

Tasmania's temperate climate provides the essential winter chill, followed by a long mild growing season, that supports fruit development and enhanced flavour. Tasmanian stone fruit and berries have a clear, late-season production advantage both within Australia and overseas. This provides a defined market advantage because there are few competing regions in the southern hemisphere. The timing of Tasmanian production also provides counter-seasonal supply opportunities to the northern hemisphere.

As mentioned above, the state's island status and risk-based quarantine controls mean that Tasmania has an advantage due to its relative freedom from disease and pests, providing Tasmanian businesses with access to a number of international markets, including Asian markets, where stringent import regulations are in place.

The Tasmanian fruit-processing sector comprises relatively few businesses. The majority are micro or small operations (predominantly making preserves and jams) that service niche markets. Cascade Beverages is the dominant processor of apples, blackcurrants and raspberries for fruit juice and value-added products.

Box 4.1: Tasmanian cherries to China

After many years of hard work and effort from grower and government stakeholders, a new market access protocol was signed in January 2013 allowing for the shipment of Australian cherries to China.

The Tasmanian cherry season coincides with Chinese New Year celebrations, and the

state's superb-quality fruit is highly prized during this period, especially as a gift to friends, family and business colleagues. The Chinese have a great cultural appreciation of fruit and the country's burgeoning middle class provides excellent opportunities for premium fruit growers to export to China, especially during the New Year gift-giving period.

Market access into China has been over a decade in the making. Cherry Growers Australia worked with DAFF and AQSIQ to gain access to this significant export market.

AQSIQ and DAFF signed the final protocol on 7 January 2013, after which DAFF and the Chinese Entry–Exit Inspection and Quarantine Bureau conducted a successful industry audit to complete the sign-off process.

The process has largely been driven by Chinese importers actively seeking Tasmania's premium product. Fruit Growers Tasmania (the industry representative group) has been attending the annual China World Fruit and Vegetable Trade Fair for many years to promote the state's exceptional-quality cherries and cultivate awareness of, and demand for, Tasmanian fruit. Tasmania has a significant advantage because of its relatively pest-free status, meaning no post-harvest treatments are necessary before exporting. Tasmania also has market access to Taiwan, South Korea, Japan and a range of non-protocol markets across Asia, Europe and other regions.

Stakeholders' efforts are now paying dividends. Ten Tasmanian growers currently meet the orchard management requirements for export this season, and over 50 growers are considering sending their fruit into the Chinese market next season. The inaugural season will enable exporters to refine the logistics of exporting, supply chain issues, packaging and presentation. It is imperative that Tasmania maintain its premium-quality cherry status, as Chile and New Zealand also have market access to China for their fruit.

Prepared by the Department of Primary Industries, Parks, Water and Environment in consultation with Fruit Growers Tasmania.

The cherry subsector is a relatively young but rapidly expanding sector. In 2010–11, Tasmania was the largest cherry-producing state in Australia (ABS 2011a). The industry has estimated that production could double to 7 000 tonnes by 2015. Tasmanian cherries are at the top end of premium overseas markets, where products are differentiated on the basis of quality and larger fruit size. In 2008–09, the cherry subsector's farm-gate value was $24 million. In 2011–12, cherries represented Tasmania's largest fruit export to Asia, with exports of $7.1 million. The average export price in 2011–12 was $16 per kilogram.

It should be noted that cherries are one of the few food products that achieve a higher price internationally than on the domestic retail market. This is a result of producing large, premium-quality fruit, taking advantage of Tasmania's distinct market advantage from our fruit fly-free status, and a committed market effort by industry.

With changing socio-economic circumstances in both China and India, the market for high-end products is increasing. Tasmania produces a world-class product, but the cost of production and delivery to market is comparatively high. The market ultimately gets back to the value proposition, and it is becoming increasingly difficult to justify the high prices

Tasmanian producers require to remain profitable. While the Tasmanian product is aimed at niche markets and more discerning consumers, there is still substantial competition in that quality range — claims of 'clean and green' are not solely attributable to Tasmania: there are similar marketing approaches coming out of Argentina (Patagonia) and New Zealand.

Wine

The Tasmanian wine sector is a relatively small but high-value and high-profile industry. In 2011–12, Tasmanian wine exports to Asia were valued at just under $1.2 million. As of 2012, it is estimated that 8 per cent of production is exported internationally and 40 per cent is exported interstate. The total contribution of the industry towards Tasmania's GSP is estimated at $75 million (DEDTA 2012d).

The industry has close links to the tourism sector, and makes a significant contribution to the Tasmanian brand. The Tasmanian wine industry is made up of a number of small wineries, vineyards and contract wine-makers that produce high-quality cool-climate wines oriented towards the premium, super-premium and icon end of the market.

Chinese demand is high for these wines, with supply being the fundamental constraint. The positioning of Tasmanian wines in this segment places the focus on Asia, and particularly China's high-income households. The prestige brand, scarcity and quality associated with Tasmanian wines changes the orthodox price relationship with demand.

In 2012, a leading international wine magazine, *The Drinks Business,* selected Tasmania as second only to China as the best place in the world to invest in the wine industry. With the purchase of Tamar Ridge in 2010, Brown Brothers is the most recent significant interstate investor in the northern wine region. The motivations for such investments seem to be twofold. First, many investors want to capitalise on Tasmania's production of high-quality pinot noir and sparkling wine. Second, some investors seem to be mitigating against the potential future impact of climate change in interstate growing areas.

Currently, much of the Tasmanian wine industry is relatively small scale and is characterised by high costs of production. Many small vineyard owners rely heavily on tourist trade coming to the cellar door, and have been negatively impacted by the high exchange rate and weaker global economic conditions. The Wine Industry Benchmarking Report identified that low yields, combined with high labour inputs, are a major issue, especially for small-scale vineyards (under five hectares) (DPIPWE 2007).

Profitable investment in Tasmania's wine industry requires a level of patience, foresight and commercial orientation. Historical development has often been driven by the passion of individual investors, resulting in a number of small vineyards. As discussed further in Chapter 7, scale will be important for vineyards to access Asian market opportunities. In the wine sector, scale can be achieved by supporting the growth of existing vineyards and by supporting viticulturists with the capacity to develop medium to larger plantings and premium wines.

The Tasmanian Government supports private sector investment in the wine industry and will continue to build demand for Tasmanian wine through a range of branding activities, helping to create an environment to attract investment. The resulting investment will increase economies of scale, providing the industry with greater wine volumes to market nationally and internationally, particularly in the growing markets of Hong Kong, China and other parts of Asia.

Tasmania should aim to quadruple the area of planting from 1 500 hectares to 6 000 hectares by 2022, with a focus on:

- market-led industry development;
- developing its Asian brand position in icon and super-premium wine; and
- ensuring new plantings are at a commercially sustainable scale.

This can be supported by international migration and investment. The Tasmanian Government is promoting investment in Tasmania's wine industry through the *Wine Industry in Tasmania – A Guide for Investors* (Wine Tasmania and DEDTA 2012).

4.2 Forestry

The Tasmanian forestry sector is an integrated industry that encompasses both native forest and plantation resources (both softwood and hardwood); the production of logs, woodchips, hardwood and softwood sawn timber; speciality timbers; pulp and paper production; veneer; fuel wood; and other wood products. Tasmania is the most forested state in Australia, with 3.3 million hectares, or 50 per cent, of its land under forest cover.

Principal export products from this sector are paper, woodchips, sawn timber products, timber veneer and forest management services. In 2011–12, Tasmania's international exports of wood and paper products were worth $162.8 million, with 96.5 per cent destined for Northeast Asia, ASEAN or India.

The challenge for Tasmania's forestry sector is similar to the challenge faced by manufacturing: growth prospects for both are largely conditional on businesses identifying those parts of the value chain where Tasmanian suppliers have an advantage. Forestry Tasmania's success in exporting sustainable timber for Chinese engineering products provides a useful case study (see Chapter 7).

The 2012 Tasmanian Forests Agreement has been designed to support forest workers, contractors and communities as a response to the changes that are occurring in the forest industry due to market forces and evolving product demands. The Agreement makes available funding of $120 million over 15 years towards economic diversification projects across Tasmania (TFA 2012). This will create significant opportunities for new and existing businesses to re-examine the opportunities in the forest industry, and in regional Tasmania more broadly. A variety of products with added value, such as engineered timber products, bioethanol and biochar, are among a range of options being considered for their contribution to a sustainable business model.

A particular branding opportunity is to align sustainable forestry with Tasmania's other clean and sustainable brand attributes. Tasmania's sustainable certified forests (a substantial resource of eucalypts suitable for pulp and paper-making) and the aesthetic quality, strength and durability of our native eucalypts all provide the basis for attracting further investment and niche export market opportunities.

In addition, Tasmania has highly regarded experience and human resources in forest and fire management, resource inventory and planning, forest certification, and forest practices regulation that could assist Asian countries to improve the management and regulation of their forests.

An opportunity may also exist in substantially altering the value perception of Tasmania's specialty timbers. Celery top pine, Huon pine and myrtle are unique to Tasmania and are recognised and valued in niche markets.

In the context of the Asian century, scarcity and uniqueness are assets of considerable value if marketed appropriately.

4.3 Mining and minerals processing industries

Tasmania is rich in minerals. The state exports ores and concentrates of iron, copper, lead, zinc, tin, high-grade silica and tungsten.

The mining and minerals processing sector comprises exploration for, and extraction of, metallic and non-metallic ores, and the refining and smelting of mineral products. Including energy-intensive metals, mining and minerals processing is the dominant sector for Tasmania's exports to Asia.

In 2011–12, Tasmania's international exports of mineral ores were worth $754 million, with 92 per cent — $696 million — of mineral ore and concentrate exports heading to Northeast Asia, ASEAN and India. Asia is by far the major destination for Tasmania's mining exports and this relationship is closely linked to Indian and Chinese investment in Tasmania's mining industry. Asian investment increases market access and makes Tasmanian mines more resilient to commodity price cycles.

The economic emergence of China and India has driven their interest in investing in the ownership of Tasmanian mines and in off-take agreements for products, as well as the strong financial performance of the sector more generally. These two economies provided strong resilience to Tasmanian communities against the impact of the global financial crisis. While the broad, global economic factors that shape the industry make it difficult to forecast the likely future of the Tasmanian mining sector, resource demand from export markets, particularly China, is likely to continue into the medium term, providing a solid base for the sector's growth.

Exploration

While exploration is a modest part of total activity within the sector, it is the vital foundation on which all mining and much minerals processing depends.

Western Tasmania has been, and remains, highly prospective for mineralisation. However, greenfield exploration in the past has occurred below the level required to sustain the industry's current position. To maintain the 2012 level of mining activity, one new mine needs to open every five years, on average. This would require an average expenditure of approximately $15 million per year on greenfield exploration. Throughout the 1990s, greenfield exploration averaged $7.5 million per year. More recently, expenditure has been rising, and statewide total exploration expenditure (brown and greenfield) for the 2011 calendar year was $38.7 million. The stimulation of expenditure requires a continued focus on providing new, high-quality geological information to exploration companies, more-active marketing of both the data and prospective exploration areas, as well as the promotion of a friendly business environment.

The promotion of mining opportunities should be one focus of increased Tasmanian Government representation in China.

Mining

Tasmania is one of the most highly and diversely mineralised areas in the world, supporting an active and growing mining sector. There are several major operating mines in western and northern Tasmania. These mines are considered to have the necessary infrastructure, although mining companies have identified the need for more-competitive pricing of energy and transport, as well as improved efficiency for existing infrastructure through managed coordination between mining companies.

Infrastructure is relatively well developed in the Queenstown/Zeehan/Rosebery area, where there is the highest concentration of past and existing mines. Existing milling capacity, coupled with established transport infrastructure and townships, is crucial to making smaller ore deposits in the area viable as mines. Further development of road or rail facilities will also be required to service new mines.

The Arthur and Savage River area could see increased mining activity if Tasmania's magnesite potential is developed. This area is unlikely to develop permanent communities with their own needs for transport and services, but the region's mining operations will still have transport and service needs. The mines would be more widely separated, potentially reducing the scope for cooperative use of rail or road transport. When new mines are identified, any public assistance provided for transport infrastructure should, wherever possible, contribute to strengthening this area as a whole rather than benefiting a single site.

While infrastructure developments are necessary to support existing and future mining operations, the following issues are central to maintaining a sustainable mining and minerals processing industry in the state:

- continued access to land and the expansion of exploration must be supported to sustain current levels of mining activity; and

- Tasmania's gas and electricity costs must continue to be competitive to ensure a future for minerals processing in Tasmania.

Security of land access continues to be an issue within the mining sector. However, the Australian Government's announcement on 8 February 2013 that the indigenous values of the Tarkine region in Tasmania's northwest will be included on the National Heritage List has provided the industry with the security and confidence it needs to continue to invest and grow Tasmania's mining sector.

Effectively the decision means that while all mining operations will still be subject to stringent environmental regulations, the northwest of Tasmania will remain available for current and future minerals exploration and mining activities.

The Tasmanian Government should continue to work with the sector to maximise its potential. The sustainability of Tasmania's mining industry also hinges on competitive production costs. The majority of mining operations in the region are price-takers dependent on world commodity pricing, and hedge their export earnings over long periods.

Minerals processing

The three main minerals processors are: the Tasmanian Electro Metallurgical Company ferro-manganese smelter located at Bell Bay, the Pacific Aluminium Pty Ltd aluminium smelter at Bell Bay and the Nyrstar Hobart Smelter on the Derwent River.

Opportunities to expand energy-intensive minerals processing exist, including on available industrial land close to infrastructure. However, capturing these opportunities will depend on establishing appropriate commercial arrangements with respect to electricity prices. The continued availability of electricity at globally competitive prices is critical to the minerals processing industry. Prior to the development of the Basslink cable linking Tasmania to the National Electricity Market, energy-intensive metal was the only way of exploiting and exporting Tasmania's surplus generation capacity. Today, while there are alternatives, a level of mutual dependence between the electricity sector and the production of energy-intensive metals remains.

4.4 Manufacturing

A significant global transformation is occurring across the manufacturing sector. This transformation will have a profound impact on Tasmania and its place in the Asian century.

Manufacturing, broadly defined, is a major driver of exports to Asia through processed metals, wood products and food. It is also a major source of imports in the form of clothing and toys, advanced manufactures like iPhones, and capital goods and intermediate components used in manufacturing. Tasmania is home to an advanced manufacturing sector that can compete in the global marketplace. The sector includes major icons, such as Caterpillar, Incat and Blundstone.

The transformation of the manufacturing sector has been analysed by McKinsey & Company in a global report, *Manufacturing the future: The next era of global growth and innovation*. The report argues that:

> *As long as companies and countries understand the evolving nature of manufacturing and act on the powerful trends shaping the global competitive environment, they can thrive in this promising future* (Manyika et al 2012).

This is Tasmania's challenge in the Asian century.

The McKinsey model of global manufacturing identifies five broad groups of manufacturing:

- Global innovation for local markets, including chemicals, motor vehicles, transport equipment, electrical and other machinery. These sectors are trade and R&D intensive.
- Regional processing, including rubber and plastic products, fabricated metal products, food and beverages, and printing and publishing. These sectors can be labour intensive, but have low trade density.
- Energy- and resource-intensive products, including wood products, refined petroleum, paper and pulp, mineral-based products, and basic metals. These sectors are both capital and energy intensive, but have low value density.
- Global technologies/innovation, including computers and office machinery; semiconductors and electronics; and medical, precision and optical products. These sectors are R&D and capital intensive, and have high levels of trade and value density.
- Labour-intensive tradables, including textiles, clothing and footwear, furniture, jewellery, toys, and other like products. These products are both labour intensive and highly tradable.

The largest sector identified by McKinsey & Company, global innovation for local markets, makes up 34 per cent of the global value-added in manufacturing. By comparison, global technologies/innovation accounted for 9 per cent and labour-intensive tradables made up 7 per cent of global value-added. Total manufacturing was estimated to be worth US$10.5 trillion in 2010.

Tasmania's manufacturing potential is largely based on its competitiveness and comparative advantage in the production of primary inputs. Tasmania also has areas of competitive resilience in energy-intensive metals, dairy and aquaculture processing, and advanced specialised manufactures. The state's manufacturing industry will also rely heavily on innovation and advanced manufacturing methods to compete in the Asian century.

For advanced manufacturing, future potential is built on Tasmania's created endowments of a highly skilled manufacturing workforce, a competitive infrastructure and strong business environment, and the ingenuity and innovation of entrepreneurs who want to see Tasmanian manufacturing succeed.

The state's advanced manufacturers (from research, design and development, production, logistics, and service provision to end-of-life management) generally develop high-value, premium-margin products by concentrating on the development of low- to medium-volume niche products and services. In the Asian century, advanced manufacturers need to continue learning and embrace innovative technologies through the adoption of leading methodologies in business practice, such as Lean, Six Sigma or supply chain management. Particularly with the high exchange rate, Tasmanian manufacturers must also learn to use transnational supply chains to their advantage; when the Australian dollar rises, the price of imported components falls and the manufacturer is better able to compete.

International supply chain development includes the importation of components that are then value-added in Tasmania, or the relocation of processes to locations which have particular competitive advantages. Examples include the relocation of Blundstone's leather footwear manufacturing to partners in Vietnam, China and India. The key features of regional supply chains are discussed in Chapter 2, while Chapter 7 focuses on Tasmania's business response in the Asian century, including Blundstone's move up the value chain.

Minimum price is not always the critical issue in supply decisions, with partner alignment, capability development, flexibility and risk management all key to ensuring long-term business viability as well. These factors encourage the use of local suppliers in many instances, such as Hydro Tasmania's selection of Hayward Engineering Services to support the development of wind farms in Tasmania.

DEDTA will continue to undertake promotional opportunities to raise awareness of the Tasmanian brand to drive demand for Tasmanian products and services. Strategies to retain and attract advanced manufacturers should take priority over programs that provide ongoing support to unsustainable business models. Large industrial areas made redundant as a result of traditional industries exiting the state should be carefully considered as sites for emerging advanced manufacturing opportunities and co-location.

Tasmania's competitive advantages in manufacturing

Tasmania provides its workforce with a favourable lifestyle, including the state's temperate climate, affordable housing, short commuting times and ready access to excellent natural recreational spaces.

The locational factors providing other competitive advantages for the manufacturing sector include Tasmania's:

- relative proximity to Asian markets;
- adequate energy capacity;
- water and waste disposal;
- proximity to suppliers;
- skilled and available workforce; and
- available land for industrial use that is separated from sensitive-use areas.

Tasmania is developing hubs of expertise that enable local enterprises to partner with like-minded local, national or international companies to secure a greater regional presence in key international supply chains and to potentially share services, innovation and market intelligence across a number of areas.

In southern Tasmania, the advanced manufacturing sector has an established global high-speed vessel constructer located at Prince of Wales Bay, which is leading to the establishment of a hub of expertise. A number of other marine and maritime companies share much of the same supply chain with this shipyard, including several small, specialised engineering workshops that supply to defence markets. This growing hub is also poised to support aquaculture expansion.

The manufacturing sector in Tasmania's northwest has an established global, specialised mining machinery manufacturer located in Burnie. A number of other manufacturing companies also share this supply chain.

As part of the implementation of the *Reaching Our Potential: Developing Tasmania's Science Research Capability – Action Plan*, DEDTA will continue to foster collaboration between industry, government and research organisations and increase the linkages between the manufacturing and research sectors of the Tasmanian economy in areas such as computational fluid dynamics.

Tasmania's competitive challenges in manufacturing

The competitive challenges facing Tasmanian manufacturers are widely recognised, including the high Australian dollar, freight costs, rising energy costs and access to skilled staff. Many of these challenges would exist with or without the Asian century. Manufacturing in Australia faces significant pressure from emerging global competitors, the rapid pace of technological development and innovation, restricted access to capital, and skills gaps and shortages.

The continuing high Australian dollar has created challenging circumstances for Tasmanian manufacturers, particularly for those who compete in highly competitive, low-margin environments. These manufacturers need to act immediately to implement strategies that result in high-value, premium-margin products and services, as well as improved cost and production efficiency.

Continued wage growth in China and other Asian nations has increased Tasmania's relative wage competitiveness, and while the value of the Australian dollar has risen significantly, its rise against the Chinese yuan has not been as great. It is unlikely that labour-intensive manufacturing will return to Tasmania, but high-value production that has low to moderate labour intensity will be able to compete in the Asian century.

Globally, the trend is for more manufacturing in Asia to be integrated into international production systems that allow for the involvement of players all around the world. While some regional manufacturers are seen as employers of choice and have no difficulty attracting suitably qualified employees, others have continuing job vacancies for affordable

skilled and unskilled labour and find it difficult to ensure that labourers develop appropriate skills to meet changing industry demands in advanced manufacturing.

Increasing skilled migration is one way to address immediate skill shortages. There is also potential for increased collaboration between the University of Tasmania and TasTAFE to develop courses that improve advanced manufacturing skills. The promotion of opportunities for employees to acquire skills that apply across industry sectors will further assist in achieving a more adaptable workforce.

A Manufacturing Skills Excellence Network pilot program has been designed by Skills Tasmania and DEDTA to help industry acquire skills training that is tailored to its needs, ensuring the focus of registered training organisations is on industry demand. This program fits under the framework of the Tasmanian Skills Strategy.

4.5 Tourism

Tourism is a major industry for Tasmania. In 2010–11, it directly and indirectly accounted for $2 billion, or 8 per cent, of Tasmanian GSP, with a direct contribution of $860 million. Tourism directly supports 17 000 jobs, or 7.2 per cent of total employment in Tasmania, and makes an important contribution to regional employment. The industry is made up of around 2 300 separate businesses. As discussed in Chapter 2, tourism and the promotion of Tasmania as a visitor destination will be a major driver of Tasmania's engagement with Asia. It is Tasmania's largest service-based export industry, and the value of inbound visits from Asia to Tasmania is projected to grow significantly over the coming decade.

Tourism can also serve as a spring-board from which to build the Tasmanian brand in Asian markets and link to opportunities in other sectors, such as branded food and wine exports, education, migration, and investment.

There is significant potential synergy between the international education and tourism sectors. International education directly drives visitor numbers and tourism expenditure through family visits, and this pattern is further enhanced if students migrate to Tasmania following completion of their studies. An opportunity has also been identified for the tourism sector to assist the international education sector by linking international students to employment opportunities in tourism. This would provide additional opportunities to increase the Asian cultural literacy of the tourism workforce. It would also make Tasmania's tourism offering more welcoming to international tourists from Asia and help to address seasonal demand for labour.

Tourism and hospitality is not a high-income sector in the Tasmanian economy, but it has the potential to play an important role in achieving the broader goals of the Tasmanian and Australian Governments in the Asian century. The employment provided by the tourism sector is also important to maintaining incomes, workforce participation and economic activity in Tasmania's regional areas.

Current international tourism and international visitor statistics

International tourism accounts for an estimated 14 per cent of direct tourism to Tasmania, which is the lowest contribution by international visitors in the nation. This is likely a reflection of Tasmania's lack of direct international air-links and its regional isolation.

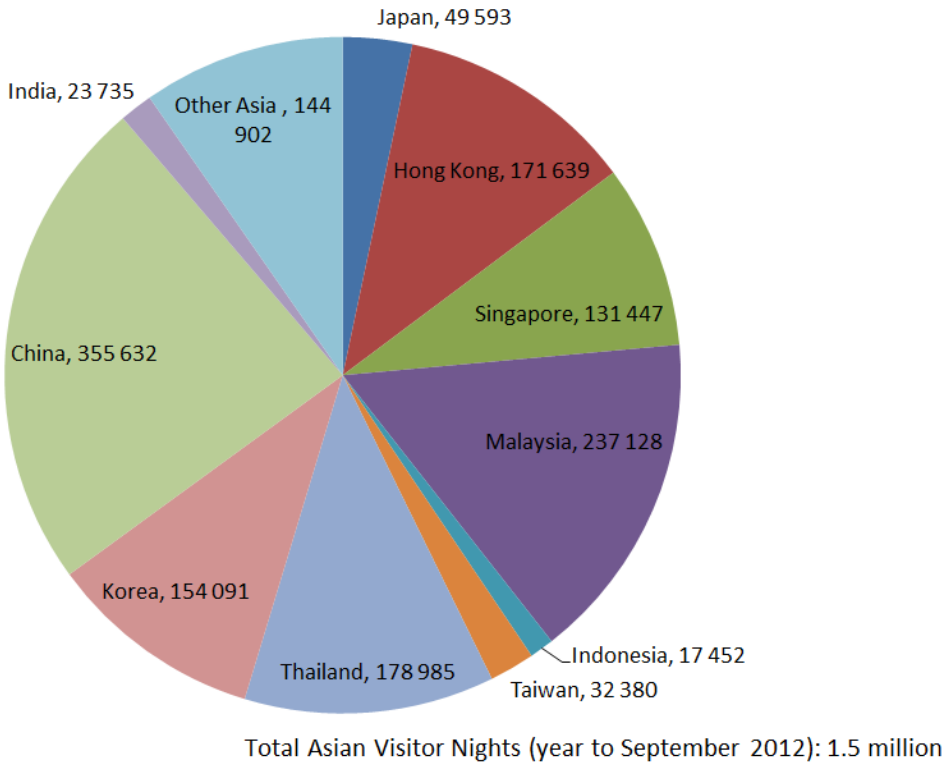
Tasmania's tourism industry may continue to be dominated by domestic visitors in the near term, especially from southeast Australia. Tourism Industry Council Tasmania suggests the marginal return on marketing is much higher in the domestic market, and therefore recommends additional marketing resources be prioritised in domestic markets instead of international markets (TICT 2012). But the domestic market is not isolated and neither is it protected from regional competition. With a strong dollar, the Australian market has shifted offshore and that trend will continue with Australian incomes rising towards $73 000 per person in 2025 (AWP 2012, 107).

Results for the International Visitor Survey (IVS) for the financial year ending September 2012 reveal that Tasmania attracted 143 000 international visitors over the previous 12 months. Asian visitors represented a little less than 6 per cent of all visitors to Tasmania and 36 per cent of international visitors.

Nonetheless, the Chinese market is the fastest growing international visitor market to Tasmania, and is projected to double in visitor numbers by 2020. Other emerging Asian markets, including Indonesia, Thailand, Singapore and India, are also projected to increase in visitor numbers. Traditional overseas markets, such as Europe, the United States and Japan, are declining in both arrivals and expenditure. This is a trend mirrored at the national level, with emerging Asian markets (Malaysia, China and Singapore) all growing rapidly in annual arrivals and expenditure.

If Tasmania were to hold its current market share of all Chinese visitors to Australia, then it could realistically expect to attract around 25 000 mainland Chinese visitors, and an additional 13 000 from Hong Kong, to Tasmania each year by the end of 2020. Together, this would position China/Hong Kong as Tasmania's largest international market.

Figure 4.5: Asian visitor nights in Tasmania, year ending September 2012



Source: International Visitor Survey September 2012, Table 12.

In the year ending September 2012, Tasmania received 51 600 visitors from Asia, an increase of 10 per cent over five years. Underlying these statistics has been a substantial shift in the make-up of Asian international visitors, with a substantial fall in the number of visitors from Japan and South Korea (by 66 per cent and 33 per cent, respectively), but a continued rise in the number of visitors from China, Hong Kong and Malaysia.

In 2011–12, Asian visitors stayed longer on average than non-Asian visitors, with an average stay of 29 nights and 18 nights, respectively. Overall, Asian visitors represented 48 per cent of nights stayed. Table 4.2 shows that the majority of Asian visitors come to Tasmania for a holiday (72 per cent), yet this group accounts for just 28 per cent of total nights spent in the state — the average stay is only 11 nights. The large proportion of nights spent for education purposes (45 per cent) has a significant impact on the total nights estimate.

Table 4.2: Purpose of visit as proportion of total Asian visitors

Total Asia	Holiday/ pleasure	Visiting friends and relatives	Business	Education	Employment	Other	Total
Visitors	72%	13%	7%	8%	2%	0%	100%
Visitor Nights	28%	17%	2%	45%	7%	0%	100%
Average Length of Stay (nights)	11	39	8	157	114	1	29

Source: International Visitor Survey September 2012.

The IVS indicates that there are significant and important differences between Tasmania's domestic and international visitor markets. The average length of stay for an international visitor to Tasmania is significantly longer than that of a domestic visitor, while the average daily spend is less than half that of a domestic visitor.

Currently, international visitors spend on average $88 per night, compared with $189 per night for interstate visitors. As incomes rise and Asian tourists become more mature in their tastes, the kind of tourism that Tasmania offers, with its emphasis on the natural environment and premium food and drink, is likely to be attractive to visitors from overcrowded and polluted Asian cities. Attracting this kind of more mature Asian traveller will also be central to increasing the return from each international visitor. Further research is still required on the types of travel undertaken by different Asian travellers to Tasmania to identify specific opportunities.

Tasmania's tourism brand in Asia

For international visitors, particularly those visiting Tasmania for the first time, a single state brand is required. The brand must add to visitors' potentially limited awareness of the state's attractions and build on easy-to-recognise icons, such as the Tasmanian devil.

Tasmania's focus on maintaining the state's competitive advantages remains critical. Anecdotal feedback from Chinese visitors reinforces the appeal of qualities such as food security; 'paddock-to-plate' and meet-the-maker/farm-gate experiences; access to Tasmania's unique fauna and flora; and self-drive opportunities that provide a sense of wide, open spaces. It has also been noted that for some Asian tourists from urban environments, the concept of being alone on a beach may be more frightening than appealing. This is an example of how Asia's diversity may require the Tasmanian tourism offering to be tailored to maximise appeal to particular markets.

Australia and Tasmania must build on their created endowments and not simply rely on those the country inherited. The prescription that Australia's "tourism industry needs to develop culturally relevant products to capitalise on growing Asian interest", and that this "will mean developing sophisticated luxury urban tourism opportunities ... as well as showcasing Australia's outstanding natural beauty", is especially pertinent to Tasmania (AWP 2012, 128).

Box 4.2: The MONA China Project

Immersing its audience in a world of sensory overload, with contemporary art, thought, music, food, and hand-crafted wine and beer, the Museum of Old and New Art (MONA) breaks the rules of a normal contemporary art space.

It unashamedly shocks, offends, challenges, informs and entertains, and provokes debate.

MONA's unique position and attributes make it undoubtedly Australia's leading contemporary art brand, and the museum has captured the public imagination. MONA is

arguably the single most significant art project in Australia's recent history.

Hobart was recently ranked seventh in Lonely Planet's Top 10 Cities for 2013, described as "a historic city reinventing itself", shaking off its "sleepy reputation". This is due in no small measure to MONA.

No other Australian city scores a mention.

Articles on MONA are now starting to appear in major Chinese publications and Chinese tourists are following. A delegation of Chinese/Hong Kong journalists representing publications with a combined circulation of four million people arrived at MONA on 1 December 2012, though marketing to China had hardly begun.

MONA presents a unique opportunity through which a significant cultural relationship with China can be built. MONA is developing the MONA China project with a vision to create Australia's most significant and meaningful contemporary cultural exchange program with China and as a way to build a high-profile base in China through partnership and artistic exchange.

Prepared by the MONA China Project.

Tasmania is now building its reputation on the back of major tourism developments, such as MONA, the Tasmanian Museum and Art Gallery redevelopment, the Saffire Freycinet lodge and the Three Capes Track on the Tasman Peninsula. Investment in these developments needs to be sustained.

The redevelopment of Hobart's waterfront and rail yards also presents a significant opportunity to build further accommodation, which would alleviate the current shortfall and allow for more growth (see also Chapter 6). The development of a dedicated cruise terminal at Macquarie Wharf No. 2 will provide improved facilities and services for large passenger ships.

Tasmania currently receives very few package tours, which facilitate regular visits by Asian tourists to Australia's mainland gateways. As a whole, Tasmania's tourism industry and infrastructure are more suited to smaller groups, either travelling independently or with the support of local specialised tour operators. More work is needed by Tasmania if it is to expand its market share by directly catering to this 'large group' category of traveller through value-added, experience-based opportunities that showcase the state's distinctive products, attributes and attractions. Tasmania already has significant experience with 'large group' arrivals from visiting cruise ships. This experience could be adapted to potential Asian package tourists.

Tasmania will also benefit from forging stronger relationships with mainland-based inbound tour operators. These businesses have established industry relationships in China and elsewhere throughout Asia, and are able to sell Tasmanian tourism packages to wholesalers, travel agents and meeting planners.

Tourism Tasmania's pan-Asia strategy

Given the enormous scope of the Asian market, and the Chinese market in particular, one of the key challenges for Tasmania's tourism industry is identifying the best strategy to maximise returns on the limited resources it has available to influence these international markets.

In 2012–13, the Tasmanian Government, through Tourism Tasmania, is directly investing $1.1 million in international tourism market activities. These activities are currently spread across the globe and utilise contracted trade consultants in Europe, North America, New Zealand, Malaysia, Singapore, Japan and South Korea.

Tourism Tasmania's activities in Asia include campaigns and promotions with its various partners, including airlines, tour operators, wholesalers and inbound tour operators. Tourism Tasmania also educates international travel buyers and helps them experience Tasmania and the Tasmanian tourism product through sales calls, trade missions, workshops and familiarisations. Tourism Tasmania works closely with Tourism Australia while conducting these campaigns.

Rapid changes in global tourism — through globalisation, technological change and associated consumer trends — have created a highly competitive marketplace. As a result, Tourism Tasmania is changing its focus on attracting international visitors to maximise its return on investment. This has included a complete review of activities in the pan-Asian region.

The objective has been to capitalise on the potential returns on investment and build awareness of Tasmania in these markets to attract more visitors. The review has involved a comprehensive analysis of market selection, business models and support mechanisms. The Tourism Tasmania Board endorsed a five-year international strategy that began in the first quarter of 2013.

Tourism Tasmania will continue to maintain in-market representation in the pan-Asian region, which includes a mix of emerging and high-value mature markets, including China, Hong Kong, Singapore and Malaysia.

4.6 Private sector research and consulting

An area for further growth and development for Tasmania in the Asian century is the need for stronger links between education and industry. An avenue through which to enhance these links is private sector research and consulting. The science research sector, including consulting and technical services, contributes significantly to Tasmania's economic activity, productivity, sustainability and quality of life. The Sense-T program, which aims to create an intelligent sensor network that integrates different data sources, is operated between the University of Tasmania, CSIRO, the Tasmanian Government and IBM, and is a good example of such collaboration.

The *Regional Economic Development Plan: Southern Tasmania* identifies the science research sector as a key industry that attracts approximately $500 million in investment annually

and employs around 3 200 people, with a mean annual salary of $93 000 (DEDTA 2012e, 158). The sector offers an important opportunity to overcome the income gap between Tasmania and the mainland, thereby helping Australia achieve its goal of raising the real average national income to $73 000 per person by 2025. The sector will also support the development of sustainability and innovation economies in Asia, and contribute to increased wealth and amenity globally.

Tasmania possesses a number of important competitive advantages in its natural assets, existing science research capability and lifestyle benefits. These make Tasmania an ideal location for Australian and international investment in science research. A key challenge for Tasmania in the Asian century is to use these advantages as a means to attract increased Asian science funding and Asian scientists to Tasmania.

The Tasmanian science research sector is largely public. Relatively few large companies operate in the state, with only a handful undertaking significant research programs. Increasing the positive spillovers between public and private research and between research and industry, particularly the manufacturing and primary industries, will be important for the state as Tasmania's private research and consulting sector expands.

Box 4.3: Exporting Hydro Tasmania's energy expertise

The Tasmanian Government, through Hydro Tasmania, owns the company Entura, which offers a full range of consulting services covering the planning, design, construction, operation and maintenance of all kinds of major energy and water projects. Hydro Tasmania has performed a key role in the development of renewable energy in Tasmania and has actively exported this expertise to mainland Australia and internationally.

The new Entura Clean Energy and Water Institute will strengthen Tasmania's position as a leader in renewable energy. Courses will be delivered by technical experts within the Entura and Hydro Tasmania businesses and by strategic partners, including the University of Tasmania and the Asian Institute of Technology.

The continued growth of Hydro Tasmania and other research and consulting businesses in Tasmania is a critical opportunity for Tasmania to support and profit from Asia's rise, and to augment the proportion of high-income researchers in Tasmania's workforce.

Submissions to the Tasmanian White Paper identified opportunities for Tasmania to export research services in the areas of:

- renewable energy;
- sustainability and environmental services;
- water, wastewater and solid water treatment;
- mining and forestry; and
- urban design and planning.

Tasmania clearly has the potential to further establish itself as a world-class centre of scientific endeavour in areas of immediate and emerging importance to the global community and to Asia in particular. These areas include green energy, information and communications technology, climate change adaptation, agriculture, aquaculture, and biodiversity management. Other areas in which Tasmanian science research already excels include Southern Ocean and Antarctic studies and epidemiological research (see Chapter 6).

Chapter 5 Growing international opportunities in education, research and innovation

Main messages

- The pre-eminent role of education in Asian cultures, coupled with Asia's growing research and innovation capabilities and its vibrant and globally competitive businesses, opens up major opportunities for Tasmania.
- Increasing linkages between education, research and industry will create benefits for productivity, innovation and market access to Asia. This could create innovative partnerships that better exploit Tasmania's unique competitive advantages and strengths.
- The Tasmanian Department of Education is building a system of continuous improvement to achieve national goals. A range of improvement strategies is in place.
- The Department of Education must implement its Year 11 and 12 education and training strategy to lift Year 12 retention rates and increase the number of Tasmanians with post-secondary qualifications. Programs known to improve educational outcomes, such as Launching into Learning and Raising the Bar, must continue to be supported.
- The VET sector works hard in this area. There is a continued focus on providing integrated pathways for work experience and employment opportunities that create enhanced connectivity with Asia.
- Tasmania's creative, entrepreneurial, highly skilled and well-educated human capital will be central to creating well-managed and performance-led workplaces. To this end, Tasmanian educational institutions and organisations could collaborate with the Australian Government's Centre for Workplace Leadership to devise innovative means to enhance human capital productivity.
- An internationalised education system incorporating staff exchanges, research cooperation, innovation alliances and other connectivity-enhancing mechanisms can help to shift Tasmania's primary reference point to Asia, while also giving the state the capacity to develop as part of the Asian century.
- The University of Tasmania and DEDTA's development of an International Education Strategy can form a long-term vision for sustaining institutional partnerships and industry collaboration in Asia that creates a lasting footprint for Tasmania in the Asian century.
- Tasmania has a unique location, which, along with its research strengths, forms the basis of a distinctive study experience. This distinctive experience should be reflected in current marketing activities, and continued promotion of this experience could bring future benefits.
- Tasmania can initiate new sister-state/city partnerships with counterparts in Asia to:

- promote Tasmania as a hub of knowledge exchange, premised on active collaboration between education and industry;
- create relationships with sister cities that result in the promotion of business-to-business and people-to-people exchanges; and
- consider the initiation of an annual Industry Chairs program — in partnership with industry, VET and the University of Tasmania — with sister states/cities in Asia that will facilitate the mobility and exchange of expert researchers and industry executives.

- Lifting Asia literacy, linguistic abilities and cultural awareness in Tasmanian communities through the work of educational, training and other institutions will be a critical enabler of transition in the Asian century.

5.1 Introduction

Education is considered to be a vital part of life for many Asian societies. In 2012 alone, about 6.8 million university students were expected to graduate in China. By 2020, the OECD expects that 4 out of every 10 university graduates aged 25–34 from the OECD and G20 countries will be from India and China. Furthermore, of the 3.8 billion people in Asia, close to one-quarter now have access to the internet and modern communication technologies. This level of technology penetration is already driving new trends in the region — not only in the type of services demanded, but also in the balance between traditional learning approaches and new technology-focused approaches (Richards 2004). The growth of the Asian middle class will reinforce these trends.

Approaching Asia merely as a source of economic opportunity will paradoxically fail to capitalise on the many economic possibilities presented. Establishing sustainable economic links with Asia will require in-depth socio-cultural and linguistic understanding, and a willingness on the part of Tasmanians to embrace Asian ideas and practices (UTAS 2012, 6).

Tasmania currently attracts few Asian migrants. It has lower numbers of overseas students studying at its institutions than elsewhere in Australia. The number of Asian-born residents living in Tasmania is also lower. For Tasmania to take advantage of the educational opportunities opened up by the Asian century, it should adopt an integrated approach that exploits the synergies between training, education, research and industry. Lifting the quality and performance of the education system can be a vital aspect of realising the Asian opportunity. Tasmania also faces demographic challenges — international education is one avenue through which Tasmania's demographic balance can be improved.

5.2 Asia literacy in the education sector

There must be a broader focus on lifting Asia literacy (see Chapter 3), recognising that literacy is more than language, food and music. Language skills are only one element of Asia literacy in the broader sense, but the ability to speak an Asian language can be taken as a useful first approximation for Asia literacy. According to the 2011 census,

1.6 per cent of the Tasmanian population speaks an Asian language, compared with 7.6 per cent for Australia as a whole. While this reflects in part the fact that a greater proportion of Tasmanians were born in Australia and other English-speaking countries, it is nevertheless an inhibiting factor in taking advantage of opportunities presented by the Asian century.

Currently, around 11 000 students between kindergarten and Year 10 are studying Indonesian, Japanese or Mandarin. At least one of these languages is offered in 67 primary schools and 35 high schools, from a total of 192 Tasmanian government schools across the state. Learning a foreign language provides a way to see the world through the eyes of another culture — a skill which is critical to building successful cultural and business exchanges (DoE 2012, 2-5). It is a way of 'opening the door' to engagement with Asia.

Box 5.1: Innovative language teaching in Tasmanian schools

The 'Land to Sea: Unity in Diversity' project has enabled teachers and students from four Hobart schools and an Indonesian school to collaboratively learn how to create interpretative trails in Indonesian and English to celebrate each school's unique and diverse local environment.

Sustainability teacher Jenny Dudgeon and Indonesian teacher Ingrid Colman used a successful Becoming Asia Literate Grant to bring together Taroona High School, Mount Nelson Primary School, Sandy Bay Infant School and the lead school, Lansdowne Crescent Primary. The project aimed to help students become more Asia literate and encouraged a connection with the environment, with a view to sustainability. The project dovetailed with Lansdowne Primary's involvement in the BRIDGE program, through which it has a sister school in Surabaya, Indonesia, called Kaliasin SDN1.

Each of the four schools in Hobart developed one or two bilingual trails in its local area, which were also supported by apps and a website. Hobart City Council supported the project and installed bollards and quick response codes along the trails. Taroona High School information and communications technology students wrote the computer programs for the website and the apps, and students from all schools made site visits. Many experts visited the schools to share information about the history and wildlife of the local area. These visitors were interviewed by students, sometimes in Indonesian as well as English, and the interviews can be heard on the app and viewed on the accompanying website. Lansdowne Primary hosted a 'Connecting with the Curriculum' event that highlighted the students' work and their deepening understanding of the environment and sustainability. Students used Skype to share their sustainability work with their Indonesian sister school, Kaliasin SDN1.

Involvement in the 'Land to Sea: Unity in Diversity' project offered Tasmanian students an authentic opportunity to use and extend their Indonesian language skills through frequent contact with their sister school. Students have become far more aware of the environment around them and the importance of biodiversity, while also developing their Asia literacy. Lansdowne Primary students spread this knowledge through their participation in the Kids Teaching Kids conference in Melbourne in October 2012, where

they conducted a number of workshops. The conference was a great way to share information about the differences and similarities between Indonesia and Australia.

Prepared by the University of Tasmania.

To enhance the level of Asian-language study in Tasmanian schools and communities, the state should consider methods to improve access to, and the range of, language choices that exist online, particularly Mandarin. It may also need to consider a more focused approach to Asia literacy using face-to-face teaching, and share practical experiences associated with the use of interactive technologies, such as the Asia Education Foundation's BRIDGE program, which enables school partnerships with China, Indonesia, South Korea and Thailand.

Although the current state of Asian Studies/Languages at the University of Tasmania's three campuses (Hobart, Launceston and Cradle Coast) is reasonably robust, there are some challenges to expanding the uptake of language study in schools. The Tasmanian Department of Education acknowledges the need for technology substitutes to make up a gap in language teaching capacity, if the goal is to expand Asian-language instruction across the state.

The Tasmanian Department of Education is currently developing an Asia Strategy. Still in draft form, the strategy is expected to take account of the national requirements for Asia literacy, linking them with the Department's Strategic Plan 2012–15. Proposed objectives of the Asia Strategy include:

- the implementation of the Australian Curriculum;
- building leadership support and teacher capacity through professional learning and cross-cultural engagement;
- stimulating engagement through interactive technologies; and
- specialist language provision.

"Asia and Australia's engagement with Asia" is one of three national cross-curriculum priorities in the Australian Curriculum (DoE 2012, 6). The aim is to enable every young Australian to develop a better understanding of the countries and cultures of the Asian region and the latter's engagement with Australia. This involves embedding studies of Asia in all learning areas from primary school to Year 12. The major themes should be Asia and its diversity, the achievements and contributions of the people of Asia, and Asia–Australia engagement.

Since 2006, almost 2 500 senior secondary school students have undertaken the Australia in the Asia Pacific course. Similar to this course, the importance of Asia will be addressed through the implementation of the Australian Curriculum. In addition to any specific courses, the cross-curriculum priority of "Asia and Australia's engagement with Asia" and the general capability of "intercultural understanding" will be developed and used across all year groups and learning areas.

Changing trends in education suggest that a diversified education strategy is needed to help the Tasmanian workforce to take advantage of opportunities in the Asian century. For example, the change in onshore, offshore and transnational educational program offerings, along with the growing importance of research collaboration, indicates that there is a need to 'internationalise' and 'value-add' to the current suite of program offerings by enhancing skill-based education–industry partnerships.

For Tasmania to secure its position in Asia, it will need to transform its demographic trajectory and lift its low Asia literacy through enhanced skilled migration, business and education partnerships with Asia (for example, through increased sister-city relationships), and the internationalisation of Tasmanian higher education. Tasmania can also make the most of its Asian opportunities through a heightened internal emphasis on education to improve school outcomes — specifically Year 12 retention — and by enhancing overall education linkages with industry to cultivate entrepreneurial and creative human capital.

5.3 Positioning our schools and vocational education

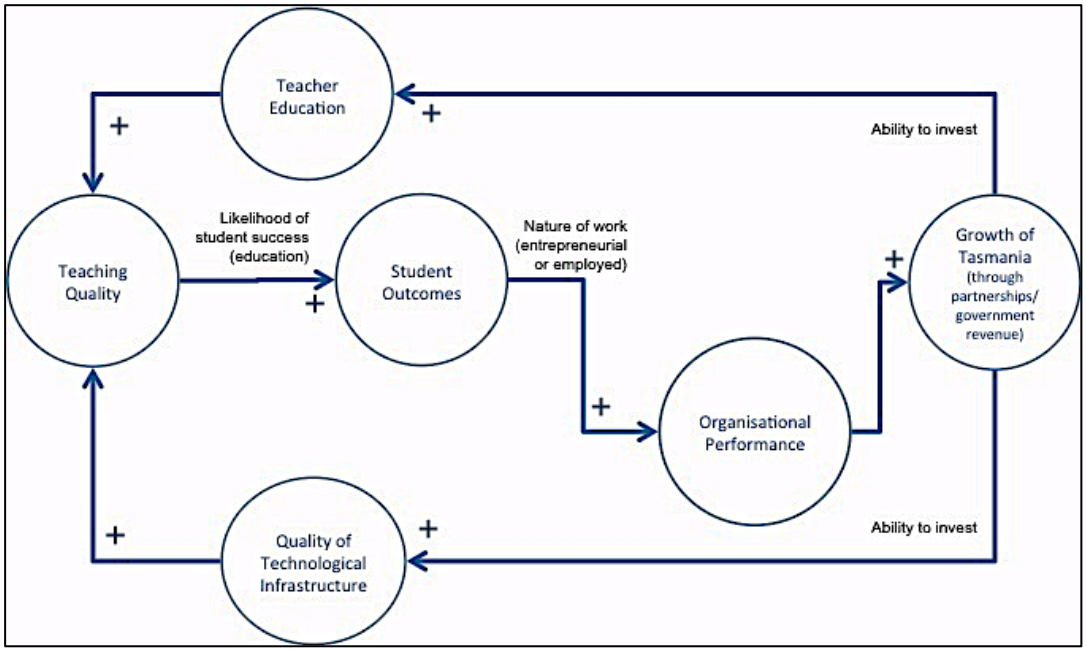
The Australian White Paper sets an objective for Australia to have a global top-five, high-quality, high-equity school system, and for our training system to be among the world's best. The aim is to deliver excellent outcomes for students of all backgrounds, and to systematically improve performance over time.

Educational outcomes in Tasmania must improve. Compared with the rest of Australia, Tasmania has lower rates of high school completion and Year 12 retention, and a lower-than-average proportion of the population with vocational or higher education qualifications. Tasmania is now working to lift the quality and productivity of its school system, an improvement that will have positive flow-on effects for labour productivity and adaptability in the economy (see Chapter 3).

Schools also need to remain abreast of technological developments. Changing technology is creating greater demand for highly skilled jobs, while reducing the opportunities for low or unskilled workers. Education providers in Tasmania, through the Tasmanian Skills Strategy, are already working to better prepare individuals for social and economic prosperity. Partnering with industry to deliver high-quality education services, building a productive workforce through innovation, increased investment and increased participation will be important in creating a prosperous Tasmania (Skills Tasmania 2011).

In this context, two aspects are fundamental for schools: first, teacher quality, which requires sustained investment in teacher education, and, second, fusing advanced technological infrastructure with teaching modes. Figure 5.1 below outlines how these aspects can work together to boost teaching quality.

Figure 5.1: Boosting the teaching quality in Tasmania's education sector



Major shifts are also occurring at the tertiary level. The global higher education sector is experiencing a massive transformation with the advent of online education, popularly known as 'massive open online courses'. This mode of learning was historically frowned upon, but sandstone universities across the world are now developing and delivering online courses. Not only do these institutions want to position themselves as leaders in academic content, they also want to lead in the digitisation of academic material. This transformation could reach the secondary and primary education sectors in the coming decades.

In this context, implementation of the Tasmanian Department of Education's Year 11 and 12 education and training strategy to lift Year 12 retention rates and increase the number of Tasmanians with post-secondary qualifications will be vital. In order to spur a focus on early education, with support from families and communities, programs such as Launching into Learning and Raising the Bar must continue to be supported because they will have an impact on the ongoing development of the individual.

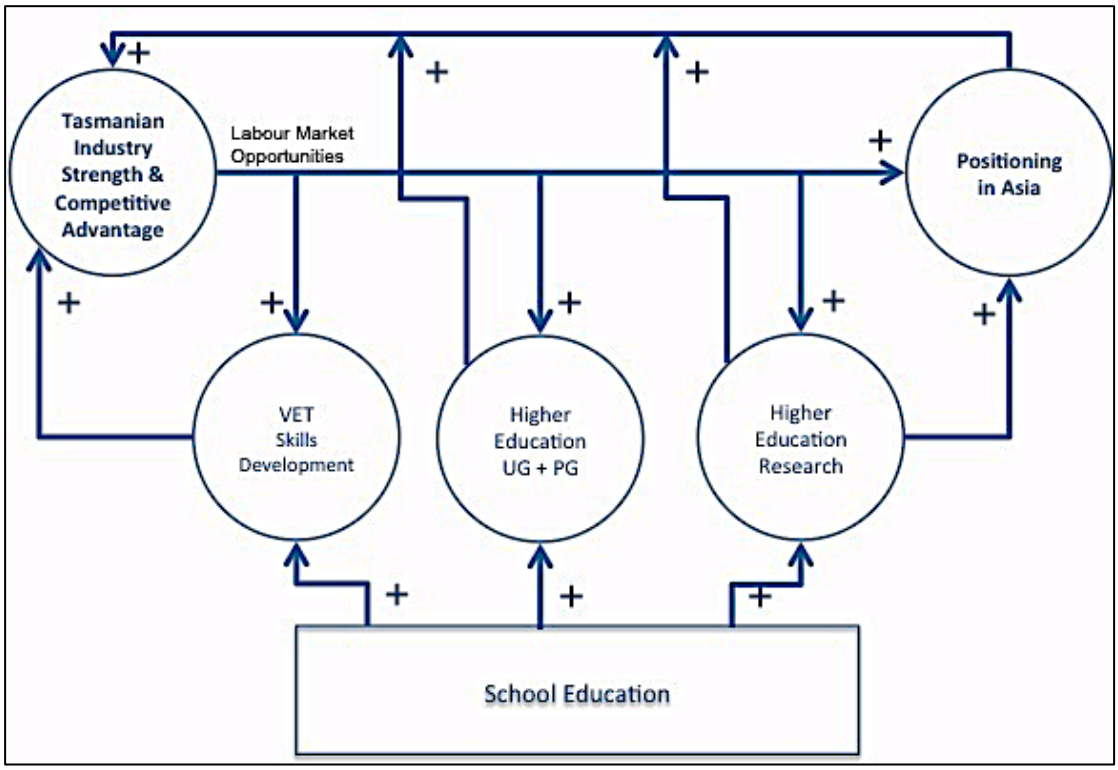
In preparing for change that is technologically driven, Tasmania also has the opportunity to become an early mover and to improve its positioning with emerging countries in Asia. Skills Tasmania, as one of the only two NBN E-learning managers, is well placed to lead this transition in partnership with schools (Skills Tasmania 2012).

School leadership with a clear vision, innovation in curriculum and delivery, and leading-edge technological infusion will hold Tasmania's schooling sector in good stead. These attributes also provide young Tasmanians with a high level of foundational skills, paving the way for their success in higher levels of learning. Along with the Tasmanian Government's continued investment in schools, leaders in education and industry can work together to devise new ways of boosting investment in primary and secondary education. Maintaining or lifting investment in human capital and skills development will be imperative.

Collaboration between VET providers and schools will be important to Tasmania's advancement. One of the strengths of the Australian VET system is its connection with industry, and VET providers have an obligation to ensure a continued stream of skill-ready individuals for the labour market. The Trade Training Centres in Schools program is an adequate means to achieve the creation of skill-ready individuals. VET providers can significantly strengthen their position by working together with schools, specifically secondary schools and colleges. By doing so, students are better guided and are able to develop a greater appreciation of entry requirements, working conditions, monetary and non-monetary rewards, and the skills and technical competencies required in the labour market (Handel 2012).

Tasmania's VET sector is critical to ensuring skill-ready individuals are being delivered into industry. Some of the necessary reforms to the delivery of vocational education in Tasmania are underway and must continue to be supported. This includes further integration of Skills Tasmania and the Department of Education, and the creation of TasTAFE — bringing together Tasmanian Polytechnic and the Tasmanian Skills Institute. This will allow the VET and secondary school sectors to further enhance ties, benefiting young Tasmanians.

Figure 5.2: Integrating Tasmania's skills and knowledge base with industry need and positioning in Asia



Linkages between Tasmanian education and industry organisations are well established. In some cases, this extends to tripartite partnerships with Asian counterparts, including the concept of triangular links established by the Skills Institute, Tasmanian tourism and hospitality operators, and Asian operators (Tasmanian Skills Institute 2012, 2).

This is a pattern that can be extended. Tasmania should build on this experience of multi-party linkages with Asia and adopt a two-pronged strategy, whereby economic and educational partnerships are developed in areas where Tasmania's comparative advantages are recognised. This could include the agricultural and farming sector, and the development of partnerships that offer Tasmania the opportunity to enhance its position in new and emergent technology and knowledge areas, such as advanced manufacturing.

5.4 Internationalisation of tertiary education

Tasmania's ability to exploit educational opportunities in the Asian century will increasingly rely on its geographic location, global reputation for specialised offerings, and the experience of international students studying in Tasmania. Tasmania can build its reputation for specialised offerings by combining different assets in unique combinations, such as higher education courses that combine the science and the business of aquaculture in temperate climates. Box 5.2 offers an example of how this has been done elsewhere.

Box 5.2: The story of the Indian School of Business (ISB)

ISB, located in Hyderabad, India, is a business school that received its first cohort of postgraduate management students in 2001. Corporate leaders and academic minds from India developed the concept for the school. With a vision to groom future leaders for India and the world, the school was keen to ensure its educational offerings were of world standard. The school was mindful that it had to focus all its efforts on developing its postgraduate management program with world-class management content. Without government support, and only through industry linkages and philanthropic funding, the school set itself up as a non-profit organisation. Leveraging industry networks and global connections, it developed a non-degree postgraduate-level management program in association with leading business schools from around the world. In addition, the school has also established distinct partnership centres with industry in the areas of information technology (IT), real estate and infrastructure, entrepreneurship, and family business — subjects that take into account the country's market dynamics.

Today, the school ranks among the top 20 business schools globally, with its graduates receiving salaries on par with business schools like MIT and the National University of Singapore. Despite its short history and non-degree program offerings, the school has positioned itself on par with many of the Ivy League institutions. The school recently launched its second campus in India with four industry and academic partners (including MIT), concentrating its efforts on healthcare, public policy, manufacturing and infrastructure management.

Within a short span of time, the school has created a global profile that has attracted highly talented students from across the world. The president of the Student Council in 2009 originated from Australia and had admissions into MBA programs at Harvard University and the University of Melbourne — but he chose to study at ISB.

This anecdote is notable for two reasons: the level of engagement between industry and

academia to shape business management education in the Asian region and the emerging trend in Asia that has seen high-value, industry-relevant skills and knowledge become more important than a formal qualification.

International education has many elements. These elements range from the provision of educational programs to international research collaboration between universities and between industry and university partners. Australia has benefited from the increasing numbers of international students coming to pursue their studies onshore. International higher education is a significant sector in Tasmania, with an estimated value of $128 million in 2010–11. Each international student contributes an average of $28 000 in fees and expenses to the Tasmanian economy every year.

Figure 5.3: International students in the higher education sector by state or territory enrolment, calendar year to August 2012

	Asia*		All other regions		Total	
	no.	%	no.	%	no.	%
NSW	53 168	34.3	24 671	35.5	77 839	34.7
VIC	47 952	30.9	19 174	27.6	67 126	29.9
QLD	21 298	13.7	12 806	18.4	34 104	15.2
SA	11 609	7.5	3 254	4.7	14 863	6.6
WA	12 428	8.0	6 293	9.1	18 721	8.3
TAS	**2 489**	**1.6**	**719**	**1.0**	**3 208**	**1.4**
NT	194	0.1	562	0.8	756	0.3
ACT	5 878	3.8	1 945	2.8	7 823	3.5
Australia	**155 016**	**100.0**	**69 424**	**100.0**	**224 440**	**100.0**

Source: Department of Treasury and Finance 2012, 1.

China, Malaysia, South Korea, Japan and Thailand have traditionally been Tasmania's top five international markets. For Australia, the top countries are China, India, South Korea, Malaysia and Vietnam (DoE 2012, 1).

The presence of international students enriches the social fabric of communities. They enhance the socio-cultural dynamics of education in ways that, while hard to quantify, are well known. International students help to facilitate a depth of understanding and cooperation among different people from different countries, as well as their governments and the international community. This brings economic benefit as well as international understanding. International students also take back new insights to their home countries, contributing to development and international capacity building.

The University of Tasmania is working on improving linkages to the community, government and industry to deliver higher productivity in the workforce and contribute to a more diverse, innovative and vibrant society. The University is the third-largest non-government employer in the state and is planning to expand its student base. International students contribute significantly to the state's economy, and for every 100 new students at the University around 26 Tasmanian jobs are created.

Given the importance of the education sector to economic development, the University of Tasmania aspires to double international student enrolments by 2018 and to create a "pool of Asia-knowledgeable and Asian language proficient Tasmanians" (UTAS 2012, 16). By 2025, Tasmania should aim to lift its international enrolments relative to other smaller states. This could have large flow-on effects for the rest of the Tasmanian economy. For example:

- the tourism industry can benefit from linkages with student and family visits;
- the domestic services sector can benefit from the added diversity in demand and supply that international students bring;
- international students from the region create linkages back into Asian markets (see Chapter 7); and
- international students will provide a pool of future high-skilled migrants to Tasmania (see Chapter 8).

But doubling the number of international students is unlikely to be achieved without complementary efforts to position the Tasmanian education product in Asia. Strategies will be needed to address:

- infrastructure and connectivity with Asia and the rest of Australia;
- housing and urban services that are adaptable to the needs of students;
- assimilation and English-language bridging programs; and
- integration of recruitment with a focus on world-class research, in which Tasmania has, or can develop, a comparative advantage.

Beyond the academic experience, it is important that international students have a positive student experience in Tasmania. This includes receiving adequate support and pastoral care and having opportunities to interact with the local community (students, businesses and others). It also includes the provision of a safe environment within which students can not only grow in their careers, but also live the Tasmanian experience and benefit from suitable logistical support that includes public transport facilities (UTAS 2012, 18-22).

The University of Tasmania, including the Australian Maritime College, has a strong foundation in teaching online (distance) courses, a facility that could enhance the University's efforts to foster partnerships across the state and within the region. The University of Tasmania, Tasmanian Polytechnic and other schools have also been involved in delivering a number of offshore programs in China, Malaysia, South Korea, Hong Kong and Kuwait. These include the full delivery of qualifications offshore, partial delivery offshore with completion onshore, pathway programs, English-language programs and sister-school exchange programs (DoE 2012, 1).

While there are clear benefits and a space for the University of Tasmania to increase its international student enrolments, attracting international students is likely to be successful only if it forms one element of a broader, comprehensive internationalisation strategy, and if a number of challenges are overcome.

Challenges

Even though international student enrolment numbers are healthy, globally the international education market is becoming highly competitive. Australia benefited as an early entrant into the industry, and until the early 2000s it provided access to the existing Australian education system with few extras. Over time, a large number of countries have entered the market — some of which have education systems of a similar quality to Australia. Furthermore, the strong Australian dollar, changing migration regulations for international students seeking permanent residence, and pockets of negative experience felt by international students continue to challenge the international education sector in Australia. In recent years, Australia has experienced a decline in international onshore enrolments.

As Asian economies continue to develop, the demand for overseas education is moving from secondary school into VET and higher education. Currently in Tasmania there are about 150 international students in Years 7–12 (with two-thirds in Years 11–12) and 300 international VET students. There are also about 400 international students who are dependents of visa holders (DoE 2012, 1).

Schools and the VET sector often serve as a feeder into the higher education sector. However, attracting more international students in pre-tertiary sectors is also an important means of increasing the familiarity of Tasmanian school children with Asian cultures.

Asian students are not a cohesive group and their preferences vary according to country of origin, local cultural issues and their home education sector. Yet, there are some factors that do affect the overall demand for education abroad. The most important of these are the quality, status and cost of the education service on offer to students.

Students interested in gaining a foreign qualification are looking for a competitive edge and a different type of experience, both in their studies and their work prospects (Tasmanian Skills Institute 2012). For instance, the United States, with bipartisan support, is seeking to pass legislation that will allow international graduates in Science, Technology, Engineering and Mathematics (STEM) disciplines to automatically gain access to permanent residency status in the United States. There is further discussion on migration issues in Chapter 8.

International students are also increasingly seeking the best possible way to gain a foreign qualification without leaving their home countries. These aspects are changing the landscape of onshore international education.

The sector is experiencing disruptive changes in teaching delivery due to the growing importance of online delivery from elite universities, such as MIT. Competitive advantage in the online arena will be hard-won. Not only could online delivery reduce the incentive for Asians to study overseas, but the competitiveness of smaller universities will rely more strongly on being highly specialised players in a global marketplace. Technology and international links are thus becoming critical enablers in creating a distinct position and global profile.

The success of the University of Tasmania's research program will also determine its ability to attract international students in future. Students increasingly select institutions based on international rankings, which are primarily determined by an institution's research record (Shin and Toutkoushian 2011). Tasmania faces a number of challenges in this area, which it will need to overcome. These include a large reliance on Australian Government programs for research investment and the fact that only a few large companies have a base in Tasmania. This limits the local industry base able to supplement research funding and there is subsequently fierce competition for funds. One response to this circumstance is set out in Chapter 6.

Opportunities

As discussed in more detail in section 5.5, the University of Tasmania has reinforced its national ranking by building on its strengths, particularly in the sciences. The University continues to punch above its weight in these areas and is on par in research rankings with most of Australia's Group of Eight (Go8) universities (UTAS 2011).

Tasmania's strengths in science research are an important driver for the education and research sector. Tasmania attracts approximately $500 million in annual investment in science research, over 950 collaborative partnerships, and over 2 800 research papers and conference presentations (DEDTA 2012e, 158). This international effort has yielded not only economic benefits, but many social and cultural benefits too. The Government considers the science research sector a key pillar to drive long-term prosperity for Tasmanians.

Promoting its research profile as part of an internationalisation strategy is clearly a priority for Tasmania. There is a range of strategies in place that will help project Tasmania as an international 'education state' (DEDTA 2012e, 155). The Tasmanian International Education Industry Roundtable will continue to work towards attracting international students through the 'Study Tasmania' brand and by improving the student experience in Tasmania.

The development of an International Education Strategy by the University of Tasmania, supported by DEDTA, will hone efforts to attract international students, coordinate branding opportunities and reorient Tasmania's tertiary curricula and courses to meet the needs of target markets. The *Reaching Our Potential: Developing Tasmania's Science Research Capability – Action Plan* released by the Tasmanian Government in December 2012 also acknowledges the importance of the science research sector. This plan supports the creation of new knowledge-driven products and services underpinned by significant research effort, and will help to capture the economic benefits gained by investments in research (DEDTA 2012c).

Collaborating across these areas to ensure the development of a comprehensive strategy for expanding international education in Tasmania will be critical. These efforts can seek to improve the quality of service in program offerings and the student experience. The incorporation of technological learning solutions can help Tasmania create a distinct

advantage in Asian markets. The presence of digital infrastructure, supported by the statewide rollout of the NBN, already provides Tasmania with an early-mover advantage in this area. The University's effort to establish a virtual laboratory and data repository node, and its hosting of Australia's Academic Research Network; the Tasmanian Government's ownership of the TasGovNet fibre network, which links Tasmania's major cities and towns; the state's involvement in CSIRO's Intelligent Sensing and Systems Laboratory and the Australian Centre for Broadband Innovation are all significant endeavours that will better connect Tasmania with Asia.

The internationalisation of the education sector will be important in the Asian century. This will involve active exchange links between institutions, including outbound as well as inbound student and teacher movement, in addition to attractive credit arrangements for degrees. Collaborative research projects will also be important. The biggest potential for growth is in transnational education; whereas Australia's onshore enrolments declined by over 4 per cent in 2011, offshore enrolments increased by over 5 per cent. This is a worldwide trend, particularly with the increasing number of Asian education hubs like Malaysia, Singapore and South Korea. Online delivery is also part of this trend, but it is unlikely to have been the only cause for declining onshore enrolments.

Tasmania's internationalisation mandate can be built on a strength- and location-based approach. It is important for Tasmania to capitalise on areas of strength and build its capabilities in other emerging areas where it possesses a competitive advantage by virtue of its location. These areas include green energy, climate change adaptation, agriculture, aquaculture, oceanography and biodiversity management.

5.5 The University of Tasmania

Despite the University's relatively small size, in 2009 it was ranked ninth for research income out of 38 higher education institutions, seventh in completion rate (fifth in PhD completion rate) and ninth in Commonwealth block funding. The University also ranks a very creditable 12th in the number of Australian Research Council (ARC) Discovery research grants awarded for projects beginning in 2013.

The ERA 2012 National Report confirms the University's research strengths, many of which have a direct application in Asia. Table 5.1 shows the University's areas of research strength. A score of '5' indicates research 'well above world standard', and '4' indicates 'above world standard'.

Table 5.1: ERA scores for the University of Tasmania

Discipline	ERA Score
Analytical chemistry	5
Geology	5
Oceanography	5
Ecology	5
Evolutionary biology	5
Plant biology	5
Agriculture, land and farm management	5
Forestry sciences	5
Clinical sciences	5
Physical sciences	4
Astronomical and space sciences	4
Chemical sciences	4
Organic chemistry	4
Earth sciences	4
Environmental science and management	4
Biological sciences	4
Agricultural and veterinary sciences	4
Fisheries sciences	4
Horticultural production	4
Law and legal studies	4
Law	4
Journalism and professional writing	4
History and archaeology	4
Historical studies	4

The University's Language, Communication and Culture cluster is also rated as being at world standard in the ERA 2012 National Report, which will be useful in lifting Asia literacy in Tasmania.

A profile of the University's research publications in relevant clusters within some of its key disciplines reveals several points:

- disciplines with a strong potential for enhanced partnerships, knowledge transfer and industry/institutional investment have a solid and continuing presence at the University, notwithstanding advances in other disciplines; and
- within Australia, the University of Tasmania outperforms other non-Go8 universities in its impact measure in these disciplines.

One cluster of particular research strength is located in Tasmania's Antarctic and Southern Oceans activities (described further in Chapter 6). Tasmania's Antarctic programs illustrate the state's capabilities in interdisciplinary, collaborative and partner-based research, training and engagement. They also show that Tasmania's strengths are to be found in niche areas that exploit its locational advantages and which are hard for competitors to emulate. Further opportunities will revolve around attracting Asian undergraduate and postgraduate students to study specialised degrees that exploit Tasmania's distinctive natural assets and research excellence.

Another area of research strength that is particularly relevant to Tasmanian stakeholders (including industry, community and government partners) centres on agricultural, horticultural and animal production (for further discussion of Tasmania's business strategy in the Asian century see Chapter 7). For example, the Tasmanian Institute of Agriculture is a joint venture between the University of Tasmania and the Tasmanian Government. It has become a centre of excellence in agricultural research, development, extension, education and training. In addition, it also adopts a solution-based approach to identifying agricultural policy options, while working with industry to enhance performance. The food sector forms an area of considerable importance to Asia, as noted in the Australian White Paper and earlier in Chapters 2 and 4 of the Tasmanian White Paper.

With most of the global food demand expected to emerge in Asia, there is an opportunity for Tasmania to enhance its science and primary industries research partnerships in Asia to meet some of this demand. Tasmania's strength in agricultural research also supports national priority 19 of the Australian White Paper:

> *Australia's agriculture and food production system will be globally competitive, with productive and sustainable agriculture and food businesses. Australian food producers and processors will be recognised globally as innovative and reliable producers of more and higher-quality food and agricultural products, services and technology to Asia* (AWP 2012, 213).

For instance, economic analysis and forecasts indicate that Vietnam's annual skills requirements in agriculture will grow by 5.6 per cent per annum to 2020, much faster than

the services sector, which is expected to grow by only 3.5 per cent per annum (Giesecke et al 2011, 35). Similarly, annual industry output growth in the agricultural, forestry and fisheries sectors is expected to reach between 5 per cent and 10 per cent. These are areas in which Tasmania is known to have research and industry strengths. Capitalising on these strengths to service emerging Asian economies like Vietnam will help secure Tasmania's position in the Asian century.

Building on these research strengths, the University of Tasmania can also play a key role in accelerating Tasmania's long-term development. For example, the University of Saskatchewan in Canada, well known for its agricultural research, worked alongside government and industry to set up North America's second-largest research-intensive park — Innovation Place. Today, the park houses about 130 clients in Saskatoon, employing more than 3 300 people. The park houses a number of firms working in agriculture, IT, life sciences and the environment, among others. In 2011, an economic impact survey showed that clients at Innovation Place contributed $906 million to the provincial economy.

5.6 Educational links to Asia

The education sector will benefit from a partnership approach that capitalises on Tasmania's existing strengths, as opposed to adopting a one-way transactional relationship with countries in Asia. Training and educational institutions, in collaboration with GETI Tasmania and the University of Tasmania, have an opportunity to improve the experiences they offer students, and to become more adept and early adopters of Asia literacy in order to further education- and industry-level collaboration with Asia (Tasmanian Skills Institute 2012).

Tasmania's efforts to support intercultural programs will be a key enabler in sustaining engagement with Asia. The efforts of the University of Tasmania to increase tertiary student outward mobility into Asia will help Tasmanian students enrich their learning experience, while building the state's "future stock of Asian expertise" (UTAS 2012). Additionally, the Tasmanian Government should actively work with the Australian Government in order to benefit from its commitment to provide 12 000 Australia Awards (Asian Century) over the next five years, which will also boost the outward mobility of students to Asian countries (AWP 2012, 251).

Greater collaboration of this type is important because "people-to-people exchanges between Australia and Asian countries involving students, business people, volunteers, educators and government officials are a natural complement to an active policy of engagement with Asia" (AFS 2012).

Box 5.3: Education and Tasmania's sister-city linkages

Tasmania entered into a sister-state relationship with China's Fujian province in 1981. This paved the way for other sister-city relationships, such as the agreement between Launceston and Taiyuan, China, in 1995. To create an economic boost from these relationships, Tasmania has continued to work hard in partnership with China to establish the state's pest-free status for fruit fly, which it secured in 2010. This has paved the way for an export boost in the fruit industry. Capitalising on its strengths, the University of Tasmania established educational links with Shanghai Ocean University and Zhejiang University of Technology, in consequence of which over 1 500 international students have enrolled in programs offered by the University of Tasmania. International students form an integral part of the internationalisation of education, a process that can be strengthened through such partnerships.

Tasmania can further enhance sister-city relationships in Asia and develop new ones in strategic areas. This will foster international research and learning partnerships that can improve Tasmania's positioning in Asia, and at the same time create commercialisation avenues for economic benefit. Through these relationships, Tasmanian education providers can offer their services and "provide Tasmanian curriculum to overseas institutions" in Asia (DoE 2012). By adopting a 'lifelong' approach to learning — for example, by working in partnership with primary, secondary and tertiary institutions — awareness can be raised of the expertise and competitive advantages possessed by Tasmania. This approach allows a much deeper engagement with partners in Asia, which can result in the recruitment of talented students and staff.

Sister-city relationships can be further bolstered by initiating an annual Industry Chairs program in partnership with industry, VET providers and the University of Tasmania. Similar to the remit of the successful Industry Chairs program in Canada managed by the Natural Sciences and Engineering Research Council of Canada, the Tasmanian program with sister cities would expand and facilitate increased mobility of research and industry experts. The mandate of this program would be to develop and further strengthen education–industry linkages in strategic areas of importance between Tasmania and its counterparts in Asia. Industry and academic experts from sister cities could spend up to a year in Tasmania in industry, training or research activities.

Furthermore, this program would create new sustainable avenues to pursue high-value, education-driven economic partnerships across different sectors, such as business and tourism, without relying on any one sector to lift the performance of the other (for example, international education to drive tourism or vice versa). Some types of asset combination may require cross-sector coordination, such as work experience in local aquaculture companies or opportunities to work in university laboratories engaged in business-relevant research.

Chapter 6 Antarctic connections: Tasmania as a global research base

Main messages

- The global centre of gravity is shifting to the east at a dramatic pace. By 2010, the proportion of global R&D accounted for by Asian nations had rapidly risen to nearly one-third.
- Asian nations and Australia have a long history of participation in climate, Antarctic and Southern Oceans research.
- Tasmania's longstanding Antarctic role means that Hobart is acknowledged as a key centre for Antarctic and Southern Ocean logistics and research, and can benefit from the rising Asian R&D effort.
- The Antarctic Treaty System remains the overarching framework for Australia's international activities in Antarctica, and provides the legal framework for international cooperation in the Antarctic south of 60°S.
- Maintaining Tasmania's Antarctic capabilities supports Australia's international standing in Antarctic affairs — a situation consistent with Australia's Antarctic and Asian interests.
- The 2011 Antarctic sector development plan identifies practical strategies for the Tasmanian Government to further expand the sector. The plan seeks to secure and strengthen Hobart's status as an international Antarctic gateway and maximise the attendant benefits, including enhanced science research associated with that status.

6.1 Introduction

The rise of Asian economies has recently seen a dramatic rise in Asian R&D expenditure. Increasing R&D expenditure and innovation is a key strategic direction to overcome the middle-income trap facing developing economies transitioning from middle to high average incomes (ADB 2011).

Tasmania's continuing and pivotal role in Antarctic and Southern Oceans research can serve as a catalyst for greater Australian engagement with Asia as Asian R&D expenditure and interest in Antarctica rise. This position has the potential to create many benefits for the local Tasmanian economy and its education and research sector. It can also reinforce Australia's role as a prominent actor on the global stage through the Antarctic Treaty System (ATS).

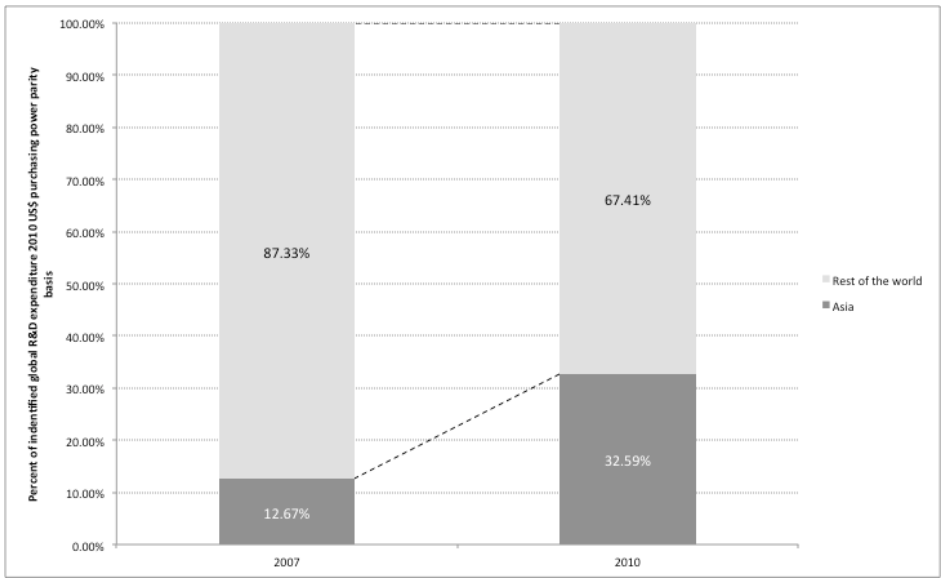
A special focus on Tasmania's Antarctic and Southern Oceans sector is justified by the distinct dynamics of, and multilevel involvement in, activities associated with Australia's

ongoing commitment to Antarctic research and international cooperation. Tasmania's strategic positioning in the Asian century is incomplete without consideration of Antarctic research as both a truly global issue, and one from which Tasmania draws considerable local benefits.

6.2 Global research and development

In research and innovation, the global centre of gravity is now shifting to the east at a dramatic pace. In 2007, Asian nations accounted for just under 13 per cent of global R&D. Just three years later, this proportion had risen to 32.6 per cent (see Figure 6.1).

Figure 6.1: Asia's increasing share of identified global R&D



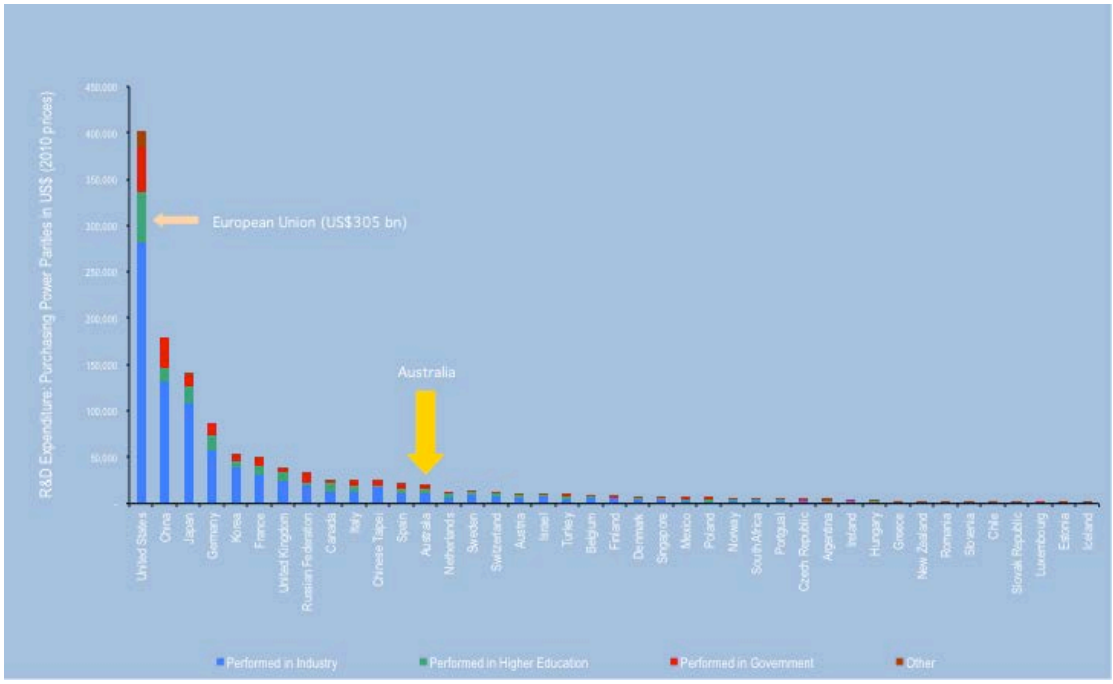
Source: Analysis of OECD R&D data (Main Science and Technology Indicators, 2012).

China's rapidly increasing R&D expenditure is a major driver of the significant shift in global R&D. In 2007, measured on a purchasing power parity basis, China's R&D expenditure amounted to 8.6 per cent of the global total. By 2010, this proportion had risen to 14.5 per cent. This resulted in China's R&D effort shifting from 23.5 per cent of that of the United States in 2007 (around 60 per cent of Japan's R&D spend) up to 44.5 per cent in 2010 (1.2 times that of Japan).[1]

China's rise as a science power can be seen in Figures 6.2 and 6.3. These data suggest that fundamental shifts are now taking place in the global R&D effort.

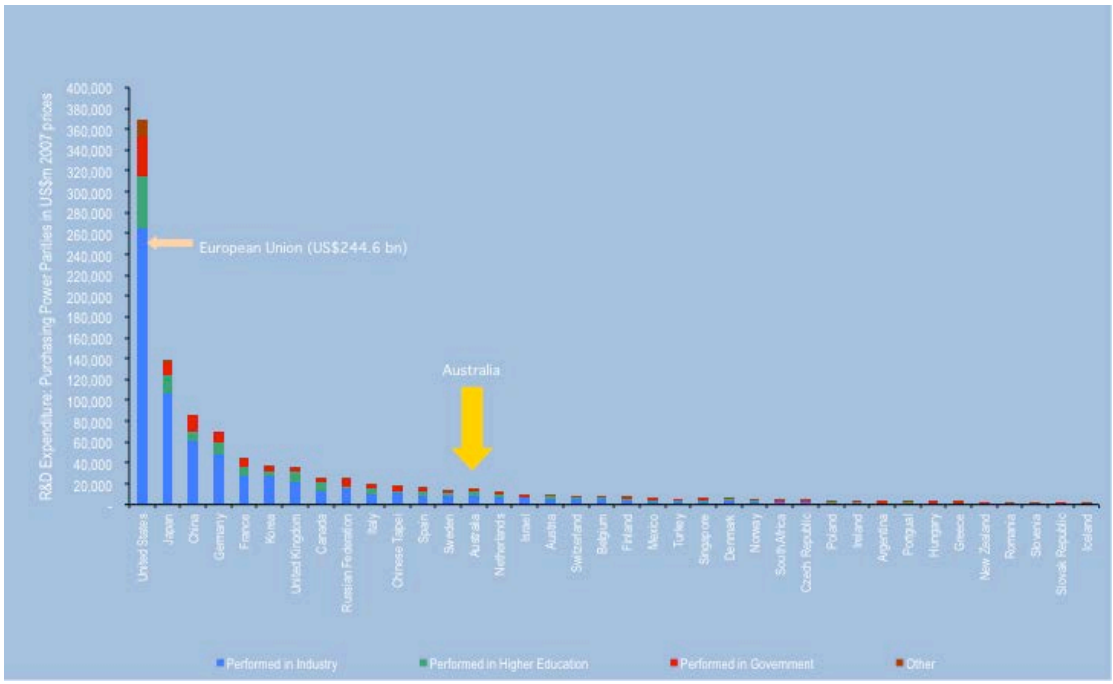
[1] It is important to stress that, from a Chinese perspective, purchasing power parity estimates tend to overstate the relative size of China's R&D effort — although Chinese R&D labour costs are lower than the United States, much of the essential equipment used to perform the R&D is imported and paid for in US dollars.

Figure 6.2: Identified global R&D in 2010 by nation and sector of performance



Source: Analysis of OECD R&D data (Main Science and Technology Indicators, 2012).

Figure 6.3: Identified global R&D in 2007 by nation and sector of performance



Source: Analysis of OECD R&D data (Main Science and Technology Indicators, 2012).

These shifts in global R&D are relevant to Tasmania for two reasons.

First, they highlight the importance of effective international research collaboration. Greater collaboration allows more R&D expenditure to be leveraged in addressing

Tasmanian challenges, using international collaboration to drive innovation in products with export potential.

Placed in this global context, Tasmania currently under-exploits its potential to attract overseas R&D funding. In 2010, only 1.2 per cent of the R&D performed in Tasmanian higher education institutions was funded from overseas sources, compared with a national average of 2.1 per cent.[2] International cooperation in research will become increasingly important in the Asian century. Collaboration enhances research capacity and builds valuable relationships that have widespread advantages, such as building centres of learning and teaching and pathways for new business development.

Second, the global shift in R&D draws attention to an aspect of research in which Tasmania stands to play a global role as the Asian century unfolds: monitoring the interdependent behaviours of Antarctica and atmospheric and oceanic systems in the southern hemisphere. Understanding the behaviour of these natural systems is an important aspect of research on climate change, a global effort in which Hobart already plays a significant role. These issues are discussed in greater detail in the following sections of this chapter.

6.3 The Antarctic Treaty System

The ATS remains the overarching framework for Australia's international activities in Antarctica. Via the ATS, the Australian White Paper recognises the global importance of Antarctica and of Tasmania's central place in Asian engagement with the 'white continent':

> *Continued cooperation with our partners in Asia in the maintenance and protection of international agreements, such as the Antarctic Treaty, will also be an asset. The development of the close relations we have with our Asian regional partners involved in Antarctica will be increasingly important in protecting the Antarctic region as well as in frontier marine, biological and climate research in the Asian century. Australia's scientific research and basing capacities in Hobart and in Antarctica have fostered closer cooperation with China, Japan, Korea, Malaysia and Indonesia and other partners on Antarctic research and logistics. This cooperation can be elevated through … Australia's Antarctic science strategic plan, working within the Antarctic Treaty system* (AWP 2012, 248).

This statement encapsulates this chapter's four main themes in relation to Antarctica:

1) it is in Australia's national interest to nurture and protect the 1959 Antarctic Treaty;
2) environmental protection of the Antarctic region increasingly depends upon greater Antarctic and Southern Ocean research cooperation with Asian partners;

[2] Data calculated from *Research and Experimental Development, Higher Education Organisations, Australia, 2010*, ABS Cat No 8111.0.

3) Hobart's location and research capabilities are essential in delivering this cooperation; and
4) the ATS remains the framework within which Australian Antarctic research and engagement strategies occur.[3]

The various principles and considerations outlined above are supported by the Australian Antarctic Division's mission to:

- maintain the ATS and increase Australia's influence within the System;
- protect the Antarctic environment;
- understand the role of Antarctica in the global climate system; and
- undertake scientific work of practical, economic and national significance (AAD 2000).

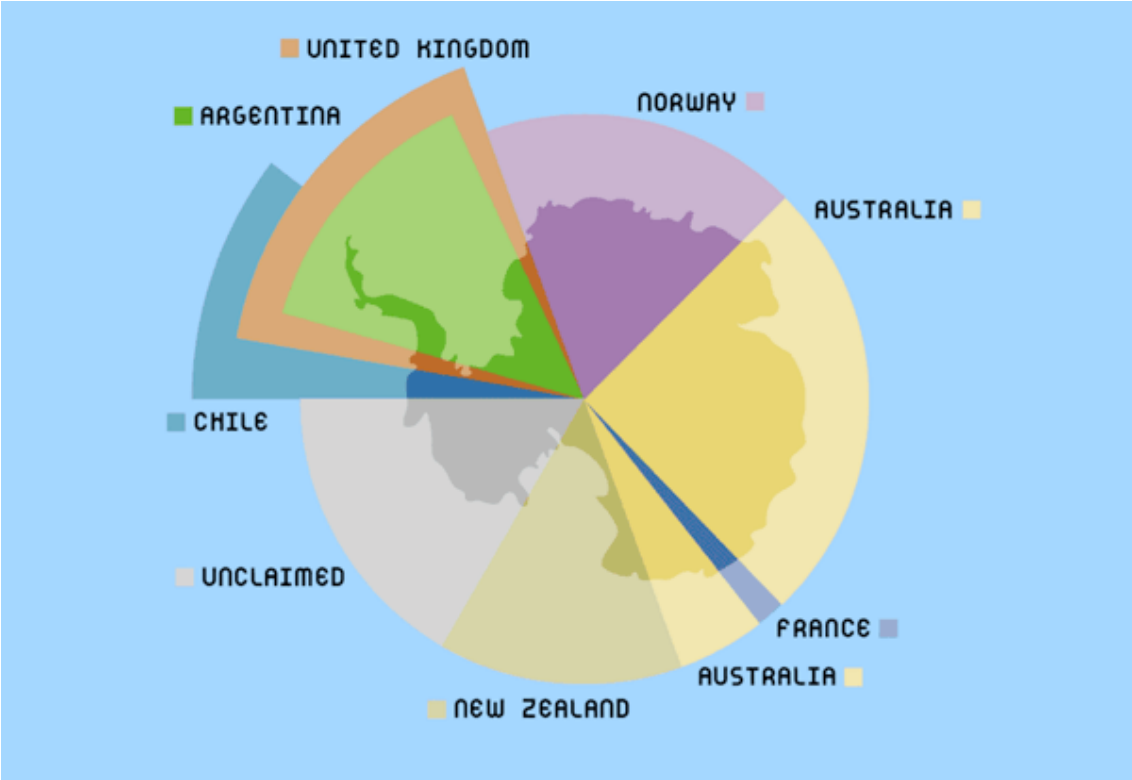
Maintaining and building Tasmania's Antarctic science support capabilities will enhance Australia's international standing in Antarctic affairs, which is essential for a country claiming the largest proportion of the Antarctic continent (Figure 6.4). In relation to its ATS obligations, Australia's continuing presence in East Antarctica allows for the ongoing pursuit of national interests through reasonable and responsible access, as well as cutting-edge research. Within the ATS framework, such activities negate having to directly assert economic, political and security interests. They also serve to promote international cooperation. Effective international cooperation is seen as being synonymous with a foreseeable, reasonable and responsible future in the region.

> *Science is the currency of influence and diplomacy in Antarctica* (Mundy and Press 2012).

As the nation's Antarctic gateway, Tasmania assumes particular prominence in securing Australia's interests as an important Antarctic and Asian state.

[3] Most notably, the Antarctic Treaty provides the legal framework for international cooperation in the Antarctic south of 60°S. The Treaty's practical effect (Treaty Article IV) is that Australia is able to act as a sovereign nation might be expected to act in Antarctica, while any actions that it takes cannot later be used as a basis to assert sovereignty. This accommodation effectively protects Australia's sovereign position with respect to the Australian Antarctic Territory. It also accommodates other Antarctic Treaty Consultative Parties' aspirations. Apart from the Treaty itself, the ATS comprises the 1972 Convention for the Conservation of Antarctic Seals, the 1980 Convention on the Conservation of Antarctic Marine Living Resources and the 1991 Protocol on Environmental Protection to the Antarctic Treaty (Madrid Protocol).

Figure 6.4: Antarctic territorial claims



Source: Discovering Antarctica n.d.

6.4 The Tasmanian connection

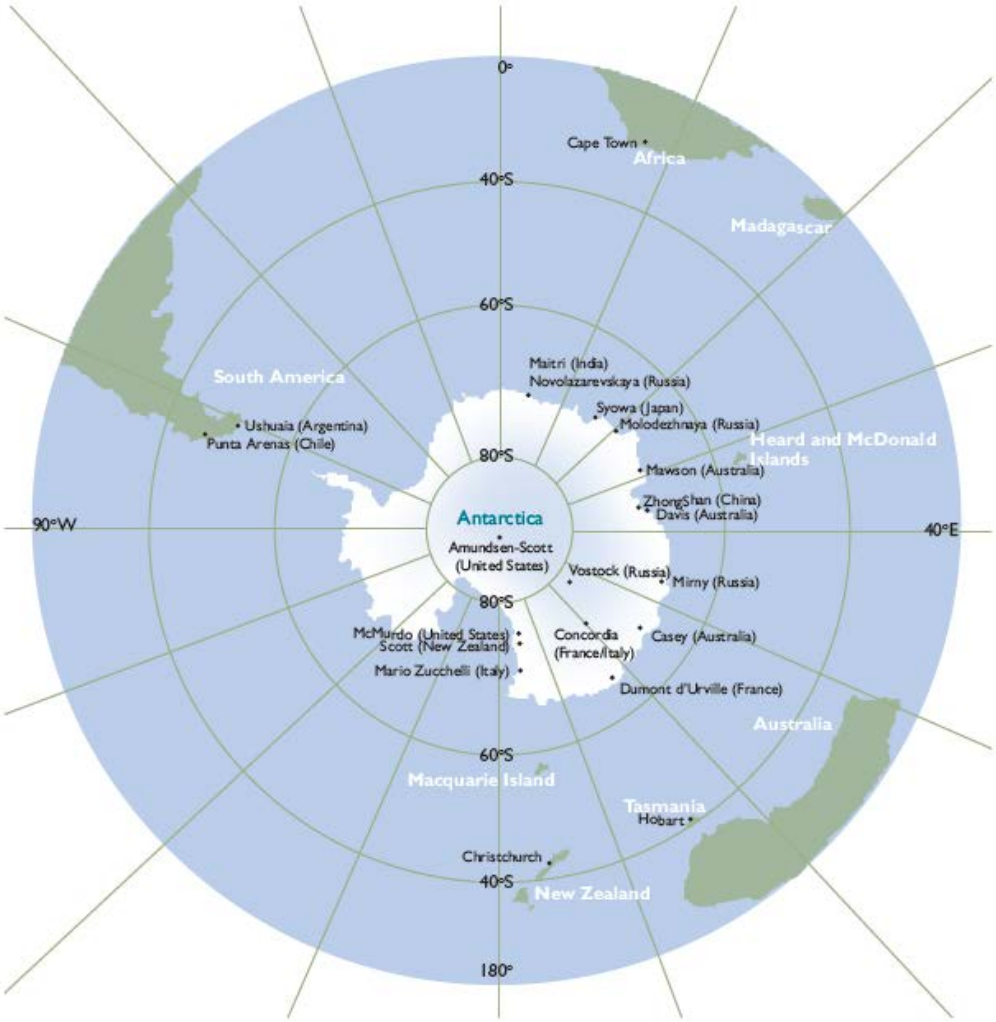
Home of Australia's Antarctic logistics

Hobart is about 2 600 kilometres from the Australian Antarctic Territory, and 3 430 kilometres from Australia's Casey Station. The city is also approximately 1 500 kilometres from Australia's Macquarie Island, which forms part of Tasmania and hosts a major national research presence.

Tasmania has a strong connection to Antarctica, both through geographic proximity and its long history as a staging post for science and exploration in the region. Key figures associated with Antarctica's early exploration, such as Bernacchi, Mawson and Amundsen, all visited Tasmania at one time or another. These historical connections have been maintained, nurtured and strengthened through decades of exploration, research, provisioning and expeditionary support work led by the Australian Antarctic Division base in southern Tasmania. Our longstanding Antarctic role means that Hobart is acknowledged as a key international centre for Antarctic and Southern Ocean logistics and research. These and related activities are important to the Tasmanian economy, with Hobart's unique Antarctic character being internationally

recognised. Our capital city is one of the five recognised Antarctic gateways (Cape Town, Christchurch, Hobart, Punta Arenas and Ushuaia) (see Figure 6.5).

Figure 6.5: Tasmania as an East Antarctic gateway



Source: DEDTA (2012a).

The Antarctic sector development and Tasmanian economic development plans

The Tasmanian Government's vision in this area should aim to:

- optimise economic, scientific, research and other opportunities for Tasmania in the Antarctic, sub-Antarctic and Southern Ocean regions; and
- ensure a Tasmania-wide critical mass of scientific and research excellence and expertise in Antarctic, sub-Antarctic and Southern Ocean matters that is unsurpassed anywhere in the world.

The state's Antarctic and Southern Ocean commitments and associated economic benefits are expected to continue to grow from their 2009 estimated value of about $180 million per annum (DEDTA 2011, 1).

The 2011 Antarctic sector development plan identifies practical strategies for the Tasmanian Government to promote this growth.

Tasmania is the powerhouse driving Australia's activities in Antarctica, the sub-Antarctic islands and the Southern Ocean. It is the preferred location for Australia's assets relating to the sector, with more than 830 Tasmanians employed in science, research and polar support activities.

Hobart's status as an East Antarctic gateway has a number of distinctive features, including:

- the city's proximity to a number of important Antarctic bases (Figure 6.5);
- a government–private sector coalition, the Tasmanian Polar Network, that works collaboratively to expand sector-related business;
- a unique nexus with a number of world-class Antarctic, Southern Ocean and climate research organisations, including the Australian Antarctic Division, CSIRO, the Antarctic Climate and Ecosystems Cooperative Research Centre (ACE CRC), the Integrated Marine Observing System, and the Institute for Marine and Antarctic Studies; and
- the presence of both the Commission for the Conservation of Antarctic Marine Living Resources and the Agreement on the Conservation of Albatrosses and Petrels, which constitute a significant international 'force multiplier', with the former being the largest international organisation domiciled in Australia.

Recent notable sector investments include Tasports' $7 million investment in its Antarctic-dedicated No. 2 shed at Macquarie Wharf and $50 million for the Macquarie Point rail yards development, which has the potential to include an expanded Antarctic precinct. These infrastructure investments complement proposed aviation developments and waste repatriation facilities. They are also important in the context of the 2012 announcement by Federal Minister Burke on the importance of securing Australia's Antarctic marine and air-link capabilities. A benefit of such developments is increased expenditure by and in the state's Antarctic sector (DEDTA 2012e).

Hobart-networked research on climate change, fisheries and marine environments should be viewed as an implementation of Antarctic and Southern Ocean policy, as it addresses Australia's national interests in the region. These activities are recognised as strategic assets in the recently launched *Reaching Our Potential: Developing Tasmania's Science Research Capability – Action Plan*. With Australia being a leading Antarctic custodian, preserving the Treaty principles of peaceful use, non-militarisation and freedom of scientific research is crucial in a region of significant value to the global biosphere.

There are also self-evident benefits for Antarctic teaching, training and research, to the extent that these disciplines also provide a gateway for enhanced scientific capability in

general (see Chapter 5), and serve as enablers for the national workforce in terms of important technological and practical scientific skills. For example, the teaching and research capacity of the Institute for Marine and Antarctic Studies draws heavily on its Antarctic and Southern Ocean research capacity, as evidenced by the 2012 ARC ranking for oceanography at the University of Tasmania ('well above world standard') and 'above world standard' rankings for fisheries science and environmental science and management.

More specifically, Tasmanian-based Antarctic research aims to improve knowledge of ice dynamics, carbon flux, ocean circulation, ecosystem function and climate change impacts. A notable activity is the ongoing work to secure a million-year-old Antarctic ice core to improve humanity's documented history of climate variability. The global importance of such Tasmanian-based scientific endeavours is clearly demonstrated by the fact that local researchers are prominent among the lead authors responsible for drafting the Fifth Report of the United Nations' Intergovernmental Panel on Climate Change (IPCC) to be tabled in 2013.

Other important areas of scientific endeavour include research on human visitation and habitation in Antarctica as an extreme environment. This research comprises innovations, as well as research and development linked to Antarctic logistics, transport and supply, environmental management (including alien species control, waste repatriation and quarantine matters), research equipment and practices, health and medicine, personnel selection and training, communications, security (including biosecurity as well as human health and safety), environmental protection (including living resource management), and tourism. Implications for space research and general cold-climate liveability are also all attendant issues being addressed by Tasmanian-based research. Furthermore, the Australian Antarctic Division's Polar Medicine Unit is another good example of mutually supportive service and research (see below).

In conclusion, Hobart is uniquely positioned as an Antarctic hub. This includes the city's world-leading status as a centre for high-latitude and extreme environment, Antarctic and Southern Ocean research, as well as its standing as a premier logistical support centre for Antarctic operations. At a global level, no other city matches this combination of attributes.

6.5 An Asian gateway to East Antarctica

Asian activity in Antarctica and the Southern Ocean has increased steadily over the Antarctic Treaty's lifetime of just over 50 years. It is generally accepted that this trend will continue, as the Asian region's economies continue to evolve. Nonetheless, Asian Antarctic and Southern Ocean interests are unlikely to be homogenous (Joyner 1994), although common scientific and logistical interests do exist (Mundy and Press 2012). Australia has longstanding mutually beneficial relationships with Japan and Russia, the two Asian nations with the longest sustained presence in Antarctica. It also has a more than 20-year scientific relationship with China, as well as solid links with South Korea, India and Malaysia. Such relationships are clearly demonstrated by the 2012 Memorandum of Understanding on Antarctic Cooperation between the Chinese Arctic and Antarctic

Administration and the Australian Antarctic Division, a series of recent joint Japanese and Australian scientific workshops, and partnership arrangements between Chinese and Japanese research agencies with ACE CRC.

Such associations also clearly illustrate the key currency that scientific cooperation offers to the ATS as the means to meet the Treaty's objectives, particularly the use for "peaceful purposes only" and "freedom of scientific investigation" provisions enshrined in Treaty Articles I and II, respectively. From an Australian perspective, such cooperation is vital for the influence and diplomacy necessary to maintain, and advance, Australia's standing and interests within the ATS. From an Asian perspective, considerable opportunities to 'get things done' are offered by pooling strong scientific and logistical links with Australia. Amalgamating resources in the face of fiscal stringency also makes considerable sense in order to reduce the cost burden of unilateral operations and reduce risk to economic sustainability. Such considerations maximise the probability of success for all concerned and for the ATS as a whole. They also emphasise the points already made concerning Hobart's potential as a global Antarctic logistical and scientific gateway.

As Figure 6.5 clearly shows, Hobart is well situated to access a number of key research stations on the Antarctic continent.[4] The current Antarctic logistical support activities originating in Hobart offer a solid foundation for expansion around East Antarctica, as well as inland to areas such as the Polar Plateau and the remote areas around Vostok Station. These areas are particularly important to understanding the relationships between ice thickness and geographic location — both key attributes for the study of climate effects.

To market what Hobart has to offer Asia as an East Antarctic gateway requires recognition of the values, or interests, being pursued by Australia's Asian partners in the region. These qualities must then be incorporated into a relevant strategy to benefit all concerned.

Of the 38 current Antarctic Treaty Consultative Parties, seven are Asian states, while a further three have accepted the Treaty. Most notably, the participation of China, India, Japan and Russia means the ATS' standing is assured. This standing is obviously important to Australia.

From a purely legal perspective, it follows that the important Asian nations identified above subscribe to the Treaty's objectives, as well as to those of any other ATS instruments (such as the Convention on the Conservation of Antarctic Marine Living Resources) they have joined. This also implies that such nations will pursue activities 'legitimised' by the ATS as part of their national interests. Three such activities and issues present themselves:

[4] These include three Australian bases (Casey, Davis and Mawson), two French bases (Dumont D'Urville and Concordia [shared with Italy]), two Russian bases (Mirny and Vostok), two Chinese bases (Zhongshan and Kunlun) and the Indian base being constructed in the Larsemann Hills.

- the pursuit of peaceful purposes (non-militarisation of the Antarctic Treaty Area);
- access to natural resources (ensuring a sustainable krill harvest; bioprospecting);[5] and
- environmental protection and preservation (the vital role played by polar regions, and their adjacent oceans, in regulating the world's weather) (CCAMLR 2012; Joyner 1994 and 1989).

Other Antarctic environmental concerns, such as the depletion of stratospheric ozone and the loss of ice shelves, also have significant global importance. Increased Antarctic tourism remains a concern — one that needs careful management should the Asian cruise ship market become involved. All such concerns require careful strategic alignment with the environmental liability provisions of the Protocol's Annex VI. As a strong advocate of environmental protection measures in the ATS, Australia is in a good position to foster their development and to provide advice and assistance to parties less conversant with the development or application of such measures.

Cost-effective science and logistics

As already noted, the pooling of logistical resources is attractive for fiscal reasons and to promote efficiency. As relatively late entrants to the Antarctic 'game', Asian nations have much to gain by collaborating with Hobart gateway users to maximise available opportunities for shipping cargo and personnel to, and within, Antarctica. They also stand to benefit from more frequent, as well as wider-ranging, inter- and intra-continental air support. The unique synergies of Tasmania's geographic location, Antarctic logistic capability and clustering of scientific expertise make the notion of a 'one-stop Antarctic shop' for Asian Antarctic players very attractive.

Best practice Antarctic governance

Australia's long-recognised record of Antarctic leadership, ATS involvement, exploration and scientific endeavour has placed it at the cutting edge of international best practice for the region's governance. This not only pertains to Australia's international standing, but also to its interpretation of its various ATS obligations into national law.[6] With Australia as both a mentor and co-collaborator, other Asian nations have much to benefit from absorbing, and/or interpreting, the Australian 'way of doing things' that relies on flexibility, innovation, sound scientific practices, good governance and responsible Antarctic stewardship.

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[5] Bioprospecting is the process of discovering and commercialising new products from biological origins. Such products often include biopharmaceuticals, medicinal compounds and animal-feed substitutes. For example, there are currently more than 400 patented products derived from Antarctic krill.

[6] The Australian Antarctic Division's Antarctic waste disposal activities offer a good example of where the Protocol's requirements have been turned into national 'best practice' (AAD 2002).

6.6 Hobart as a hub of Antarctic excellence

The *Australian Antarctic Science Strategic Plan 2011–12 to 2020–21* sets the context for Australia's Antarctic research engagement, and appropriately emphasises the country's geographic and human connection to Antarctica and the Southern Ocean. Specifically:

> *Australia has a unique relationship with the Antarctic. Its isolation, harshness and beauty strike a chord with the Australian people, even though most will never visit. The efforts of our scientists and explorers over the past 100 years, and their stories of triumph and hardship, have been admired universally. Today our scientific efforts are redoubling as we turn to Antarctica for answers to one of the great challenges of our time — understanding and adapting to changes occurring in our climate, ecosystems and oceans as a result of our high carbon dioxide emitting lifestyles.*
>
> *The search to understand the drivers and impacts of a changing climate leads inexorably to Antarctica and the Southern Ocean, which we now understand are sentinels of global climate change. In addition to climate change, projected human population growth over this century, and associated demand for food security, will increase pressure on the underexploited krill resources of the Southern Ocean. Krill — one of the most abundant animals on earth — help sustain the iconic ecosystems of this remote ocean, and will be critical to recovering populations of whales and seals. Balancing ecosystem sustainability and function with the demand for resources is a challenge we must meet. To do so requires excellent science and strong governance* (AAD 2011).

In 2010, nations in the southern hemisphere accounted for just 2 per cent of identified global R&D and 2.7 per cent of the global R&D financed by governments.[1] Yet, global climate change cannot be understood without a thorough grasp of how Antarctica, the Southern Oceans and the atmosphere affect such change. Considering increasing investment in Antarctic research, Asia's increased share of global R&D funding could assist in offsetting the current imbalance between southern hemisphere research funding and the south's importance to climate change.

The stakes are high, with a recent OECD report putting the issue quite starkly:

> *Climate change might also lead to so-called "tipping-points", i.e dramatic changes in the system that could have catastrophic and irreversible outcomes for natural systems and society ... The level of scientific understanding — as well as the understanding of possible impacts of most of these events — is low, and their economic implications are therefore difficult to estimate* (OECD 2012a, 87).

[1] Analysis of OECD R&D data (Main Science and Technology Indicators, 2012.

Such statements highlight future scientific research needs, an imperative that the *Australian Antarctic Science Strategic Plan*'s themed research focus and the Tasmanian Government's science research action plan are designed to meet.[2]

A key implication of the OECD statement is that there are strong incentives for Asian nations to allocate a proportion of their climate change research funding to activities performed in the southern hemisphere. Consequently, an opportunity exists in the Asian century for Tasmania to use its distinctive geographic location in the southern hemisphere, close to Antarctica, as a means to attract relevant Asian-funded R&D.

To position itself in the Asian century, Australia and Tasmania should support a new Antarctic research partnership between the Australian Antarctic Division, CSIRO and the University of Tasmania to build on the research capability established in Hobart over the past two decades and to cement Hobart and Australia as the global leader and hub for East Antarctic affairs. Investment in a new, globally focused Antarctic partnership in Hobart will be a clear sign of Australia's continuing commitment to leadership in Antarctic and Southern Ocean research and operations in East Antarctica.

The feasibility of such a concept would need to consider overlaps with, and differences between, it and the new International Antarctic Institute, together with the potential to build on and extend existing Antarctic and Southern Ocean research capabilities in and around Hobart. An institute of this type would have a broad international remit covering teaching and internationally cooperative research and innovation, and could include a node in Antarctica itself.[3] The University of Tasmania, in cooperation with other agencies, such as the Australian Antarctic Division and CSIRO, would be well positioned as founding partners in such a consortium.

The institute could also function as a voice for Antarctica, perhaps even developing a role as an instrument of Antarctic diplomacy. Australia's role as a leading developer of the institute would give it considerable influence in shaping the role and practice of 'Antarctica's diplomat'.

Finally, the institute could explore the feasibility of a HECS-funded International Antarctic Corps to provide young people from Australia, Asia and around the world with the practical training, skills and experience to support Antarctic and Southern Ocean expeditions, science and future industries. Complementing the educational aspirations of the International Antarctic Institute,[4] the Corp would extend the scholarly research model to include training in logistical support and future industry expertise — the latter

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[2] The *Reaching Our Potential: Developing Tasmania's Science Research Capability – Action Plan* emphasises the need for an evidence-based research framework, enhanced investment, collaboration and engagement in order to facilitate knowledge creation, as well as informed decision-making.

[3] This concept adapts a proposal by Bergin and Haward (2007) specifically in relation to Antarctica. The concept has been narrowed (from the concept of a new university) and broadened to cover Southern Oceans and atmospheric processes, with a dominating emphasis on international cooperation and partnerships with existing Asian universities.

[4] See the Institute's position paper at: www.iai.utas.edu.au/cms/about%20us/position

addressing potential skills shortages. This would build on the success of existing Asia–Australia cooperation in Antarctica and pass it on to a new generation, building long-term capacity in integrated Antarctic research.

Maximising spin-offs

A key Tasmanian Antarctic gateway asset is that the local Antarctic sector is very cohesive, with a cooperative ethos prevailing consequent to the Tasmanian Polar Network's unique character, composition and active involvement. This has meant that the sector has carefully negotiated its strategic direction for the foreseeable future, and has established transparent procedures to ensure that tangible outcomes are delivered and prioritised. The Tasmanian Polar Network has a vital role to play in fostering Asian cooperation and the use of Tasmania's gateway. The question is how best can this be done?

The very nature of Antarctic and Southern Ocean research challenges current state-of-the-art capabilities for a range of available technologies. For example, these include:

- remote/telemedicine (including telesurgery and automated diagnostic equipment);
- advanced solar energy technologies;
- advanced heating and heat-exchange technologies;
- energy storage and supply (including cold-temperature batteries and high energy-density fuel sources);
- closed system remote cold-location food production;
- materials recycling and waste disposal;
- 3D printing/onsite component production;
- fault-tolerant sensors and in-field communications/telemetry;
- deep-water sampling, exploration and sensor systems;
- deep-drilling and sample recovery systems; and
- self-healing structural systems.

These kinds of challenges are similar to those faced by space exploration, as well as activities carried out in other harsh and dangerous environments (for example, the deep ocean, high altitudes etc) where humans do not normally live.[5]

There is potential to position Hobart as an extreme environment hub and innovation centre, or cluster, of attached capabilities. In its role as an Antarctic gateway, Tasmania

[5] For example, fuel for energy supply is a major cost factor for Antarctic research, as there is a heavy reliance on diesel as a fuel source. Diesel is both expensive and difficult to transport to remote locations. When long distances are involved a key performance, and efficiency, estimator is litres of fuel consumed to transport one litre of fuel to its final destination. Such costs are particularly relevant for aircraft flying long distances, where a single long-haul flight will require several litres of fuel burnt for each litre transported — either as reserve or when the aircraft reaches its final destination. This is a key cost consideration for the United States Antarctic Program, which is heavily reliant on air support, and hence aviation fuel. The cost of aviation fuel alone constitutes some 15 per cent of the total US budget (+US$300 million/annum) for Antarctic operations.
See: www.usap.gov/News/contentHandler.cfm?id=2717

would thus be well positioned to identify and respond to any demands for remote and harsh environment support technologies, including the development of new and improved systems. Its close proximity to Antarctica and the Southern Ocean would also facilitate prototype field testing. Breakthrough developments and new products could, where possible, be used to grow new markets for harsh-climate and cold-weather specialist technologies worldwide.[6]

For the remote and harsh environment technologies developed specifically for Tasmanian-supported Antarctic activities, specific subsystems developed for the Antarctic's technically demanding and extreme conditions have considerable potential for 'spin-off' into other markets once unit costs have been reduced through larger-scale production. There are also opportunities for new business activities to provide specialist services for an increased throughput of Antarctic-related logistical and support activities.

To leverage the Antarctic opportunity in the Asian century, Australia and Tasmania should:

1. establish the Antarctic gateway initiative and Antarctic cooperation as fundamental objectives of Australia's diplomatic engagement with Asia as part of the Asian century. This includes the allocation and appropriate prioritisation of resources (financial and human) at the Australian and Tasmanian Government level;
2. develop aligned and strategically focused diplomatic engagement on Antarctic science and development to optimise Antarctic gateway opportunities;
3. pursue government-to-government links with China in particular to encourage China to make Hobart its principal logistics support base for Antarctica;
4. maintain key capabilities currently attached to the ACE CRC. This includes partnerships at appropriate levels of government to identify research themes;
5. consistent with the Tasmanian Economic Development Plan, as well as the Antarctic sector development plan and science research action plan, leverage Tasmania's existing maritime and polar capacity to win additional business, particularly with Asian countries;
6. increase Australian and international Antarctic programs' expenditure on Tasmanian businesses through the expansion of export markets, identification of supply chain gaps, and building of industry capacity to meet future demand for specialised cold-climate goods and services for buildings, energy supply and research infrastructure;
7. implement the Antarctic sector development plan. The Tasmanian Government's Antarctic sector strategy, *Developing Tasmania's Antarctic Sector: A vibrant industry in a global market*, has been developed in close collaboration with key stakeholders and the Tasmanian Polar Network. The strategy aims to take full advantage of the

[6] For a consolidated view of the Tasmanian Polar Network business, see its Business Directory ('The World's Richest Source of Antarctic and Southern Ocean Expertise') at: www.tasmanianpolarnetwork.com/about.html and http://www.development.tas.gov.au/__data/assets/pdf_file/0003/61077/TasmanianPolarNetwork_2012.pdf

sector's capability in key areas, such as tourism, science and education, in developing potential opportunities arising from the expansion of Antarctic programs by other countries;

8. work closely with the Australian Government, TasPorts, the Hobart International Airport and others to support necessary infrastructure developments and ensure that any future assessment development of the Hobart runway take account of potential needs concomitant with sustaining Hobart's gateway advantages, as well as the locally based remote and extreme environment technologies cluster/precinct; and
9. assess the feasibility of establishing a sustainable world-class remote and extreme environment technologies cluster/precinct in Hobart. The potential to exploit existing research assets and to leverage these assets by building cooperative innovation relationships with a range of Asian (and other) companies with relevant technological capabilities is central to such an assessment.

Chapter 7 Maximising the business response

Main messages

- By 2020, Asia is expected to be the world's largest producer and consumer of goods and services.
- Australia and Tasmania possess a number of advantages in competing for the opportunities that will arise from the Asian century, yet Tasmanian performance has been below the national average in respect of trade engagement with Asia.
- New strategies can be developed to maximise value for Tasmania from the Asian century.
- There can be some 'quick wins' for Tasmanian business, through partnering with established distributors to deliver lower-cost entry to new Asian markets.
- Greater innovation and investment will deliver benefits to Tasmania, and there is a wide array of business and investment opportunities from the Asian century. But the benefits from these activities will come mainly in the medium to long term.
- Services will play an important role in connecting with Asian markets, particularly in the provision of infrastructure, and Tasmanian services firms can be major beneficiaries.
- Growing depth and liquidity in Asian capital markets, and more engagement with Asian markets, will provide Tasmanian businesses with a number of opportunities to provide high-value goods and services to Asia.
- There will also be longer-term benefits from developing a more Asia literate workforce, and by integrating Tasmanian businesses into regional supply chains.

7.1 Introduction

Tasmanian businesses are now in the right place at the right time — in the Asian region in the Asian century. By 2020, Asia will not only be the world's largest producer of goods and services, it will also be the world's largest consumer of them (see Chapter 2). It is already the most populous region in the world. In the future, it will also be home to the majority of the world's middle class. Asia's middle class is currently expected to number around three billion people by 2030, or around 60 per cent of the world's middle class (AWP 2012, 63).

This middle class is increasing its aspirations along with its wealth. Its members want a diverse range of goods and services. They want better-quality health, aged-care and education services. They want more household goods, and banking and financial services. They want high-quality food products that they can trust. And they will have the material freedom that will allow them to travel and to participate in social affairs. As Chapter 2 shows, the potential value of this demand is very large.

This chapter draws on engagement with a range of stakeholders and partners to analyse three questions about Tasmanian businesses' Asian engagement:

- In the short term, how can Tasmanian business enhance profitability?
- In the medium term, how will Tasmanian business replicate or scale up good business models and find new markets?
- In the long term, how will Tasmanian business seed new industries and integrate them in Asia?

7.2 A business strategy for Tasmania in the Asian century

Underpinning all discussions of business strategy is the need for Tasmania to play to its strengths. As noted in Chapter 3, Tasmania faces a number of challenges competing in Asian markets. At the broad level, these include a comparatively high average wage structure relative to competitors, higher transport costs due to the lack of direct transport links, and a smaller Asian expatriate community to draw on for business engagement.

These structural barriers could inhibit Tasmanian businesses from making the most of the Asian century. Most are outside of the Tasmanian Government's or business' control — they are often driven by geography, the success of the Australian economy and technology-driven changes in economies of scale. So the goal must be to make the most of the many assets that Tasmania already has, and set directions for addressing or mitigating Tasmania's competitive challenges.

It is essential to keep in mind the factors that make Tasmania unique. People want to come to Tasmania to visit, invest, do business and live for many reasons, but one of them is simply that it is not like anywhere else. Retaining this focus on 'what we are' as well as 'how we can do better' will be essential to success for Tasmania in the Asian century.

Yet there is a tension between this focus on 'keeping what we are' and the need to maximise business responses to the opportunities offered, and changes driven, by the Asian century.

While Tasmania has an enormous array of strengths that can be used by businesses, each business' strategy and response to change must be unique, shaped by its own individual circumstances. It is beyond the scope of this chapter to outline how each business should and will respond to its environment. The focus here is instead to look at several common issues. Each of these may be adapted to the particular circumstances of individual businesses and can spark new ideas for business initiatives.

Similarly, there is little utility in the Tasmanian Government trying to give preferential treatment to businesses it thinks will be successful, or trying to pick winners. But there is undoubtedly an important role to be played by government in providing greater information to businesses to aid them in forming their own strategies and plans for making

the most of the Asian century. And government can provide many benefits to businesses by engaging on their behalf with government agencies and officials in target Asian markets.[1] These roles can work in conjunction with other government strategies aimed at strengthening Tasmania in general through better governance, some of which are outlined in Chapter 8.

7.3 Short-term wins for Tasmanian business in Asia

What is the chance of short-term wins for Tasmanian business in the Asian century?

The potential lies in using existing commercial networks overseas to increase exports. This could have shorter-term payoffs. Existing commercial networks will likely provide the easiest and least costly entry into new Asian markets. These commercial networks are most likely to exist in primary commodities exporters.

However, there may be some tension between this strategy and the longer-term direction of Tasmania's branding as a state. While the current branding and vision of Tasmanian exports is largely based on Tasmania's beauty and environmental quality, the goods and services that rely on these attributes are not Tasmania's major export markets.

Currently, primary resources are Tasmania's biggest merchandise export, with non-ferrous metals or metallic ores accounting for over half of Tasmania's international exports in 2011–12 (DEDTA 2012f). There is likely to be steady demand for Tasmania's primary commodities in the next two decades as well. As Chapter 4 shows, Tasmania is rich in minerals. The state exports ores and concentrates of iron, copper, lead, zinc, tin, high-grade silica and tungsten. It is also a producer of sustainable timber. Forestry Tasmania's success in exporting sustainable timber for Chinese engineering products provides a useful case study (see Box 7.3). Tasmania's resource endowment and — in the case of energy-intensive metals — the availability of low-cost electricity generated by the island's hydroelectric schemes give Tasmania a comparative advantage in this area.

As Chapter 2 shows, resource demand from Asia, particularly China, is likely to continue into the medium term. Part of this demand is evident in the investments by Indian and Chinese companies in the Tasmanian mining industry and in off-take agreements for products.

Relationships built by primary commodity exporters offer potential market access and on-the-ground knowledge and relationships that can be used by other exporters. These relationships and market knowledge, which are usually personal, need not affect the current market branding strategies of businesses in the services, food and tourism sectors. This could offer goods and services exporters a pathway to increase market access in particular countries where existing export relationships exist.

[1] Chapter 2 of this report contains analysis of which target markets will be attractive for which goods.

Using Asian conglomerates' own supply chains for export

As part of a strategy of leveraging pre-existing relationships for different export goods, Tasmanian businesses could benefit from targeting the sale of their goods, or their attractiveness as investment partners, to large, vertically integrated Asian conglomerates. These conglomerates are an attractive feature of Asian markets for Tasmanian businesses, as connections formed with one part of the conglomerate can provide access to other businesses within the same conglomerate. Examples of these conglomerates include, inter alia, Mitsubishi in Japan, Tata in India, Jardine Matheson in Hong Kong and Samsung in South Korea.

These conglomerates, as well as other major multinational corporations, are major suppliers of agricultural produce in Asia and beyond. They are at an advantage in getting produce into global markets because of their established expertise, brand, marketing and logistical positions. So engaging with the corporations that play a central role in control of these transnational value chains clearly provides a particularly effective means of penetrating a number of different national markets. This is likely to be more effective for Tasmania than targeting specific overseas national markets. It also creates distribution channels, substantial economies of scale in market data, and local destination market experience and knowledge.

As Chapter 4 shows, food and agricultural businesses may gain considerable 'value-add' from these links. The Tasmania Feedlot example in Box 7.1 shows how combining Tasmania's strong brand image with Asian distribution networks can result in good outcomes for business.

Box 7.1: The case of Tasmania Feedlot

Tasmania Feedlot is a wholly owned subsidiary of the Japanese AEON group and operates Tasmania's largest beef cattle feedlot at Powranna on the Midlands Highway south of Launceston. The cattle feedlot currently feeds about 12 500 head of cattle, the majority of which are fed for the Japanese long-term, grain-fed beef market.

AEON has over 15 000 outlets in 12 countries across Asia and around 6 000 convenience store and general retail outlets. It has the highest retail turnover in Japan.

AEON has a strong focus on environmental accountability and branding, and emphasises the quality and environmental characteristics of its products in promotion and at point of sale.

"Overseas markets are praising our Tasmanian beef as a high quality, world class product. Japanese consumers are recognising the Tasmanian difference – the state offers something better than the rest of Australia with its wonderful pristine environment. We also have a true competitive advantage with Tasmania's guarantee of no hormone growth promotants (HGPs) and that all feed is GM free" — Andrew Thompson, Managing Director, Tasmania Feedlot.[2]

2 See also Invest Tasmania (2012), accessed 28 November 2012, available online: http://www.development.tas.gov.au/invest/they_chose/food_and_agriculture#aeon

Tasmanian businesses already have partnerships with established distributors to regional markets that can deliver lower-cost entry to new Asian markets. Shenhua Group's relationship with Hydro Tasmania — including Shenhua's recent acquisition of 75 per cent of Woolnorth Wind Farm — and AEON Corporation's ownership of Tasmania Feedlot (see Box 7.1) are both important examples.

The participation of these Chinese and Japanese companies has opened up business opportunities through links to other parts of Asia, which would not have been available to wholly Tasmanian companies.

7.4 The need for medium- and long-term strategies

The sales of goods and services to the Asian middle class currently comprise a relatively small share of total Tasmanian exports. While there is considerable benefit in increasing sales of high-value Tasmanian products, this is only likely to be commercially successful where the state's firms have a comparative advantage in producing these products.

However, the potential growth of the market is enormous (as Chapter 3 shows), so that excessive focus on current commercial exports may ignore far greater future opportunities in the medium to long term.

This is recognised in the submissions from Tasmanian businesses and representative organisations, such as that of the TFGA. The TFGA's submission offers a strategy for how Tasmanian food production can be improved:

> *It is clear that if Australian farmers are to remain viable, let alone capitalise on the many identified opportunities for growth and expansion, we will have to innovate in a third agricultural revolution. Many commentators are recognising that there has to be a concerted effort to deliver on-farm cost efficiencies if we are to meet global food needs without a major expansion in agriculture's footprint. This will require the trend of declining investment in research, development and extension activities to be turned around sharply; and the Australian community has to be prepared to reinvest in integrated food, water and energy research, development, extension and education (RD&E) here in Australia* (TFGA 2012, 3)

The Tasmanian Government supports investment in Tasmanian agriculture through funding for TIA, in partnership with the University of Tasmania, as well as major investment in irrigation and other programs. However, the benefits from these investments will not flow to farmers for several years, and will not alter the constant price pressure that farmers face today.

Medium- to long-term strategies such as that of the TFGA above may bring enormous benefits. As Chapter 2 points out, the most populous countries in the Asian century are likely to be economically successful for the next two decades at least, creating not only a vast new Asian middle class but also large numbers of high-income households.

These different groups may require different targeting strategies for different Tasmanian businesses. For example, accessing middle-class consumers will require Tasmania to be cost-competitive, while higher-income households will require compelling brand positioning. Yet both higher-income and middle-income households[3] are already a highly attractive market for exporters, and will become even more attractive over time. Focus on these opportunities is required now, so as not to miss the boat and to best position Tasmanian business and brands for the future.

Medium- to long-term strategies are also required to deal with more competition in the Asian century (as well as greater opportunities). An example can be seen in the Tasmanian tourism industry. As Chapter 4 notes, the return on marketing spending is currently greater for domestic tourists than Asian tourists, thus the Tourism Industry Council Tasmania recommends greater marketing spending on domestic tourists to maximise revenue.

However, Australian nationals may increasingly shift demand towards more international travel as household income rises, and as the domestic tourism market becomes more contested and faces competition with cheaper and rising-quality product offerings from Asia.

The growth markets for Tasmanian tourism are therefore in emerging Asia, not Australia. As a long-term strategy, having a more diverse customer mix, including customers from the faster-growing Asian region, will better protect Tasmanian tourism businesses from both overseas competition and possible downturns in domestic tourism.

As Chapter 4 highlights, a growth in Asian tourism also has the benefit of boosting Tasmania's branding, image and reputation overseas, and offers a number of benefits for Tasmanian business in Asia. Asian visitors experiencing Tasmania for themselves will be much more amenable to Tasmania's broad branding strategy of 'pure Tasmania', and will also hopefully directly market Tasmania to their friends and contacts through discussion of their travel experience. A similar argument can be made for Asian tourists who wish to invest in Tasmanian business or migrate to Tasmania.

Positioning Tasmanian business towards Asia also has the benefit of helping diversify risk for producers. In the long run, Tasmanian businesses will need to take a portfolio approach, with some exposure to international, particularly Asian, markets to provide opportunities for growth — especially as Asia continues to rise and if the Australian dollar falls. Importantly, an Asian export footprint would allow businesses to continue to expand if the Australian economy slows.

The rest of this chapter focuses on possible strategies for Tasmanian business over the medium to long term.

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[3] Chapter 2 outlines how the Tasmanian White Paper differentiates between these groups.

7.5 Improving knowledge of the region

As noted in the Australian White Paper, one of the four most critical issues for Australia's success in the Asian region is the issue of how business is equipped to operate in Asia (AWP 2012). Submissions to the Tasmanian White Paper have similarly noted the need for business to "deepen … engagement and enhanc[e] the experience of … customers through an understanding of their legal system, business practices, habits and cultural attributes" (Leung-Mullany 2012; Ross 2012).

Improving the ability of workers to engage with Asia offers a pathway to both increasing sales revenue and boosting long-term productivity. Productivity gains can be achieved through increased engagement with cutting-edge ideas coming out of Asia (as discussed in Chapter 3); access to new materials in different languages; and improved capacity at the individual level that can be gained by studying other cultures, histories, societies or languages.

However, despite these possible productivity gains, business leaders note that Australian business, as a whole, is still uncertain as to the benefits of Asian engagement (SMH 2012).

The School of Asian Languages and Studies at the University of Tasmania indicated in its submission that "developing an 'Asia capable' workforce is one of the greatest challenges facing the Tasmanian government, the University, and employers within the state" (Ross 2012, 5). Making the workforce more 'Asia capable' is a complex and enormously difficult task. But as the Australian White Paper notes:

> *most of what is required to lift Australia's productivity is in the hands of individuals, especially managers of businesses. It will emerge through innovation in business processes within firms and more sophisticated relationships among firms, encouraging knowledge transfer and exploiting gains from specialisation* (AWP 2012, 112).

As part of the Australian White Paper process, Asialink developed a four-part national strategy to develop the Asia capability of the Australian workforce. Its steps were to:

- advocate broadly the case for developing an Asia capable workforce;
- accelerate the development of Asia-focused strategies, with businesses taking the lead;
- invest in developing Asia capability throughout the workforce; and
- better educate the future workforce of Australia (Asialink 2012).

These recommendations also appear suitable for the Tasmanian environment. They match with general sentiment within the community as well. A number of submissions noted the importance of further understanding the culture, history or languages of Asian countries. There also appears to be a clear role for government to play in assisting Tasmanian industry in developing a better understanding of Asian culture, tastes and preferences, or so-called 'Asia literacy'.

A focus of any examination of Asia literacy components could be on how programs can link with existing education initiatives and activities. Migration, for example, can help Tasmanian businesses engage with Asia through native-language capabilities, experience of different cultures and business practices, and direct personal connections. The types of capabilities that are most relevant to Tasmanian business could also be added to Tasmania's Economic Development Plan as an 'enabling tool'. Government initiatives are discussed at greater length in Chapter 8.

Boosting Asia literacy is also an important part of the Australian White Paper. The Australian Curriculum can provide a strong impetus for Tasmania to improve its Asia literacy.

Using Asian ideas

Opportunities are not limited to what Australia can supply to Asia. As Chapter 2 identifies, Asia will become an increasingly significant source of new ideas, technologies and leading-edge science for Australia. There will be more opportunities for Australia to use deeper connections with Asia to broaden the flow of ideas and technologies into Australia. And Australia is well positioned to collaborate with the best and brightest in Asia because of its position in English-based international research and learning.

Tasmanian business should structure operations to take advantage of this shift in global sources of technology and ideas, as a major benefit of the Asian century for Australia will derive from the ability to work together with Asia in these new centres of creativity. India, for example, has been very successful in publishing scientific papers, but has also successfully opened up new markets for high technology through 'frugal innovation', such as water filters using silver that do not need electricity or moving parts. Ideas such as this could be a boon to Australian investors, inventors and instructors. Frugal innovation-based heart products are already being adopted in healthcare in Sydney, for example (MacMahon 2012). Businesses that innovate are also twice as likely to report increased productivity as businesses that do not innovate, and 40 per cent more likely to report increased profitability.[4]

While there may not be an immediate payoff, building research links into Asia will have long-term benefits. Tasmania needs to act now in order to build these links for the future. Tasmania should build on the opportunity to develop R&D and commercialisation networks in Asia. As discussed in Chapters 5 and 6, there is currently very limited international investment in Tasmanian higher education R&D. While there is a lack of data on the amount invested in private sector R&D, anecdotally it appears that overseas investment is limited.

[4] Data based on *Selected characteristics of Australian business, 2009-10*, ABS Cat No 8167.0.

Tasmania could potentially leverage a growing volume of joint research work with Asia that is funded at the federal level. The Australia–India Strategic Research Fund is Australia's largest bilateral science program with any country.[5] The Australian Government has committed $64 million over five years to support the participation of Australian researchers in joint projects, and the Indian Government meets all of its teams' costs, making the program one of India's largest joint projects.

The joint program "brings together leading scientists in both countries and helps Australian researchers and institutions to form links with an emerging global science power" (DIISRTE 2012). To date, it has supported more than 80 research projects, including research on food security, a Tasmanian area of strength.

Projects such as these represent a clear win–win. By funding collaborative projects, governments facilitate access to new ideas, skills and equipment not available domestically and get to share in the results of twice as much research as could be funded domestically. Research projects boosting Asian innovation can incorporate Tasmania's research advantages (see Chapters 5 and 6). They would provide Tasmania with cheaper access to world-class research, and allow Tasmania to target research projects that suit local conditions. This is also a possible area of high service export growth.

The Tasmanian science research sector is largely public (see Chapter 5). Relatively few large companies operate in the state, with only a handful undertaking significant research programs. Increasing the positive spillovers between public and private research and between research and industry, particularly manufacturing and primary industries, will be important as Tasmania's private research and consulting sector expands. Other areas of research interest that could be developed in conjunction with Asian partners include renewable energy, sustainability, water treatment, mining and forestry, and urban design and planning.

Building greater R&D and innovation links with Asia matches with a number of other suggestions in this report. It can occur in conjunction with government support for the establishment of a cluster of consulting, engineering, renewable energy and like companies. It can also occur in conjunction with Australian Government strategies to attract productive foreign investment, and also occur in conjunction with the Australian Government's inward investment priorities for innovation.[6]

Encouraging more use of people-to-people exchanges

Australia's multicultural population is an asset that assists in integration with the Asian economy — nearly a third of Australians were born overseas, and the country possesses a large diaspora of Asian-born residents among its multicultural population. Familiarity can

[5] The equivalent program with China, for example, is funded at $9 million over three years.
[6] For example, further priority related to agricultural science and food technology and processing is currently being explored between the Australian and state and territory governments. See Chapter 5 for further explanation and context.

help to build social, business and cultural networks, and there are large benefits that can flow from these contacts. A wide range of groups — from businesses to unions, community groups and even sports teams — can enjoy stronger informal relationships.

While Tasmania has a less multicultural population than other parts of Australia, it still has a significant population that was born overseas. The growth of migration can be a source of strength in developing Asian business.

Similarly, the University of Tasmania's strategy to increase international students represents an opportunity to boost engagement with future Asian leaders, partners, investors and friends. As the University's submission reports:

> *Former United States under secretary of state, Karen Hughes, argued that there was "no doubt in my mind that student exchanges have been our single most effective public diplomacy tool in the past 50 years – there is simply no substitute for bringing people here where they learn with us and from us and make up their own minds about America".*
>
> *In Australia this explicit connection between education and the extension of international understanding is occasionally asserted but has not been systematically examined* (Universities Australia cited in UTAS 2012, 18)

This observation is from the perspective of international education only, but the point can be made far more broadly — the more people visit and get to know Tasmania, the better they will interact with Tasmania in commercial and economic terms. This is also true of Tasmanians visiting overseas destinations.

The role of business exchange in facilitating more people-to-people contact is often overlooked. A successful example is cited in the Australian White Paper, where Calderys Australia flew a successful trainee to a sister plant in China for quality control training (AWP 2012, 176).

Elements of such a program already exist in Tasmania. The University of Tasmania has developed an innovative mentoring scheme for students with some elements of business exchange. Its Career Mentor Program involves University of Tasmania graduates of any age mentoring current students. Mentors and mentees are matched and make contact on a regular basis, either face to face or by Skype or email. Two hundred mentoring partnerships will be established in 2013, and there is a strong Asian focus to this program. Many mentors are University of Tasmania alumni living in Asia who are able to give highly specific, valuable advice about their local employment markets.

There could be some value in other schemes being used in Tasmania, particularly by businesses targeting strategic industries and countries. Tasmanian business could also develop more business-to-business exchanges to foster partnerships with businesses from Asian partner countries. This could occur in conjunction with other possible programs, including expanded sister-city relationships in Asia and the leveraging of the Australian Government's Australia Awards (Asian Century).

To make these steps effective will require a body or agency that can help develop networks within Tasmania that address the needs of Asian countries. The interdependent nature of people-to-people exchanges also indicates a role for government in coordinating and facilitating the networks and events that businesses might use as a platform to drive their own efforts. The possible shape and location of this body is spelled out in Chapter 8.

7.6 Getting the scale of business right

Market diversification options are crucial to responding to unforeseen commercial or political shocks. A more diverse range of customers gives business greater bargaining power, leverage and choice should such disruptions occur. Developing alternative relationships can also help manage contract risk, for example by ensuring that there is another off-taker available if a customer refuses to accept cargo once delivered.

Scale and market size are often seen as disadvantages in Tasmania's external commercial dealings. A number of submissions expressed the concern that Tasmania's lack of market size means it will always be a relatively small trading partner for most Asian nations. The small scale of operation leads to a risk of falling incomes for Tasmanian exporters, should they have an overreliance on a single Asian country. The Chinese temporary ban on Australian rock lobster in 2010 and the fall in Japanese demand for woodchips over the past decade have highlighted the risk of overreliance on one market.

Businesses also need the right scale to support competitive logistic systems and marketing efforts. While relying on too few relationships can be a market risk, maintaining too many supplier relationships represents an additional cost. So enabling producers to aggregate enough land or product offerings to acquire scale is important. The expansion of the dairy industry, for example, is an important opportunity to increase scale to support downstream processing investments for export to Asian markets. Greater scale may also enable investment in value-adding and market penetration for Tasmanian products elsewhere in the value chain. Tasmania's dairy farmers, for example, can be competitive suppliers to those processors with the right farm scale.

An example of scale being achieved in the past in Tasmanian agriculture is plantation forestry. While forestry in Tasmania is currently subject to severe pressure following the global financial crisis, the high Australian dollar and the Gunns corporate receivership, Gunns was able to aggregate sufficient land in Tasmania and elsewhere to provide the scale of supply necessary for a world-scale pulp mill. Applying a leasing model, other agricultural businesses could also acquire the scale of production necessary for global supply.

Tasmania's larger businesses, such as Forestry Tasmania and Blundstone, have the scale to support the development of expertise in Asian markets and value chains that may not be accessible to smaller businesses, reinforcing both the benefits of leveraging existing exporters (identified in section 7.1) and the importance of scale.

7.7 Becoming a greater part of regional value chains

The importance of supply chain integration in allowing Asian countries to develop was identified in Chapter 2. The key drivers of this process have been an open global trading system and the availability of vital infrastructure to reduce transaction costs. Intricate regional production networks have emerged, along with increased flows of intermediate goods between Asian economies. Asia has profited handsomely — specialisation and scale have given the region a powerful global advantage, particularly in manufacturing.

While Australia has achieved an increase in exports of Australian-produced elaborately transformed manufactures to China and commodities to ASEAN countries, the Australian White Paper notes that Australian manufacturers have relatively low participation in these Asian value chains — something that must change.

Successful participation relies on the ability of businesses to locate themselves in parts of the supply chain that maximise business profits. Following what is commonly called the 'U-shaped curve model',[7] businesses are most profitable at either end of the supply chain. That is, the branding of the company, the idea for the product and the industrial design (the start of the curve), and the retail sales, service contracts, and sales of parts and accessories (the end of the curve). The actual manufacture, assembly, shipping and distribution are unlikely to be as profitable for Tasmanian businesses.

There will also be opportunities for Australian services firms and manufacturers to become part of the region's interconnected production networks. Some sectors will be unable to maintain existing industry structures. Their business models will need to evolve in order for Australian firms to become increasingly integrated and specialised, offering high-value solutions as part of wider cross-border value chains.

As noted in the Australian White Paper, Blundstone provides a good example of optimal positioning in the value chain (see Box 7.2). Forestry Tasmania is another company which identified and exploited significant opportunities in Chinese supply chains (see Box 7.3).

Box 7.2: Blundstone makes the most of moving up the value chain

In the past few decades there have been significant changes in the Australian business environment for labour-intensive manufactures, such as footwear. These changes led Blundstone to move the remaining 50 per cent of its value-adding in leather manufacturing offshore to a number of facilities located throughout Asia. Blundstone was able to retain the manufacturing of gumboots at its base in Hobart. Blundstone now defines itself as a proud Tasmanian company, competing on a global basis. It designs and sells highly innovative work boots and leisure footwear in more than 30 countries around the world.

Asia is a key enabler of Blundstone's strategy to compete globally — more than

[7] For a good overview, see Fallows (2007).

90 per cent of the world's footwear is now manufactured in Asia. The company has entered business relationships with three footwear manufacturing facilities in Vietnam, China and India. It has some of its own employees working within these factories and has invested heavily in training personnel in its manufacturing techniques. It sees these suppliers as long-term business partners with whom it shares intellectual property and a mutual interest in growing the Blundstone business. To this end, it has regular audits of its combined business practices, covering employee and industrial relations, environmental management practices, and quality-management systems.

From Blundstone's headquarters in Hobart, the company is able to successfully manage product design and development, production and logistics, sales and marketing, and administrative support of its global operation. Having transformed its business, Blundstone is now in a position to compete well beyond the next decade and sees its Asian partners as an important enabler in that future.

Source: Blundstone (AWP 2012, 92)

Box 7.3: Forestry Tasmania and China

Forestry Tasmania is responsible for the management of 1.5 million hectares of state forest land (39 per cent of Tasmania's forests). About half of the forests managed by Forestry Tasmania are available for sustainable timber production. A network of forestry reserves also protects values such as flora, fauna, soil, water and cultural heritage.

In seeking new value-adding markets for the Tasmanian forest industry, Forestry Tasmania recognised that overall demand for wood products would be expected to increase over the next 10–15 years, led by Chinese demand. It then conducted a series of marketing studies that demonstrated significant opportunities in Chinese markets for engineered wood flooring used in shipping containers — Forestry Tasmania's hardwood veneers with their exceptional strength and durability would be ideal. The Chinese market also diversified Forestry Tasmania's customer and product base, helping make the forest industry more resilient to market cycles.

Forestry Tasmania also established a new brand in China, Eu Jai Li (translation: strong and beautiful), with the sea dragon as its logo. Its mission is to promote harvested Tasmanian peeler logs used for the production of rotary peeled veneer. The company recruited staff with technical and marketing expertise in the region, bringing four Chinese nationals into its Export Team.

The Eu Jai Li brand is now well respected in China, and supports a robust trading relationship between Tasmania and China. Over the last few years, log exports from Tasmania to China have grown steadily. Forestry Tasmania now intends to strengthen its relationship with the Chinese market through additional certification under the Forest Stewardship scheme, while exploring further value-adding opportunities for lower-grade logs.

Prepared by Forestry Tasmania.

Blundstone's and Forestry Tasmania's use of supply chains provides an example of how integration with foreign supply chains can use Tasmania's comparative advantage in branding and sustainable resource management, and its access to skilled employees, while also taking advantage of emerging Asia's comparative advantage in cost-competitive manufacturing.

A priority for Tasmania's engagement in the Asian century is to encourage firms to maximise their competitiveness through engagement with global supply chains, while maintaining their high-value home office and research and development functions in Tasmania. This leverages Tasmania's lifestyle amenity, investments in skills and education, and new opportunities from increasing interconnectedness through the NBN.

A similar approach can also be applied in the IT sector. Competitive programming talent in Asia can be integrated with Tasmanian ideas generation, IT project management and customer relationship management to provide IT solutions to the Tasmanian, Australian and international markets.

In agriculture, international companies have taken a more dominant role in the value chain, connecting Tasmanian producers to markets in Australia and overseas. The benefits provided by these overseas corporations are critical to developing a brand and marketing presence that identifies the value of Tasmanian products for specific Asian markets. They also allow businesses to invest in value-adding products and aggregate supply to create the scale necessary to overcome logistical challenges and enter new markets.

Tasmanian businesses stand to benefit from more effective engagement with these transnational value chains. Government can assist by drawing attention to opportunities, and by helping to facilitate the necessary relationships with the large corporations that manage these value chains.

For example, access to Chinese and other Asian food product markets may be achieved by building long-term preferred supplier relationships with the 'third-party' corporations that manage highly integrated and efficient transnational supply chains in Asia. This could include Japanese corporations, such as AEON, that already have a relationship with Tasmania and key Asian markets; international companies with distribution links into Asia, such as Fonterra; or alternatively Tasmanian businesses could identify new potential partners in Asian cities (such as 7-Eleven, the Japanese retailer, or Walmart, the US retailer).

The size of this opportunity is enormous. But making the most out of these value chains will be challenging. There are several successful services firms in Tasmania that already work across different countries. These include GHD and Hydro Tasmania (GHD 2012). Tasmania also has a number of effective regional 'clusters' (as outlined in Tasmania's regional economic development plans) that could work together to maximise their high value-add activities and provide a relatively integrated input into Asian value chains.

A possible option for business to link into these large value chains is the establishment of a cluster of consulting, engineering, renewable energy and like firms. The goal would be for

these high value-add enterprises to share opportunities for improvement in resources efficiency, labour efficiency, rapid prototyping, intellectual property and branding. This mooted cluster could aim to leverage the international links already established by Tasmanian, national and multinational firms. Government Business Enterprises currently pursuing consulting opportunities in Asia, such as Hydro Tasmania or Forestry Tasmania, could also be a part of this cluster.

7.8 Infrastructure provision opportunities

Another market segment of interest is the Asian infrastructure market. The region needs large-scale investment in infrastructure, fast. The ADB recently estimated that the 32 ADB developing member countries are expected to need almost US$8.2 trillion (in 2008 US dollars) to meet their infrastructure needs to 2020 (Bhattacharyay 2010). Most of this investment (around 68 per cent) is needed for new infrastructure.

Australia has a skill set that is particularly suited to participation in these projects. Australian business has experience with infrastructure funding, infrastructure building and the many services that go with both of these.

Tasmania has successfully exported infrastructure services. Tasmania's renewable hydroelectric infrastructure is a key component of the state's major exports to Asia. Hydro Tasmania is engaged in exporting water management and hydro-power expertise to countries within Asia, including India, China and Malaysia. And there are a number of firms in Tasmania, including GHD and state-owned company Entura, that export infrastructure consulting services throughout the Asian region.

Effective infrastructure provision requires integrated solutions that cover all aspects of the project. There is an opportunity for Tasmanian businesses with engineering expertise to work together to facilitate engagement and market access by Tasmanian businesses to meet Asia's infrastructure needs.

Government can play a facilitating role by bringing suitable firms with expertise together to create project groups (see section 7.10). This will allow Tasmania to achieve the economies of scale necessary to make the most of infrastructure provision opportunities in Asia.

7.9 Capital and the role of international investment flows

The Asian century will see far greater financial sector integration in Asia. Despite fluctuations from time to time, Asia's massive foreign exchange reserves, high savings rates and strong private investment flows have made it a major net exporter of capital throughout the world. It is estimated that by 2050 Asia will account for as much as 45 per cent of global financial assets, with Asia becoming a source of much of the world's foreign direct investment.

This investment will be a great boon to Australia's economic future. Foreign investment supplements domestic savings and provides additional capital for economic growth,

supports existing jobs, and creates new opportunities. It can also help boost productivity by bringing in new ideas, providing new capital for infrastructure, and increasing our labour force's skill base through greater knowledge transfer and exposure to more-innovative work practices (AWP 2012).

Yet, increased foreign investment will also require a change in business mindsets, with a better understanding of the benefits it brings and greater openness to it. A successful investment climate will be one that embraces and integrates investors into the community. Recent estimates suggest that 76 per cent of Australia's merchandise trade is with Asia, but that this figure is only 20 per cent with regard to investment flows (BCA 2012, 2).

The importance of foreign investment in developing Tasmania's economy is yet to be fully realised, as negative public responses to proposed foreign investment projects have inhibited their development in the past. The ongoing jobs that foreign investment creates — by increasing the stock of physical capital, making labour more productive and by creating partnerships that increase Tasmanian businesses' access to foreign markets — are a major benefit to the Tasmanian economy and its welfare.

These investments also provide capital for Tasmanian companies to expand activities to an efficient scale. For example, Shenhua Group's participation in Woolnorth Wind Farm freed up capital for Hydro Tasmania to finance its $400 million investment in the Musselroe Wind Farm in the state's northeast (see Chapter 3).

In positioning itself for the Asian century, Tasmania should recognise that while some sectors will focus on inward investment, in other sectors the focus should be on outward investment. The direction of private direct investment flows will be centred on the expertise, know-how, technologies and ability of direct investors to maximise the value of an investment independently of where it is located.

7.10 Linking activities for greater impact

A central theme to the Tasmanian White Paper is the idea that joining activities together is critical to making the most of the Asian century. Activities in isolation often lose the positive spillover effects for Tasmanian businesses from other activities.

As discussed in Chapter 8, the Tasmanian Government clearly has a role to play in encouraging more linkages both between businesses and between business and government. This will include the use of government missions to engage with government agencies and officials in target Asian markets to support trade and investment opportunities for businesses and organisations. There are many benefits of government representation and government-to-government relationships in supporting trade and investment, particularly in Asian markets.

There are also ways that businesses can encourage these linkages themselves.

For example, tourism can assist the international education sector by increasing employment opportunities for international students, providing opportunities to increase

the Asia literacy of the tourism workforce, improving services to tourists and addressing seasonal demand for labour.

Even more powerful is the concept of triangular links being developed between Tasmanian tourism and hospitality operators, the Skills Institute, and successful Asian tourism and hospitality businesses.

Finding these triangular links, and building on them, remains an unexploited opportunity. Many business groups, chapters of industry and sectors are aware of the importance of networking across businesses, and the benefits of networking with elements of the public sector, particularly education and skills. Building links between different industries will also be important as Tasmania seeks to build a more services-oriented economy.

Encouragement in developing and broadening business and social networks at all levels is a priority. Being aware of what other actors in Tasmania are doing is a possible pathway to discovering opportunities. A number of submissions suggested the creation of a Tasmanian database of specialists, businesses, government agencies and data on foreign investment. The University of Tasmania argued that "the establishment of an Asia expert research database including both area specialists and discipline specialists would facilitate State Government access to UTAS expertise on an on-going basis" (UTAS 2012, 5).

The TFGA noted that, in spite of its support for foreign investment, there is "no one comprehensive source of data on foreign ownership, nationality and type of entity of agribusiness companies. This can lead to speculation and the development of policies based on anecdotal evidence rather than well researched fact" (TFGA 2012, 6).

The consolidation of expertise in Invest Tasmania for business engagement in Asia may enable the establishment of a centralised resource for business that combines information about overseas market conditions (contacts, current sales channels and notice of relevant visitors, for example) and information about what resources currently exist within Tasmania (such as Asia capabilities, businesses operating in similar fields, and relevant consultants and academics). Although a database may be difficult to establish and maintain, it could provide significant support to business through all parts of the investment or trade cycle.

Successful precedent is a powerful encouragement to growing business in Asia. Submissions to the Tasmanian White Paper noted the importance of publicising the stories of successful local businesses operating in Asian markets (Tasmanian Skills Institute 2012), and that the promotion of existing capabilities can have important secondary benefits for service industries that should be further explored (Hydro Tasmania 2012c).

There is a role for government to play in promoting models and success stories and ensuring maximum outreach. Building from the Tasmanian White Paper, the Premier could host a regular high-profile event to promote Tasmanian success and Asian connections, drawing out lessons learnt, particularly with the help of the business sector. This would also be an opportunity to establish new links between potential Asian and

Tasmanian business partners. The Government can also leverage activities supported by Events Tasmania to help promote Tasmanian success stories in Asian engagement.

Tasmania's public sector response to the Asian century is further outlined in Chapter 8.

Chapter 8 Change through the public sector and government

Main messages

- Tasmania currently has a low level of Asia literacy that will inhibit its capacity to maximise opportunities in the Asian century.
- The transformation of Tasmania's demographic trajectory should be supported by the development of migration strategies to increase Tasmania's long-term capacity to secure emerging opportunities in Asia.
- The promotion of business and skilled migration, in tandem with lifting the international student intake, and alongside flows of foreign investment and access to markets, is important to capturing the benefits of the Asian century.
- The Tasmanian Government should work with the Australian Government, through DIAC and the community, to increase the flow of business investment and skilled migrants from Asia to Tasmania and their retention.
- Hobart should be promoted as a world-class, international, liveable, accessible, creative city, renowned for innovative research and learning.
- Development of an integrated communication strategy in consultation with community stakeholders and the Australian Government is required to increase community recognition of the value of multiculturalism, international investment and migration. Such a strategy will also build community confidence in Tasmania's international education, trade, investment and migration strategies.
- The Tasmanian Government should work with the Australian Government on curriculum development to increase Asia literacy in Tasmanian schools.
- The Tasmanian Government should support Tasmanian business participation in national programs to increase Asia literacy in the workforce.
- The Tasmanian Government should review Asia literacy in the public sector and develop incentives for prioritising public sector programs that enhance Asia literacy.
- The Tasmanian Government should support the development of an ongoing forum on issues in Asia that promotes high-level regular dialogue among key community stakeholders on Tasmania's participation in the Asian century.

8.1 Introduction

Increasing Asia literacy and market engagement is key to Tasmania's success in the Asian century. Tasmania currently has a substantially lower proportion of Asian-born residents and Asian-language speakers than the rest of Australia. Without action, this may reduce Tasmania's capacity to engage with the Asian region.

To position Tasmania to succeed in the Asian century, the Tasmanian Government should develop a multi-pronged approach to increase Tasmania's capacity to engage with Asia

through migration, education, support for investment, representation in key markets and branding.

Tasmania's engagement with Asia must be led by the Premier and should cover a wide range of policy areas, from export and investment attraction to education and community engagement. The progress of Tasmania's policy implementation and engagement should be overseen by the Economic Development Plan Subcommittee of Cabinet, which brings together the Ministers with key responsibilities for developing Tasmania's capacity to engage with Asia. This subcommittee is chaired by the Premier.

A key focus of Tasmania's engagement should be on increasing business and skilled migration, which would support many sectors of the Tasmanian economy, including housing, international education and tourism. This focus would help ensure that businesses have the skilled staff that will allow them to compete on the world stage. The Government should also support the person-to-person links that can open up new opportunities for Tasmanian businesses, the community and other organisations.

Asia literacy is about having the skills to successfully understand and engage with Asia. It is a broad concept that encompasses cultural and business awareness rather than simply language capability. This is a new set of skills to be developed in schools, the workforce, in government and in the community. The Tasmanian Government should work with partners to improve Tasmania's Asian cultural awareness and community recognition of the importance of Asia and its economic transition. Being more accepting of migration and international investment will mean that Tasmania is better placed to grow its economy and exports, create jobs, and support the community through the Asian century.

The Tasmanian Government also recognises the important role played by DEDTA in facilitating investment and trade through representation in key markets and through the promotion of Tasmania as a source of high-quality products and as a good place to invest.

8.2 Migration and skills

A key objective identified in the Australian White Paper is to establish Australia as a higher-skill, higher-wage economy, with a fair, multicultural and cohesive society and a growing population.

Pathways set out in the Australian White Paper for achieving this goal include:

- working with all levels of government, together with businesses and communities, to promote a cohesive and multicultural society through continued commitment to anti-racism policies and the Closing the Gap program;
- drawing on Australia's diverse population by supporting a wide range of partnerships and networks with migrant communities, Australians living abroad, people who have previously lived and worked in Australia, and others who share a special connection with Australia and Australians; and

- maintaining a flexible, responsive and well-planned migration framework, including a skilled migration program, which meets Australia's changing needs, maintains opportunities for Australians and supports our engagement in the region.

The Australian White Paper also argues that a key objective is to make the Australian economy more open and integrated with Asia. This will facilitate the flow of goods, services, capital, ideas and people, and Australian businesses and investors will have greater access to opportunities in Asia.

Pathways identified in the Australian White Paper for achieving this goal include:

- working to reduce unnecessary impediments in Australia's domestic regulations to cross-border business activity, investment and skilled-labour mobility, particularly in regard to countries in the Asian region; and
- continuing to welcome foreign investment in Australia and to promote Australia as an investment destination, including by engaging major investors and investing nations.

The Australian White Paper states that maintaining Australia's social cohesion is essential to taking advantage of the Asian century. It also notes that Australia's openness to migration and cultural diversity has delivered social and economic benefits and influenced positively how we see ourselves, our neighbours and the world, and how the region and the world see us (AWP 2012, 185).

Tasmania's migration and skills imperative

Migration is more important for Tasmania than for other Australian states as the nation pursues opportunities in the Asian century. Tasmania has a substantially lower level of foreign-born residents than the national average, as well as lower levels of workforce participation and tertiary education. In Melbourne and Sydney, Asian-born migrants are eclipsing British-born migrants as the primary source of migration, and are already dominant in the economically active age groups.

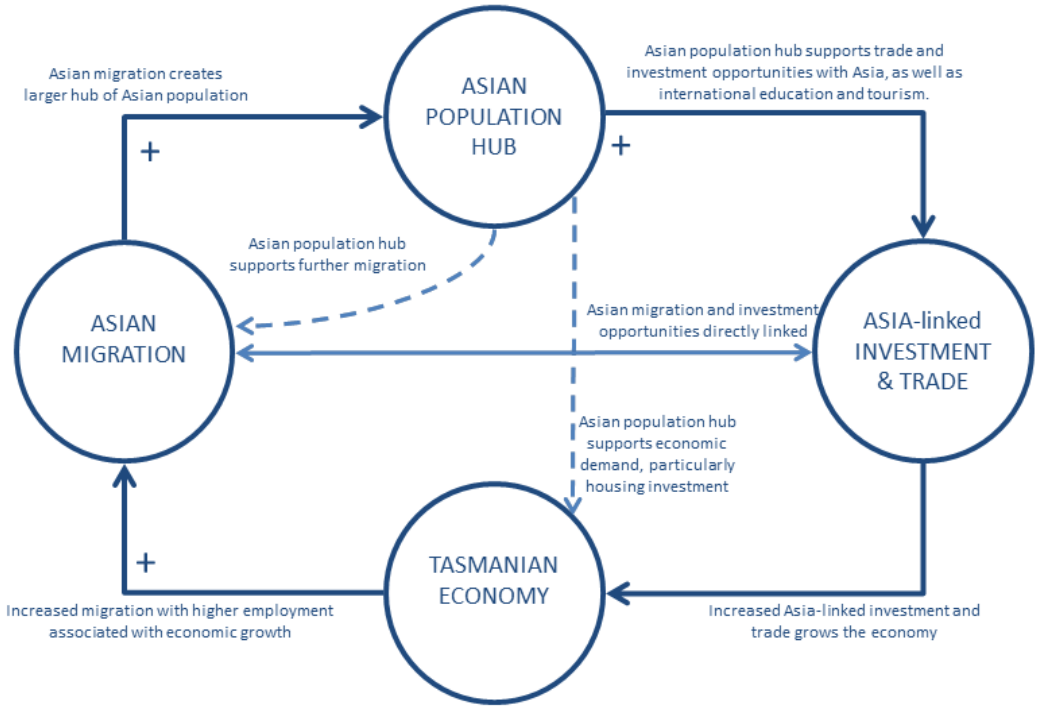
In the 2011 census, 53 per cent of Greater Hobart's population of 211 669 persons were aged between 20 and 59 (the economically active age cohort), compared with 57 per cent in Melbourne and 56.5 per cent in Sydney. Of Tasmania's 20–59 year olds, only 3.9 per cent were born in Asia, compared with 17.5 per cent in Melbourne and 20.2 per cent in Sydney (ABS 2011b). This trend is facilitating investment and innovation around Melbourne and Sydney. Hobart is Tasmania's most diverse city, but it is the least diverse capital in Australia. Without a substantial change in Tasmania's approach to migration, Tasmania will miss out on opportunities from Asia in investment and access to markets.

Unlike in other states, overseas migration has had minimal impact on Tasmanian population growth. This is due to Tasmania's small intake of international migrants relative to its total population share, although in recent years Tasmania's share of international migrants to Australia has increased to between 0.6 and 0.8 per cent of total migration

intake. International students and skilled migrants are currently the main source of net overseas migration for Tasmania (ABS 2012d).

Migration plays an important role in supporting the overall economy through increased demand for goods and services and housing investment. These flow-on benefits mean there are substantial opportunities to be gained from increasing international migration to Tasmania, focusing particularly on skilled, entrepreneurial and younger migrants and business migrants who bring investment.

Figure 8.1: The connection between Asian migration, investment and economic growth



Increased migration will be of particular benefit to the University of Tasmania. It is common for Asian international students to study where family and friends intend to, or have already, settled, and it may be that Tasmania's smaller Asian expatriate population is causing, at least in part, international student numbers to lag behind the national average. It is well known that international students also boost international tourism to the state.

A supportive migration program is commonly identified as a critical factor in attracting students to Australia. Statistics show that in 2008, 38 per cent of Chinese students and 66 per cent of Indian students migrated to Australia after completing their studies onshore. International education and subsequent migration is therefore a means by which Tasmania can improve its demographic diversity, expand the economy and increase cultural links to Asia.

There are strong connections between migration and economic outcomes that Tasmania can capture in the Asian century. Increased migration leads to increased investment and trade opportunities, which in turn raise employment opportunities. Improved economic circumstances can help migrants to integrate into the community and reduce secondary

migration to mainland Australia. Larger migrant communities also assist further migration. While Tasmania benefitted from the virtuous circles of post-war migration and hydro-industrialisation in the past, it has largely missed out on migration opportunities from Asia.

Migration is also closely related to foreign investment. When Chinese mining companies consider investing in Australia, for example, they usually plan to send management personnel and specialised workers, which means that visa-related matters need to be addressed. Australian Government visa programs recognise and support individual investors migrating to Australia by providing permanent residency visas.

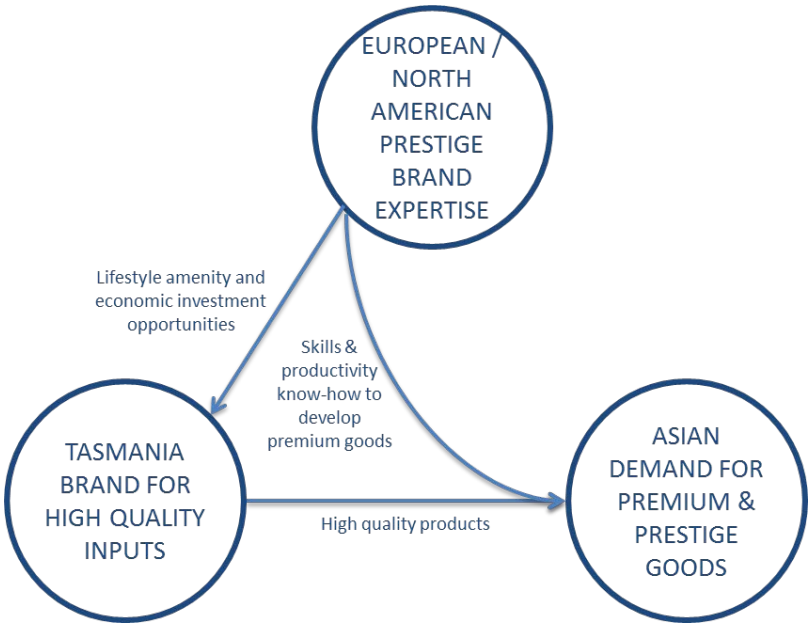
Tasmania must work to ensure that the entrepreneurial talent of investors is mobilised to help expand the Tasmanian economy and capture the opportunities of the Asian century. For example, the Tasmanian Government has recently sponsored a Chinese business migrant investing $5 million in Tasmanian cherry farming. The Government has also made it clear that similar support is available to other investors, including in the mining sector.

The Tasmanian Skills Strategy places a strong emphasis on ensuring that Tasmanians have access to the training they need to take advantage of skilled job vacancies in Tasmania. Skilled migrants, particularly those with experience in the industries where Tasmania anticipates strong growth as part of the Asian century, also have a critical role to play. It benefits all Tasmanians to ensure that Tasmanian businesses can grow and access the skills they need in a timely and effective manner.

Skilled migrants can complement the state's skills base and training capacity; they do not necessarily displace Tasmanians. They also bring in other benefits, such as the creation of downstream jobs (for example, in construction work) and improved international market links. They often help to introduce new technologies and know-how that are critical to Tasmania's competitiveness.

The combined focus on demographic change, improved Asia literacy, greater access to markets, and increased investment and productivity means that Tasmania's need for international migrants is not restricted to Asia, but is global. The opportunities of the Asian century are recognised worldwide — and Tasmania can use this to attract migrants from Europe, the Americas, southern Africa and New Zealand who have the skills and investment capacity to enable Tasmania to capture opportunities in agriculture, aquaculture and other sectors associated with Asia's rise. This will be important to building markets that link Asia's demand for prestige and premium goods with Tasmania's pure brand characteristics.

Figure 8.2: Non-Asian migration to support Asian opportunities



8.3 Strategies to increase Tasmanian international migration

The first and most important step needed to increase Tasmania's share of international skilled and business migrants relative to other Australian states is to communicate that Tasmania wants and values migrants. This can be achieved through policy documents like the Tasmanian White Paper, which describe the value of migrants to Tasmania's future in Asia and commit the Tasmanian Government to supporting a stronger migration program.

This message can also be communicated by ensuring that whole-of-government and departmental strategies prioritise and give adequate resources to migration objectives. Migration could also be identified as an enabling tool in future iterations of Tasmania's Economic Development Plan, which can support a whole-of-government focus on how migration can assist Tasmania's economic development, and how other economic opportunities can facilitate or benefit from migration.

Communication is equally required to ensure the Tasmanian community recognises the positive connection between international migration and Tasmania's economic future, including the role of:

- international migrants, students and tourists in building relationships that support mutually beneficial cultural, educational, scientific, investment and trade connections;
- skilled migrants in growing the economy by supporting productivity and innovation, bringing in investment, opening markets and seizing opportunities;
- younger migrants in enabling Tasmania to overcome the demographic, fiscal and health services challenge of an ageing population; and

- migration in raising demand in the economy, supporting services in regional towns, and helping Tasmanian businesses and consumers to gain the benefits of increased scale.

Specific strategies should be developed in collaboration with the Australian Government to ensure that Tasmania maximises its opportunities with respect to:

- state-sponsored skilled migration;
- supporting international graduates to become citizens; and
- investor and business skilled migration programs.

These efforts will be supported by policies to improve the reception and integration of migrants into the Tasmanian community.

State-sponsored skilled migration

Skilled migration has a significant role to play in positioning Tasmania for the Asian century with respect to regional development, specific industry expansion, increased workforce participation, increased levels of tertiary education, and skills development and training strategies. It is therefore important that every skilled migrant with the capacity to contribute to the Tasmanian economy is welcomed. Tasmania is not currently achieving its targets for nominations of skilled migrants, which were developed in partnership with the Australian Government under the State Migration Plan. Achieving these targets must be a priority in the Asian century.

The Tasmanian Government, through DEDTA, should review the parameters of state sponsorship to ensure they are 'most welcoming', particularly in comparison to other Australian states and territories. This will include a broader interpretation of the skills necessary to support business and a greater recognition of the importance of Asia-related business skills, such as marketing and commerce, to Tasmania's success in the Asian century.

DEDTA should review how state-sponsored business and skilled migration can leverage off opportunities in exports, international education, tourism and business investment. The Tasmanian Government should work with regional communities and businesses to ensure that skill shortages are identified early, and that key personnel with the capacity to support Tasmania's growth are able to come to Tasmania with their families.

International education and migration

The University of Tasmania's submission to the Tasmanian White Paper proposed several strategies to facilitate the achievement of the University's International Education Strategy and to maximise the potential contribution of international migration to Tasmania in the Asian century (as discussed in Chapter 5). The potential contribution of migration and international education to tourism and other sectors was also highlighted in other submissions.

The Australian Government has increased the English-language requirements for skilled migrants, and these changes apply across all Australian states and territories. The decision to increase English-language requirements was based on research demonstrating that people with higher English-language skills are less likely to be exploited in the workplace and more likely to have better settlement outcomes. The Tasmanian Government supports this change, and should work with the University of Tasmania and other tertiary education providers to ensure that international graduates have the opportunity to develop their English-language skills and are encouraged to do so.

As part of raising the Asia literacy of the Tasmanian public sector, the Tasmanian Government should also consider policies to encourage employment diversity and the hiring of international students. This could help to create a greater hub of Asian expatriates in Tasmania to support international education, trade and chain migration opportunities.

8.4 A welcoming Tasmania

In recent years there has been a shift in offshore humanitarian stream migration, with an increasing proportion of humanitarian migrants from Asia.

Settlement services are critical to integrating new migrants. Tasmania has developed an extensive service-provider network for bridging visa and humanitarian migrants, and for dependents of skilled migrants. Employment has been identified as a key issue affecting positive settlement outcomes. The Tasmanian Government is funding a number of work experience programs in both the public and private sector aimed at improving pathways to employment for humanitarian entrants.

Through the Community Development Division of DPAC, a strategy is being developed that will encourage employers to recruit more new migrants. This strategy is expected to promote the benefits of diversity in the workplace and forge improved networks between job search agencies and companies looking to recruit new employees.

In tandem with this, a National Settlement Framework (NSF) is currently being developed. The NSF is intended to facilitate collaboration between jurisdictions during settlement planning. This will ensure informed decisions can be made to achieve successful settlement outcomes for permanent migrants and temporary residents. The NSF is being developed through DIAC's Select Council on Immigration and Settlement. The terms of reference for the Select Council also provide for improved information sharing between the Australian Government and state governments on medium- to long-term immigration and visa planning to facilitate appropriate planning for infrastructure and service delivery.

The Tasmanian Government is committed to a policy agenda that promotes multiculturalism and social inclusion. Tasmania has a longstanding Multicultural Policy which affirms this commitment, and which introduces a set of principles to maximise the potential of multiculturalism for the benefit of all Tasmanians. The Tasmanian Government regards the Multicultural Policy as an integral component in building a socially

inclusive society. A review of Tasmania's Multicultural Policy will provide a way to refresh Tasmania's commitment to a multicultural society, and will allow the Government to decide how Tasmania can improve its recognition and reception of the cultural, social and economic benefits of migration.

Box 8.1: Love Launceston – City of Learning

Despite being a regional centre, Launceston's popularity as a destination for interstate and international students, particularly from Asia, is increasing.

While the economic, cultural and social benefits of receiving 'out of town' students are broadly acknowledged, some sectors of the local community are inexperienced in dealing with this increasing diversity. There is an opportunity to expand the community's understanding and appreciation of this small, but often visibly diverse, international student cohort. This should also include discussion of behaviours that may be deemed racist, intolerant or suspicious.

In order to promote Launceston as a learning destination for people from across the world, the Love Launceston – City of Learning initiative was started in 2009 as a collaborative project between the Launceston City Council, business, media, the education sector (including colleges) and the University of Tasmania. In addition to the main goal of attracting more domestic and international students to Launceston, a key component of the project involves working with the local community to build awareness and respect for diversity. Social activities like Harmony Day celebrate diversity, while educational engagement, such as global citizenship awareness programs in primary and secondary schools, begin to build an appreciation of diversity from the earliest ages. The City of Learning project uses stories from international students to highlight what is great about living in Launceston and to show that international students make a valuable contribution to the community.

The project is designed to promote Launceston as both a learning destination for students and as a career 'launch pad' for young professionals. To do this successfully, the City of Learning project nurtures and encourages engagement between international students and the local community. It is an excellent example of how strong partnerships between government, business and the education sector can help to promote a robust multicultural society.

Prepared by the University of Tasmania.

The perception of Tasmania as a welcoming state will be a determinant of investment behaviour when it comes to international student enrolments and business migration. Incidents of racism affect foreign perceptions of Australia as an attractive place in which to study. The Tasmanian Government is committed to the National Anti-Racism Strategy. A number of innovative programs have been developed to promote youth engagement in building a better understanding and acceptance of Tasmania's religious and cultural diversity. There will be an increased focus on cultural awareness training across government agencies.

It is important to note that public support for the Asian century will also be influenced by wider policy settings, such as those relating to foreign ownership of Australian assets and land. It is important for the Australian public to participate in a full discussion of what those settings should be.

Promoting and maintaining Tasmania's liveability

Tasmania should be promoted to Asia as a settlement destination based on the values that make Hobart and other Tasmanian towns some of the most liveable in the world. Asia's middle class is becoming increasingly concerned with overcrowding and pollution, smaller living spaces, and long commutes to work. For Asians who can afford to seek a healthier lifestyle for themselves and their families, Tasmania is an ideal place, particularly for those who seek open spaces and easy access to the natural environment. As Tasmania's Asian population grows, Tasmania's perceived liveability for Asian migrants is likely to increase — and this will increase opportunities for all Tasmanians.

The plan for Hobart to become a world-class, liveable waterfront city establishes a vision for the revitalisation of the Hobart waterfront and the transformation of the city into an accessible, creative place, renowned for innovative research and learning. In June 2012, the Australian Government provided $50 million for the redevelopment of the Macquarie Point rail yards in Hobart. The redevelopment of the 8.4 hectare site on the doorstep of Hobart's CBD is a once-in-a-generation opportunity to unlock and capture Hobart's economic, cultural and tourism potential. The investment also offers significant potential for the expansion of Antarctic operations (see Chapter 6).

The Tasmanian Government should continue to pursue other elements of this vision, including the creation of a master plan for Hobart's development. This will allow Hobart's population to grow sustainably — with migration but without urban sprawl, and with a range of transport options, including public transport, walking and cycling. Successful implementation of the Hobart Capital City Plan 2011–40 will deliver substantial employment, productivity and cultural opportunities for Hobart and Tasmania in the Asian century as well.

International migrants also have the potential to contribute to the economic sustainability and community development of regional towns in Tasmania. Smaller centres often have the capacity to provide housing and employment opportunities for new migrants, meaning there is potential for integration into those communities. Afghan migrants working at the

abattoir in Young in regional New South Wales are an example of how migration can support the sustainability of key regional businesses and contribute economically to regional communities (Stillwell 2003). Employment opportunities are critical, with a majority of respondents to a survey of humanitarian migrants to regional Australia reporting 'having a job' as the most important thing for improving their lives (Shepley 2007).

Migration, climate change and the Asian century

The earth's climate is changing at a rate that has now exceeded forecasts by the IPCC. Changes will result from climate processes such as: rising sea levels; the salinisation of agricultural land; desertification and growing water scarcity; and severe climate events, including flooding, storms and glacial lake outburst floods. Data from the Climate Futures for Tasmania project indicate that while Tasmania will experience a changing climate, the effects are not likely to be as devastating as in other regions of Australia or the world.

The global consequences of climate change will include the disappearance of low-lying territories, an increase in the frequency and severity of natural disasters, altered flows of resources, and the possibility of resource-based conflicts.

The United Nations predicts that climate change will trigger larger and more-complex population movements, and greater displacement challenges. These challenges will be unprecedented, complicated and highly uncertain. Professor Norman Myers of Oxford University has advised the IPCC that, by 2100, as many as 200 million people may be forced to move as a direct result of climate change (Myers 2005).

The Tasmanian Government should work with national and international policy-makers to understand and prepare for the added strain and risk imposed by climate change-induced global migration. This should be one important element of Tasmania's participation in a broader debate in Australia about regional settlement patterns. Such participation can help ensure the approach taken to this issue through forums like COAG reflect the unique needs, opportunities and infrastructure requirements of different regions.

8.5 Government support for Asia literacy

The Australian White Paper affirms that Australians need an evolving set of Asia-relevant capabilities that are both broad and specialised. Governments, businesses, institutions and individuals all have a role in building these capabilities. The Australian White Paper also identifies the need to produce a step change in the understanding of Asia and the acquisition of Asia-relevant capabilities. The building blocks to develop knowledge of the region, including its history, culture and language, are laid in our schools, which are a core state government responsibility.

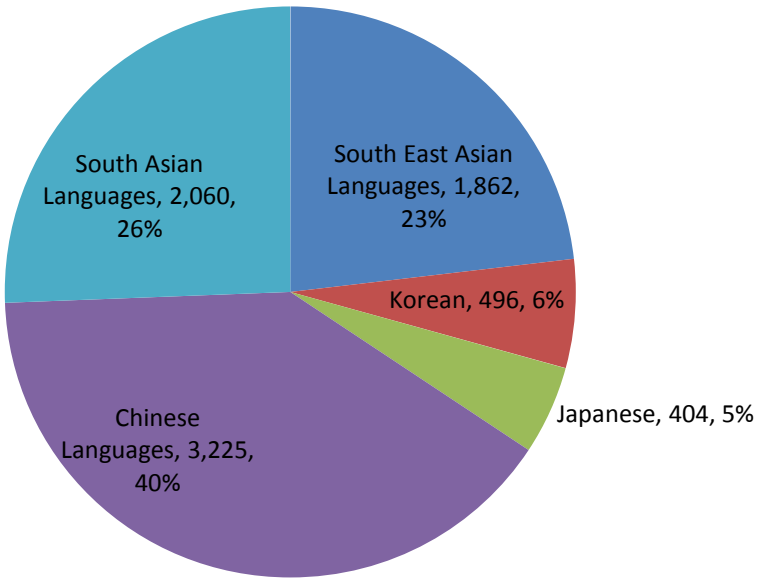
The diversity of Australia's population, including the large number of Australians born in Asia or who are of Asian descent, increases understanding of the region and the broader concept of Asia literacy. However, as noted in Chapter 3, Tasmania has a smaller

proportion of its population with an Asian linguistic or cultural background (compared with other states).

While language fluency may be only a weak proxy of broader Asia literacy, the ability to speak an Asian language is still an important indicator, and Tasmania lags behind the rest of Australia in this measure. In the 2011 census, 1.6 million, or 7.4 per cent, of Australia's population of 21.5 million spoke an Asian language. For Tasmania, 8 047 people, or 1.6 per cent of its population, were identified as speaking an Asian language. The proportion of speakers is identified in Figure 8.3 (ABS 2011b).

The Tasmanian Government must be prepared to do more — both in increasing migration and ensuring that Tasmanian schools have access to the resources necessary to communicate an effective understanding of Asia.

Figure 8.3: Tasmanian residents who speak an Asian language, 2011 census



Source: ABS 2011 Census of Population and Housing, X05 language spoken at home by proficiency in spoken English/language.

Asia literacy in schools[1]

State education ministers across Australia have agreed that Asia literacy is vitally important. The Melbourne Declaration on Educational Goals for Young Australians makes specific

[1] This section draws on the Tasmanian Department of Education's submission to the Tasmanian White Paper.

reference to the growing influence of Asian countries on the world and the increased need for Australians to become Asia literate.

The Tasmanian Department of Education is developing an Asia Strategy that will align with agreed activities under the Australian and Tasmanian White Papers. The objectives of this Asia Strategy include:

- the implementation of the Australian Curriculum;
- building leadership support and teacher capacity through professional learning and cross-cultural engagement;
- stimulating engagement through interactive and broadband technologies; and
- specialist language provision.

As noted in Chapter 5, learning an Asian language is only one element of developing Asia literacy in the broader sense. Increased language provision will nevertheless remain an important objective for Tasmanian schools in future. A 2012 survey found that a total of 11 185 Tasmanian students between kindergarten and Year 10 are studying Indonesian, Japanese or Mandarin. Of these, a total of 1 339 students are learning Mandarin, a rise of over 650 students since 2011. Asian languages, including Japanese and Indonesian, have been taught in Tasmanian government schools since the late 1970s.

As part of the Australian Curriculum, the following curriculum pathways will be developed for Asian languages by the end of 2013:

- Vietnamese: one learner pathway to be developed, pitched at learners who have some background in the language;
- Indonesian, Japanese and Korean: one learner pathway to be developed, pitched at second-language learners; and
- Chinese: three learner pathways to be developed to cater specifically to second-language learners, background-language learners and first-language learners.

Identified challenges to increasing the uptake of Asian languages in Tasmanian schools include:

- the long-term nature of developing effective and stable school policies and programs that build up enrolments in language and cultural studies;
- the difficulty of recruiting skilled language teachers (or building capability through training), where a strong expatriate community is lacking; and
- improving the perception of the value of learning languages, particularly with regard to Indonesian and Chinese.

The Tasmanian Government supports increased study of Asian languages and culture in schools. An important step is increasing community recognition of the importance and benefits of Asian-language learning and cultural understanding.

The Asian century, including Tasmania's reception of migrants from diverse backgrounds, has the capacity to make a significant contribution to Tasmania's economy and community. Tasmania's school system has a critical role to play in ensuring that this contribution is recognised. "Asia and Australia's engagement with Asia" is one of three national cross-curriculum priorities in the Australian Curriculum and "intercultural understanding" is one of seven general student capabilities.

"Asia and Australia's engagement with Asia" should enable every young Australian to gain knowledge and develop a better understanding of the countries and cultures of the Asian region and their engagement with Australia. This involves embedding studies of Asia in all learning areas from kindergarten to Year 12, rather than establishing any discrete subject. Asia-related content is being progressively added as the curriculum is developed. The major themes will be Asia and its diversity, the achievements and contributions of the people of Asia, and Asia–Australia engagement.

All students should acquire the "intercultural understanding" capability by the time they leave school. Students are to develop intercultural understanding as they learn to value their own cultures, languages and beliefs, and those of others. They will come to understand how personal, group and national identities are shaped, and the variable and changing nature of culture. Students will learn how to engage with diverse cultures in ways that recognise commonalities and differences, create connections with others, and cultivate mutual respect. While not specific to Asia, this capability will be embedded in the subjects and disciplines that make up the Australian Curriculum.

Asia literacy is an important educational outcome for Tasmanian students. The Tasmanian education approach to Asia literacy recognises that literacy is more than language, food and music. There is a need to consider culture, history and current issues. The values of understanding and respect that are core to the education system must be extended to include an appreciation and acceptance of different cultural mores and behaviours at the everyday interaction level. Increased Asia literacy will be an important contribution to social cohesion in an increasingly multicultural Tasmania, and it will support the capacity of those going on to do business with Asia.

Asia literacy can be enhanced by celebrating the stories of international migrants now living in Tasmania, the experiences of Tasmanians living and working overseas, and business and trade success stories.

Additionally, the Tasmanian Government should consider:

- supporting an increased uptake of Asian-language study in schools, and supplementary strategies for those schools where there is little community support or demand for Asian-language study;
- improving access to, and the range of, language choices that exist online, particularly Chinese (Mandarin);
- using more technology-based and online learning approaches to reach Tasmanian students in rural or remote schools;

- sharing practical experiences associated with the use of interactive technologies, such as the Asia Education Foundation's BRIDGE program, which enables school partnerships with China, Indonesia, South Korea and Thailand;
- involvement in the Asia Literacy Ambassadors program run by the Asia Education Foundation;
- supporting more student tours and long-term study exchanges (particularly for students from low-income families), as personal encounters are often effective in building demand and interest. These initiatives could be linked to key decision points at school, when attrition from language studies is most likely to occur;
- a focus on parent information which addresses the value of language study and the support that parents can offer to encourage their child's language study;
- employing Tasmanian residents from Asian communities as tutors or background speakers in schools and colleges, especially as a way to build students' conversation skills; and
- introducing a compulsory offshore study period in higher-level language studies, which could be supported through the provision of government scholarships or awards (similar to the Frank MacDonald Memorial Prize), perhaps in partnership with Asia-oriented businesses or the University of Tasmania.

Education Services Australia is supporting and promoting the Language Learning Space, which provides a video conferencing platform and spoken language practice. Because of work such as this, which has national reach, Tasmania is not solely reliant on its own resources for learning materials or professional learning for teachers and school leaders.

Asia literacy in the community

As part of positioning Tasmania for the Asian century, the Tasmanian Government will need to develop a communication strategy that both promotes awareness of Asian cultures and economic opportunities and builds community confidence in Tasmania's education, internationalisation and migration strategies. At the same time, the Government should also strengthen its Multicultural Policy, promote zero tolerance of racism, ensure student safety and improve the community's reception of international migrants.

The communication strategy should be managed as a whole-of-government collaborative strategy under the guidance of the Economic Development Plan Subcommittee of Cabinet. The key objective should be to develop a strong and ongoing campaign to make the community far more aware of Asia's transformation and accepting of the cultures and people that make up Asia.

The strategy will need the strong engagement of both the Australian Government, particularly through DIAC, and the community, with the establishment of a forum to act as a focus for community input.

Key agencies and divisions for the implementation of the strategy would be the Community Development Division of DPAC, the Tasmanian Office of the Anti-Discrimination Commissioner, the Tasmanian Department of Education and DEDTA.

The Tasmanian Government, through the COAG process and standing committees, should also seek broad support for a national campaign to reinvigorate multiculturalism and discussion of the benefits of international investment and migration, particularly in Australia's peripheral regions.

The Tasmanian Government strongly supports the role of the Tasmanian Office of the Anti-Discrimination Commissioner and upholds the *Anti-Discrimination Act 1998* to outlaw discrimination on the grounds of race, religion and other identified attributes or identities. The Tasmanian Government also supports the National Anti-Racism Strategy launched in August 2012 to stamp out racism.

LINC Tasmania collection development

LINC Tasmania actively promotes the cultural, economic and social development of Tasmanians by providing access to knowledge, information and creative literature. It is a statewide network that gives Tasmanians access to library services, research and information, adult literacy support, community learning, the internet, and archive and heritage services.

LINC Tasmania holds a small collection of non-English library resource books, magazines, newspapers and language-learning resources in Chinese, Japanese, Thai and Vietnamese. The collection is supported by a very small annual budget, and the spread of languages (including several European languages) is determined by population data reported in the census.

Additional funds would be required to extend coverage of the LINC collection. If this funding were forthcoming, there could be a targeted approach to increasing Asian-language resources (across a number of formats) where there is demand. These items would be available to library members anywhere in Tasmania.

Community learning

The current LearnXpress program, which offers a range of courses in various activities to Tasmanians, is offering Asian-language classes in Japanese, Mandarin and Indonesian. Most classes are at an introductory level for those wishing to learn basic words and phrases, with some classes providing intermediate-level courses. Courses are offered on a full cost-recovery basis. Classes in other Asian languages could be incorporated into the program where demand exists and tutors are available.

Asia literacy in the workforce

As noted in submissions to the Tasmanian White Paper, there are numerous legal, cultural, social and environmental differences between Tasmania and many Asian countries.

Tasmania's development of an Asia literate workforce should build on the advantage that English is generally accepted as the global language of business. A substantial investment and passion is required to develop the level of fluency in a foreign language that is necessary to conduct business or legal dealings in that language.

Yet there is a real benefit to developing greater linguistic understanding, as this provides a way to deepen business' understanding of customers and investment locations, including their legal systems, business practices, habits and cultural attributes. This knowledge better allows Tasmanian businesses to identify opportunities and make decisions confidently when dealing with Asians in business (Leung-Mullany 2012). Improving the Asia literacy and business capacity of Tasmania's workforce is therefore an element of Tasmania's skills planning and the services delivered by DEDTA.

Tasmania's new skills plan is a strategy to increase the stock of work-relevant skills in the community to support economic growth, entrepreneurship and innovation, and to create a training system that works better for all Tasmanians. Skills development is a whole-of-economy driver, and is imperative to realising the Economic Development Plan and positioning Tasmania for the Asian century. As part of the future development of Tasmania's skills strategy and the Economic Development Plan, DEDTA should work with Skills Tasmania to identify how government-funded programs can be better positioned to give businesses and employees the Asia literacy skills they need to succeed. This could include:

- training in tourism and other services utilised by international visitors to ensure that visitors with varying degrees of English proficiency have a rewarding experience of Tasmania's 'Western culture';
- knowledge-based training in Asian customs and business environments;
- establishing cooperative relationships with potential business partners in Asia; and
- recording case studies of successes and learning opportunities.

As part of providing better training to tourism and other hospitality providers, training organisations need to develop their own understanding of the expectations of Asian tourists (Tasmanian Skills Institute 2012). This can be achieved by forming links with tourism and hospitality providers overseas that are already popular with Asian tourists, or by developing triangular links between Tasmanian tourism and hospitality operators, the Skills Institute, and successful Asian tourism and hospitality businesses. The development of triangular links will be supported by continued facilitation of two-way investment and migration between the Asian region and Tasmania.

In its submission to the Tasmanian White Paper, the Skills Institute argued that its role in the Asian century, along with TasTAFE, will be to help Tasmanian businesses, especially SMEs, engage with Asia. To do this successfully, the training institution must itself be an experienced and adept operator in Asia. Education and training organisations must be early adopters of Asia literacy. The Tasmanian Government should support this process.

Opportunities to improve the English skills of all Tasmanians are also being explored as part of life-long learning and adult literacy programs, with the objective of ensuring businesses are confident that they have the support to make good employment choices.

Asia literacy in the Tasmanian Public Service

The Australian White Paper establishes a national objective for decision-makers in Australian businesses, parliaments, national institutions (including the Australian Public Service) and advisory forums to have deeper knowledge of, and expertise in, the region's many diverse countries. These leaders should also have a greater capacity to integrate domestic and international issues.

Policy officers will require a more sophisticated understanding of the region to enable the Tasmanian Government to link together Tasmanian, national and international aspects of policy advice and program delivery. This will be particularly important in Tasmania, where the significant opportunities of the Asian century are balanced by substantial challenges. The Tasmanian Government, through central and line agencies, must have the capacity to better support businesses and communities in delivering the opportunities of the Asian century.

The Tasmanian Government should work to ensure the Tasmanian Public Service has the necessary skills and understanding to position Tasmania effectively, and to develop policies and deliver services that meet the needs of the Tasmanian community in the Asian century.

Working with DEDTA and the Department of Education's GETI unit, DPAC's Public Sector Management Office should look to adapt the Asialink Asia Capable Workforce Strategy to the Tasmanian Public Service, identifying the most effective way to access the capabilities most relevant to Tasmania. Asialink's Asia Capable Workforce Strategy identifies five organisational capabilities and six individual capabilities for success in Asia.

The organisational capabilities are:

- leadership committed to an Asia-focused strategy;
- customised Asian talent management;
- customised offering/value proposition based on customer insights;
- tailored organisational design with tendency to local autonomy; and
- supportive processes to share Asian learnings.

While developed for business, the importance of tailored organisational design and customised offerings indicates that a one-size-fits-all approach should not be applied across the Tasmanian Public Service. Instead, an adaptive approach should form the basis for individual government departments and agencies to develop plans to ensure they have the right Asia-relevant capabilities to meet the requirements of their clients and the objectives of the Tasmanian Government. Processes for sharing Asian learning can leverage off the expertise already developed by the University of Tasmania and government departments already engaged with Asia.

The individual capabilities are:

- sophisticated knowledge of Asian markets/environments;
- extensive experience operating in Asia;
- long-term trusted Asian relationships;
- ability to adapt behaviour to Asian cultural contexts;
- capacity to deal with government; and
- useful level of language proficiency.

The need for individual Asia-relevant capabilities will vary significantly by individual and role across the public sector.

Tasmania's Training Consortium, Department of Education, Skills Institute, the University of Tasmania, the Australia and New Zealand School of Government, and GETI in particular, will all have a part to play in creating a more Asia literate public service through greater skills development. In the long run, the Asia literacy of the public sector will also be supported by Asia literacy components of the Australian Curriculum.

There are training programs in place at the national level that will be of use to the Tasmanian Government. For example, as identified in the Australian White Paper, the Leading Australia's Future in the Asia-Pacific program provides opportunities, in partnership with the Australian National University, for public service leaders to deepen their understanding of the region.

As a policy priority for improving Tasmania's position and engagement in the Asian century, the Tasmanian Government should seek to enrol one state service officer in the program each year. This will not only increase the Asia-related capabilities of the individual, but also ensure that Tasmania has access to the growing networks of Asia literate public policy-makers as the Asian century unfolds. Alumni would be expected to support the public sector and community's understanding of Asia's transformation and continue to develop their Asian connections and expertise over their careers.

Recruitment of persons with Asia-specific skills, including cultural knowledge and awareness, will be particularly important in some roles, but will also have a positive effect on the Asia literacy of Tasmania's public sector more generally. While maintaining the principles of merit that underpin the integrity of state service recruitment processes, the Tasmanian Government should consider revising policies with respect to employment diversity. This will encourage the employment of international graduates from the University of Tasmania and TasTAFE.

The Tasmanian Government can also support Tasmanian business engagement in Asialink's proposed Centre for Asia Capability to help the business community overcome barriers to Asian engagement. These barriers include a lack of relevant experience, knowledge and training. The proposed centre is also expected to offer practical advice to the business community regarding how to operate in, and engage with, Asia.

8.6 Business and investment

The role of government in boosting foreign investment and its role in the Tasmanian economy is paramount and central to Tasmania's development in the Asian century. There is a large amount of work occurring through DEDTA, including the Tasmanian Government Innovation and Investment Fund and Export Marketing Assistance program, aimed at strengthening business and investment.

There is potential for more government support for businesses to engage with Asia. Government has a role in expanding access to, and understanding of, export markets, particularly for smaller businesses. A potential pathway to increase this assistance includes working more closely with Australian Government trade and investment agencies to boost Tasmania's reach in Asia. This could include embedding capability in Australian Government agencies, such as Austrade, to improve Tasmanian links to Asian markets.

Through DEDTA, the Tasmanian Government should develop strategies to link foreign investors to Tasmania's pipeline of investment opportunities. This strategy can be implemented and monitored as part of Tasmania's Economic Development Plan. Potential projects include agricultural expansion through new irrigation schemes, mining projects and property developments.

There is a considerable amount of work being done by Invest Tasmania to try and stimulate investment. Invest Tasmania specialises in:

- helping to link potential investors to local opportunities;
- introducing local businesses that are looking for new investors; and
- showing global location consultants why Tasmania offers a strong business environment (Invest Tasmania 2012).

Marketing Tasmania's investment opportunities to potential Asian (and global) investors and business migrants will:

- help Tasmania deliver projects of state significance;
- provide an avenue for people with financial assets to migrate to Tasmania, increasing both the demand for goods and services and the presence of Tasmania's Asian community; and
- establish new ties to Asian countries, creating pathways for future investments and exports.

Part of DEDTA's role, in conjunction with Austrade and AusIndustry, is to maximise the flow-on and multiplier effects of investment by building networks that allow for greater interaction between domestic and international investors and potential suppliers, as well as in the community. A potential pathway to bringing parties together is for DEDTA to leverage landmark Tasmanian events, such as the Sydney to Hobart Yacht Race, and events currently sponsored by Events Tasmania, such as the Taste Festival and MONA FOMA.

Invest Tasmania and DEDTA are positioned as a 'go-to point' for businesses looking to partner in events targeting wealthy Asian investors and for promoting Tasmania–Asia business ties. This role would be cemented through the organisation of a major annual Premier-hosted Asia–Tasmania event to celebrate Tasmania's expanding ties with Asia. This event would increase awareness of opportunities in Asia for Tasmanian businesses and the community, drawing in stakeholders in the relationship.

Foreign Investment Review Board

The Foreign Investment Review Board (FIRB) forms an important step in foreign investment approval. A key role is to ensure public confidence in the benefit of international investment in Australia. The FIRB process is clear, but can be difficult to navigate for foreign investors.

The FIRB process puts the onus on investors to navigate the federal system. FIRB's screening process takes up to 30 days, with the possibility of extension to 90 days if requested by the Review Board.[2] FIRB consults with all potential stakeholders and relevant institutions, and then submits advice to the Australian Treasurer. The Treasurer then makes the final decision to either reject or approve an investment (approval is valid for one year). If amendments are required, the applicants need to resubmit.

The Tasmanian Government can facilitate and socialise the growth of foreign investment by effectively communicating FIRB's role to the community and the benefit of investment to the Tasmanian economy.

8.7 Trade representatives

The Tasmanian Government, through DEDTA, has developed a variety of strategies to facilitate international investment in Tasmania and to increase exports to the Asian region.

DEDTA makes extensive use of Australia's overseas posts to advance Tasmania's interests, principally through Austrade, but also through the Department of Foreign Affairs and Trade. These agencies have an extensive network of overseas offices, and generally have ready and easy access to foreign organisations because of their diplomatic status. This arrangement serves Tasmania well and continues to be beneficial.

Australia's missions include specialist staff from other Australian Government agencies, such as DAFF, who engage with foreign counterparts and provide technical back-up on issues, such as market access for horticultural products. An outline of federal agency representation in Australia's international missions is presented in the Australian White Paper (AWP 2012, 280).

[2] Anecdotally, investors can also be informed that the application will take a long time, who may then wish to withdraw the application and re-apply.

Australia's overseas posts also have the capacity to provide assistance through referrals to third parties. When Tasmania hosted a recent mining investment seminar in Beijing, Austrade was able to refer DEDTA officers to a very capable Chinese organiser who delivered an excellent event under contract. The Tasmanian Government must make more use of these federal resources in developing its own initiatives in Asia.

A number of Australian states have also established their own overseas offices. This may be feasible and appropriate for larger states, but the Tasmanian Government considers this to be a relatively expensive undertaking given Tasmania's fiscal constraints, and seeks more cost-effective strategies for reaching out to Asian markets. An alternative strategy is to adopt a model whereby Tasmania has its own representative embedded within an Austrade office, either focusing on priority tasks and missions or ongoing representation. This latter approach has a number of advantages, including:

- direct networking with Austrade staff and offices, increasing the potential to leverage off their work;
- access to Austrade knowledge, contacts and expertise;
- flexibility in shifting targets and priorities in response to changing market needs; and
- greater international reach — Austrade has some 13 offices across China, Hong Kong and Macau alone.

Replicating the geographic reach, breadth of specialist expertise, networks, contacts and experience of Austrade is not feasible for most states, and would be highly impractical for Tasmania. Further developing relationships with Austrade, including the deployment of Tasmanian representatives in strategic Austrade offices on strategic tasks, is the most cost-effective strategy for increased Tasmanian trade representation in Asia.

Partnering with China

The time is now right for Tasmania to have its own representative in China, recognising the substantial trade and investment relationship that already exists with China, and the potential to deepen economic, educational, scientific and cultural ties throughout the Asian century.

A representative in China would be able to raise Tasmania's profile among key trade, education and investment players, and would be able to undertake a range of activities to support key objectives. This would include delivering business migration seminars to drive greater interest in Tasmania.

In the Asian region, Tourism Tasmania currently has representatives in Hong Kong, Shanghai and Japan. Given the long-term potential of the Chinese market, this engagement should continue to ensure that Tasmania is positioned for further growth in tourism, recognising the competition from other national and subnational tourist destinations.

8.8 Investing in Asian relationships

For Tasmania to effectively position itself in the Asian century, developing stronger relationships with overseas countries is an absolute imperative. Many countries in Asia place great emphasis on developing strong high-level relationships. This applies to business and government at all levels. Hence, there is substantial value to be gained from ministers travelling overseas to establish these kinds of high-level relationships across the region. The Tasmanian Government should ensure bipartisan engagement in key relationships, which will help to sustain long-term relationships during the Asian century. Ministerial visits have been vital to gaining market access for Tasmanian products in a number of Asian countries, including Japan, Taiwan, South Korea and China.

As part of the business mission led by Premier Lara Giddings MP to Asia in September 2012, connections were made with the three major Chinese organisations involved in China's Antarctic endeavours. These high-level connections are the foundation stones for Tasmania's strategy to develop Hobart's profile as an Antarctic gateway city and to facilitate Chinese engagement in Antarctic and Southern Ocean science and diplomacy through Hobart. Similarly, the Premier's involvement in talks with the Vietnamese Ministry of Education and Training has stimulated plans to send Vietnamese government-sponsored students to undertake specialised studies in Tasmania.

At the trade level, the Tasmanian Government, through DEDTA, will continue to coordinate a number of exhibitions and promotions in key regional markets over the coming years across a range of sectors. Participation in appropriate food and wine promotions, in particular, will assist in projecting Tasmania's reputation as a supplier of safe, quality and premium food products — a core attribute for Tasmanian produce in the Asian century. Participating companies already regard these exhibitions as critical to building connections in overseas countries, and have achieved positive commercial outcomes as a result of their participation. Tasmanian exhibition marketing is carried out under the Tasmanian brand and is coordinated with Austrade.

The Tasmanian Government, through DEDTA, also facilitates industry trade missions, including arranging business networking and business matching, and related in-market activities. An added benefit of these activities is the capacity to pair new exporters with more-experienced exporters, and the development of cross-business networks both internationally and within Tasmania.

The Tasmanian Department of Education is also engaged in developing international relationships to support the Tasmanian education sector. The Department of Education has a funded international education roundtable that brands Tasmania as a centre for educational excellence, offers familiarisation tours, and provides welcome events and award programs that lift the profile of education in Tasmania. The University of Tasmania, Department of Education and independent schools also conduct familial tours.

The Tasmanian brand is a recognised asset to exporters of premium Tasmanian products and services. The Tasmanian brand strives to encapsulate a single recognisable value

proposition, encompassing pure food, natural wilderness, migration and lifestyle opportunities, international education, and world-class manufacturing.

Brand Tasmania is the custodian of the Tasmanian Master Brand. The independent council's objectives are to heighten the profile, quality and value of Tasmanian products and services and to encourage broad-based ownership of the Tasmanian brand by Tasmanian enterprises and the community. The council promotes the advantages of living, working, learning, visiting and doing business in Tasmania. Council members, who volunteer their time, include leaders from the private sector and representatives from DEDTA and the Tasmanian Department of Primary Industries, Parks, Water and Environment. The council collaborates with leaders in various industry sectors. Its members are inspired by Tasmania's rich natural and cultural heritage, as well as the resourcefulness, vision and creativity of the Tasmanian people.

In the context of the Asian century, it is important that Tasmania's brand attributes are regularly reviewed and refreshed to ensure their continued relevance to key markets. The Tasmanian Government should continue to collaborate with Brand Tasmania to identify how best to coordinate and promote Tasmania's brand attributes to a diverse Asian market, whose importance will only continue to grow in the Asian century.

Appendix 1 Analysing Tasmania's relative economic performance

A1.1 Decomposing GDP/GSP per capita

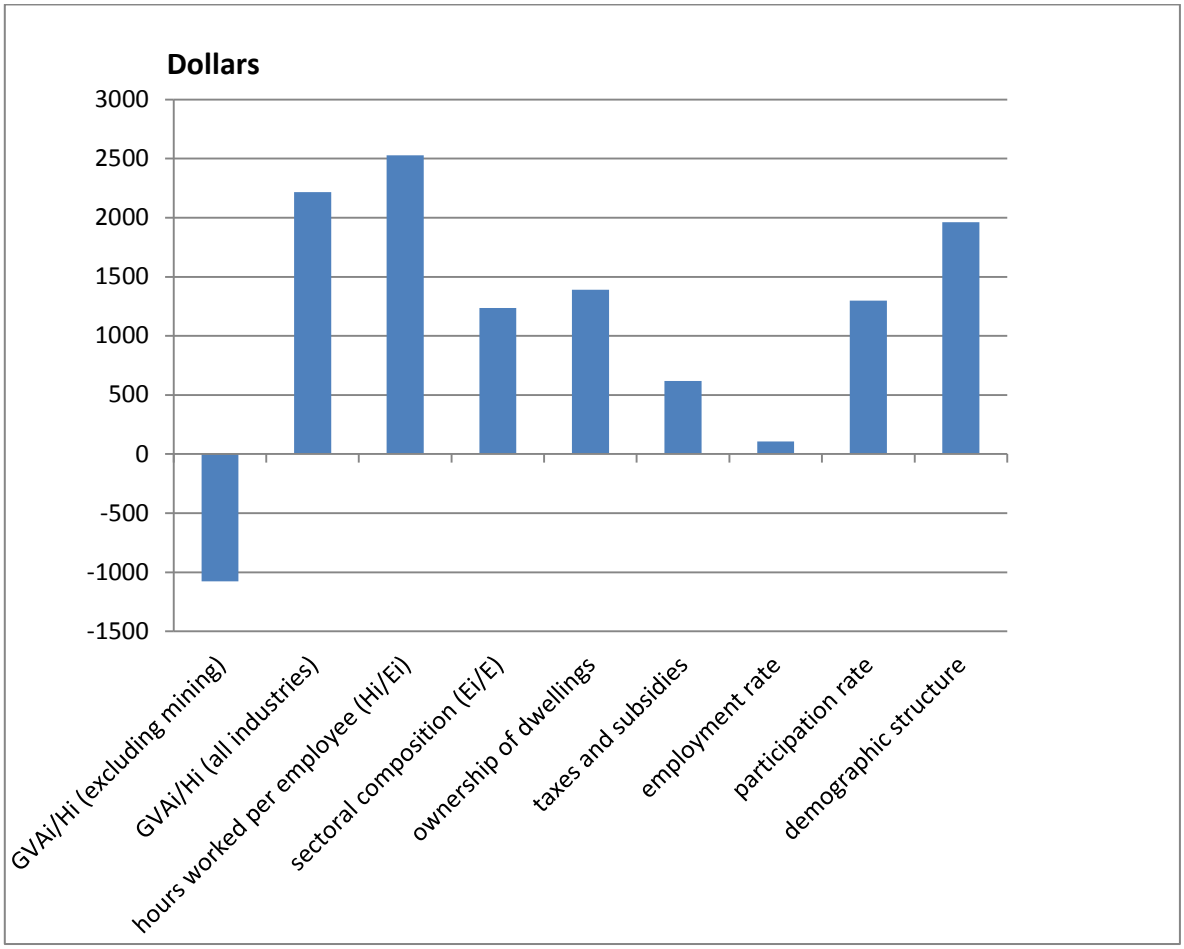
To gain a better understanding of Tasmania's lower-than-average economic performance relative to Australia as a whole, it is possible to break down GDP/GSP per capita into multiple components, as follows:

$$\frac{GDP}{P} = \left(\sum_{i=1}^{n} \frac{GVA_i}{H_i}\frac{H_i}{E_i}\frac{E_i}{E} + \frac{D}{E} + \frac{T-S}{E}\right)\left(\sum_{j=1}^{m} \frac{E_j}{L_j}\frac{L_j}{P_j}\frac{P_j}{P}\right)$$

In the term between the first pair of parentheses, GVA refers to gross value added, H is the number of hours worked, E is the number of employees and subscript *i* denotes industry *i*, where the industries are defined by ANZSIC industry division, while D is the contribution from ownership of dwellings, and T-S is the contribution of taxes less subsidies. In the term between the second pair of parentheses, E refers to the number of people employed, L to the number of people in the labour force, P to the population and subscript *j* denotes age groups, by standard classification.

Components of Tasmanian GSP per capita are then individually replaced with the corresponding ratio Australia-wide, while holding the other components of GSP per capita constant. This exercise is carried out for the past five financial years (2007–08 to 2011–12). The average of these results is reported in Figure A1.1. It should be noted that the sum of these changes will not add up to the difference between Tasmanian GSP and Australian GDP per capita because of the interaction effects between variables. This method follows the general approach to decomposing GDP used in the Australian Government's *Intergenerational Report*.

Figure A1.1: Average effects of single-variable comparative statics on GSP per capita, 2007–08 to 2011–12



Care should be exercised in interpreting the results of this decomposition. Rather than explaining the sources of Tasmania's lower GSP per capita, it provides a counterfactual against which Tasmania's current performance can be assessed. To take a concrete example, these results do not say that Tasmania's lower participation rate lowered Tasmania's GSP per capita on average by $1 300 over the last five years. Rather, they say that, if enough jobs were available in Tasmania to support an increase in the participation rate so that it were equal to the Australian rate, even while keeping the industry structure and average hours worked of the Tasmanian economy the same, Tasmania's GSP per capita would have been $1 300 higher.

With this interpretation in mind, the first question to be asked is which of these components could a government reasonably hope to improve. It is clear that some components are outside the control of government — in particular, labour productivity in mining, the ownership of dwellings, the contribution of taxes and subsidies to GDP/GSP per capita, and, to a certain extent, the demographic structure.

Other components do change over time and are responsive to changes in government policy. This is true of labour productivity, the number of hours worked per employee, the sectoral composition of the economy, the employment rate and the participation rate.

A1.2 The role of productivity

Improving these components of GSP per capita will ultimately require improvements in Tasmania's multifactor productivity. Although the ABS does not publish estimates of multifactor productivity for the states and territories, Tasmania's lower GSP per capita would almost certainly have been caused by lower multifactor productivity. This is notwithstanding the fact that the estimates above show a slightly higher labour productivity in the non-minerals sectors in Tasmania than on the mainland.

In the absence of substantial barriers to the movement of factors between the mainland and Tasmania, factor price equalisation will be observed: labour and capital productivity should be roughly equal in both places. Because of diminishing returns to factors of production, this factor price equalisation implies that differences in multifactor productivity will instead be observed in the *amount* of each factor employed in Tasmania and on the mainland. Thus, even though returns to labour may be about the same, the Tasmanian economy will be able to support fewer jobs relative to the size of the population than if multifactor productivity were as high as it is in the rest of the country.

This prediction is borne out in the results of the Tasmanian White Paper's decomposition. The return to labour, measured by GVA per hour worked in each industry, is roughly equal. Indeed, within industry, GVA per hour worked is a little higher in Tasmania (excluding the mining sector), although Tasmania is on the whole composed of less-productive industries. However, the Tasmanian economy offers fewer employment opportunities to its population, leading to fewer hours worked — counteracting the effect of slightly higher hourly labour productivity — and lower employment and participation rates, even after accounting for Tasmania's older population.

Raising multifactor productivity is difficult and there is no single policy for governments or action for businesses that will improve it. Productivity must be understood as a business-level phenomenon, and improvements are generally derived from two sources: creative destruction — the creation of new businesses and the closure of less-productive business activity — and innovation. Innovation describes the process by which existing businesses improve their efficiency through the use of new management, organisational and marketing practices; the implementation of new technologies; or new adaptations of existing technologies.

Governments can improve productivity through three channels: by providing *incentives* for firms to innovate and expand, by developing the *capabilities* of firms to innovate, and by making sure that regulation gives firms the *flexibility* to take advantage of a changing economy (Banks 2012, 8).

In the context of the decomposition of Tasmania's labour force above, innovation will directly affect Tasmania's GVA per hour worked, while the expansion of more-productive business can affect both GVA per hour worked and the sectoral composition of the Tasmanian economy, which is currently more heavily tilted towards less-productive sectors. Improvements to multifactor productivity would also expand the number of jobs

the Tasmanian economy can support. This would in turn lead to improvements in the number of hours worked, as well as the employment and workforce participation rates.

A1.3 Data sources

- Tasmanian GVA by industry: *Australian National Accounts: State Accounts*, ABS Cat No 5220.0, table 7
- Australian GVA by industry: *Australian National Accounts: National Income, Expenditure and Product*, ABS Cat No 5206.0, table 6
- Employment by industry: *Labour Force, Australia, Detailed, Quarterly*, ABS Cat No 6291.0.55.003
- Hours worked by industry: *Labour Force, Australia, Detailed, Quarterly*, ABS Cat No 6291.0.55.003
- Australian employment by age group: *Labour Force, Australia, Detailed*, ABS Cat No 6291.0.55.001
- Australian labour force by age group: *Labour Force, Australia, Detailed*, ABS Cat No 6291.0.55.001
- Australian population by age group: *Labour Force, Australia, Detailed*, ABS Cat No 6291.0.55.001
- Tasmanian employment by age group: *Labour Force, Australia, Detailed*, ABS Cat No 6291.0.55.001 (2010–11 and 2011–12) and *Tasmanian State and Regional Indicators*, ABS Cat No 1307.6 (2007–08 to 2009–10)
- Tasmanian labour force by age group: *Labour Force, Australia, Detailed*, ABS Cat No 6291.0.55.001 (2010–11 and 2011–12) and *Tasmanian State and Regional Indicators*, ABS Cat No 1307.6 (2007–08 to 2009–10)
- Tasmanian population by age group: *Labour Force, Australia, Detailed*, ABS Cat No 6291.0.55.001 (2010–11 and 2011–12) and *Tasmanian State and Regional Indicators*, ABS Cat No 1307.6 (2007–08 to 2009–10)

Appendix 2 Using the frontier gravity model to evaluate Tasmania's trade performance

B2.1 Frontier gravity model specification

To assess Tasmania's trade performance compared with other states and economies, stochastic frontier analysis can be applied to a gravity model of trade. The model specification is as follows:

$$\ln x_{ijt} = \alpha_0 + \alpha_1 \ln GDP_{it} + \alpha_2 \ln GDP_{jt} + \alpha_3 \ln DIST_{ij} + v_{ijt} - u_{ijt} \qquad (2.1)$$

Equation (2.1) defines a benchmark or potential level of trade expected between any two trading partners (from economy *i* to economy *j* at time *t*) given their economic size and distance from each other. In this equation, GDP_i and GDP_j are the GDP of exporting economies and their trading partners, representing economic mass; $DIST_{ij}$ is the distance between two trading partners; u_i is an '*inefficiency*' term that represents the gap between actual and potential trade.

Also in Equation (2.1), v_{ij} is a normal error term and u_{ij} is a non-negative disturbance term. The assumed non-negative distribution of this term is due to the existence of difficult-to-measure or unobservable resistances to trade, which include socio-economic, institutional and political factors in both the exporting and importing economies (Armstrong 2007). Some of these factors can be proxied by variables such as government size, customs and regulatory environments, measures of economic freedom, port efficiency, and other infrastructural factors that cultivate trade resistance (Kalirajan and Findlay 2005).

An additional equation is used to account for the dynamics of the u_{ij} term:

$$\mu_{ijt} = \delta_0 + \delta_1 COMLANG_{ij} + \delta_2 BORDER_{ij} + \omega_{ijt} \qquad (2.2)$$

where $COMLANG_{ij}$ denotes a common language for two trading partners, and $BORDER_{ji}$ takes a value of 1 if *i* and *j* share a common land border and 0 otherwise. Due to limited data availability and the study's focus on measuring potential trade — instead of trying to explain performance — only these two factors can be taken into account. Several other factors that measure the quality of institutions and infrastructure are left in the residual, which helps account for the gap between actual and potential trade. Potential trade is then estimated to determine the *trade performance* of a particular bilateral pair of economies. *Trade performance* is measured as a percentage, as the ratio of actual to potential trade.

In this model, Tasmania and other states of Australia are treated as individual economies that have trading relationships with all other countries and economies in the world. The two equations are estimated using the computer program Frontier 4.1 (see Coelli 1996). The *trade efficiency* level is instantaneously calculated following model estimation.

B2.2 Variable description and data sources

The data are for the years 2005–10, during which time many significant changes in global trade took place under the impact of global macroeconomic shocks. Data for several years are used in this cross-section analysis so that results are not biased by shocks in any particular year, or the business cycle. The main data sources include the ABS, the United Nations' Trade Database (Comtrade), the World Bank's World Development Indicators, and the French Research Center in International Economics (CEPII). Details of variable descriptions and their data sources are provided in Table A2.1.

Table B2.1: Variable descriptions and their data sources

Variable	Description	Data source	Unit
Log of x_{ij}	Log of nominal bilateral exports from economy *i* to its trading partner, *j*. For Australian states, the value of nominal exports in Australian dollars is converted to its value in US dollars based on the exchange rate provided in the World Bank's World Development Indicators	ABS and Comtrade	Log of 1000 US dollars
Log of *GDP*	Log of nominal GDP for exporter *i* and its trading partner, *j*. For Australian states, nominal GDP in Australian dollars is converted to US dollars based on the exchange rate provided in the World Bank's World Development Indicators	ABS and the World Bank's WDI	Log of 1000 US dollars
Log of *DIST*	Log of great circle distance between trading partners, measured in kilometres. The distance measure used is the geodesic distance between the most important cities (economic centres) of trading partners **(Mayer and Zignago 2011)**. For Australian states, specific distances between their capital cities and the economic centres of their trading partners are calculated using the great circle formula	CEPII	Log of kilometres
COMLANG	If both trading partners share a common language, *COMLANG* is equal to 1, and equal to 0 otherwise	CEPII	Dummy variable
BORDER	If both trading partners share a common border, *BORDER* is equal to 1, and equal to 0 otherwise	CEPII	Dummy variable

The data set is an unbalanced panel (with missing data and observations) constructed from a global trade matrix involving over 180 countries plus Australian states and territories.

Abbreviations

AAD	Australian Antarctic Division
ABS	Australian Bureau of Statistics
ACE CRC	Antarctic Climate and Ecosystems Cooperative Research Centre
ADB	Asian Development Bank
AQSIQ	General Administration of Quality Supervision, Inspection and Quarantine
ARC	Australian Research Council
ASEAN	Association of Southeast Asian Nations
ATS	Antarctic Treaty System
Austrade	Australian Trade Commission
AWP	Australian in the Asian Century White Paper
BCA	Business Council of Australia
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
COAG	Council of Australian Governments
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DAFF	Department of Agriculture, Fisheries and Forestry
DoE	Tasmanian Department of Education
DEDTA	Tasmanian Department of Economic Development, Tourism and the Arts
DFAT	Australian Department of Foreign Affairs and Trade
DIAC	Australian Department of Immigration and Citizenship
DIER	Tasmanian Department of Infrastructure, Energy and Resources
DPAC	Tasmanian Department of Premier and Cabinet
DPIPWE	Tasmanian Department of Primary Industries, Parks, Water and Environment
ERA	Excellence in Research for Australia
EDP	Economic Development Plan
FAO	Food and Agricultural Organisation

FIRB	Foreign Investment Review Board
FT	Financial Times
GDP	Gross Domestic Product
GETI	Government Education and Training International
GSP	Gross State Product
NSF	National Settlement Framework
IPCC	Intergovernmental Panel on Climate Change
ISB	Indian School of Business
IT	Information technology
IVS	International Visitor Survey
MIT	Massachusetts Institute of Technology
ML	Megalitre
MW	Megawatt
NAPLAN	National Assessment Program – Literacy and Numeracy
NBESP	Nation Building Economic Stimulus Plan
NBN	National Broadband Network
OECD	Organisation for Economic Co-operation and Development
SME	Small and medium enterprise
SMH	Sydney Morning Herald
TFES	Tasmanian Freight Equalisation Scheme
TFGA	Tasmanian Farmers and Graziers Association
TIA	Tasmanian Institute of Agriculture
TICT	Tourism Industry Council Tasmania
UN	United Nations
UTAS	University of Tasmania
UNWTO	United Nations World Tourism Organization
WTO	World Trade Organization

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