SMART ENGAGEMENT WITH ASIA:
Leveraging language, research and culture

FINAL REPORT

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Australian Academy of the Humanities

Australian Academy of Science

ACADEMY OF THE SOCIAL SCIENCES IN AUSTRALIA

ATSE

ACOLA

AUSTRALIAN COUNCIL OF LEARNED ACADEMIES

Australia's Learned Academies

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The Academy promotes the contribution of the humanities disciplines for public good and to the national research and innovation system, including their critical role in the interdisciplinary collaboration required to address societal challenges and opportunities. The Academy supports the next generation of humanities researchers and teachers through its grants programme, and provides authoritative and independent advice to governments, industry, the media and the public on matters concerning the humanities.

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www.science.org.au

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Established in 1971, replacing its parent body the Social Science Research Council of Australia, itself founded in 1942, the academy is an independent, interdisciplinary body of elected Fellows. The Fellows are elected by their peers for their distinguished achievements and exceptional contributions made to the social sciences across 18 disciplines.

It is an autonomous, non-governmental organisation, devoted to the advancement of knowledge and research in the various social sciences.

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www.atse.org.au

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Acronyms

AAAS	American Association for the Advancement of Science
AAPPAC	Association of Asia Pacific Performing Arts Centres
AARNet	Australia's Academic and Research Network
ABC	Australian Broadcasting Corporation
ACOLA	Australian Council of Learned Academies
AICC	Australia International Cultural Council
ANZ	The Australia and New Zealand Banking Group Limited
APEC	Asia Pacific Economic Cooperation
APSA	Asia Pacific Screen Academy
APT	Asia Pacific Triennial
APWT	Asia Pacific Writers and Translators Association
ASEAN	Association of Southeast Asian Nations
ATAR	Australian Tertiary Admission Rank
ATSI	Aboriginal and Torres Strait Islander
AusAID	Australian Agency for International Development
BBC	British Broadcasting Corporation
BRICS	Brazil, Russia, India, China and South Africa
CEO	Chief Executive Officer
CLIL	Content and Language Integrated Learning
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DFAT	Department of Foreign Affairs and Trade
EAS	East Asia Summit
ELF	English lingua franca
EU	European Union

EWG	Expert Working Group
FCI or FCIs	Foundations, Councils and Institutes (Australia)
GDP	Gross Domestic Product
HASS	Humanities, Arts and Social Sciences
HSBC	HSBC Holdings plc
ICCR	Indian Council for Cultural Relations
LOTE	Languages Other Than English
MAAP	Media Arts Asia Pacific
MCST	Ministry of Culture, Sport and Tourism (South Korea)
MLA	Modern Language Association of America
MOE	Ministry of Education (China)
NCP	New Colombo Plan
NODES	Networks of Diasporas in Engineering and Science
OECD	Organisation for Economic Co-operation and Development
R&D	Research and Development
S&T	Science and Technology
SAARC	South Asian Association for Regional Cooperation
SMEs	Small- and Medium-sized Enterprises
STEM	Science, Technology, Engineering and Mathematics
UNESCO	United Nations Educational, Scientific and Cultural Organization
UK	United Kingdom
US	United States of America

Project aims

The depth of Australia's linguistic and inter-cultural competence will be a determining factor in the future success of developments in innovation, science and technology, research capacity, international mobility, trade relations and economic competitiveness. In the medium to longer term, the Asia Pacific region will be a principal focus, presenting major challenges and opportunities economically, socially and culturally, for our national security interests.

This project aimed to address issues including, but not limited to, the following:

- What are the attributes (such as personal interactions, ways of learning, cultural sensitivities) needed to succeed in Asia?

- What skills and knowledge would make it easier for people to collaborate in science, research and business?

- How do we use science and cultural diplomacy to advance our broader interests in Asia Pacific?

- What examples stemming from science and cultural diplomacy can we learn from?

- How could we most successfully assist development in the Pacific region?

Executive summary

The focus of the report is on maximising opportunities for Australia to strengthen relationships with the countries of Asia. It finds that leveraging language, research and cultural capabilities will provide the basis for deep, long-term engagement that will return social, economic and political benefits to Australia and its partners in the region.

Smart engagement with Asia is essential for securing Australia's future.

Australia's engagement with Asia has too often been characterised by short-termism, opportunism and focus on monetary gain. *Smart* engagement, by contrast, means more than the pragmatic emphasis on economic benefit, and working towards nurturing wide-ranging, long-term, deep and mutually beneficial relations, based on the principle of reciprocity. This principle stresses the value of cooperation and trust in international relations.

Building stronger transnational links across the region is in the national interest because it will, over time, allow Australia and Australians to become more integrated within a region increasingly characterised by overlaying networks of cross-border connections and relationships.

Growing the connections—between people, businesses and institutions—will help sustain economic development and regional stability by enhancing mutual trust and understanding and facilitating transnational cooperation for greater prosperity and security.

In recent decades, much of Australia's relationship with Asia has been filtered through business transactions (including tourism) and a rapidly growing international education industry. In the next few decades, each of these areas will continue to be of enormous importance to Australia's economic development. However, business and educational links are more likely to secure Australia's future if they are couched within a wider set of considerations that smart engagement demands. **The principle of reciprocity is central to smart engagement**.

Language, research and culture are of critical importance in enhancing smart engagement with Asia. Each of these can be leveraged in facilitating Australia's enmeshment with Asia through durable, reciprocal relationships. Both science diplomacy and cultural diplomacy are important foci for governments today, although they have not received major policy attention in Australia. This report considers these two areas side by side, together with the crucial enabling role of languages, in the overarching context of Australia's engagement with Asia.

Australia's connectivity with Asia can be facilitated by the bridging role of diasporas.

More than 8% of Australia's population was born in Asia. This is a much higher percentage than in other Anglophone countries such as the US (4%) and the UK (2%). **Yet Australia does not make enough use of the networks and linguistic and cultural resources inherent in its Asian diaspora population.** Asian Australians bring with them linguistic skills, social networks and cultural knowledge, which can enhance links between Australia and Asia. But their role and contribution is insufficiently recognised.

There are also increasing numbers of Australians living and working in Asia, drawn by the opportunities offered by the rise of Asia. This Australian diaspora in Asia can be an important resource for personal knowledge and understanding about the nuances and complexities of the different countries in the region, which can be better utilised.

Smart engagement with Asia means making more use of the bridging role of Asian diasporas in Australia and Australian diasporas in Asia. This is the case in all three areas of focus in this report: language education, research collaboration, and cultural relations. However, relying *only* on diasporas would not be smart: the majority of the population should be engaged as well.

Although English is a global language, being monolingual in English will impede Australia's ability to engage more effectively with the region.

Many Australians believe that they do not need to learn other languages because of the status of English as a global lingua franca. Eighty-one percent (81%) of Australians communicate only in English at home, and interest in foreign language learning, especially Asian languages, has remained stubbornly low in Australia. However, evidence shows that **being monolingual in English is no longer adequate in an increasingly interconnected world where others tend to be multilingual.**

English has become indisputably an Asian language, as it is widely used across the region.

In many region-wide operations, such as international research collaboration or formal intergovernmental affairs, English is now accepted as the de facto language of communication. Demand for learning English as a Foreign Language (EFL) is high in all countries in the region. Yet proficiency levels are very uneven, with only Singapore (where English is the official working language) and Malaysia demonstrating high proficiency.

In highly competitive global economic spheres, multilingual people have a comparative advantage in increasingly global or cross-national companies and organisations. Multilingual capabilities are of undeniable benefit for facilitating intercultural interactions and are considered essential in various professions such as engineering, medicine and tourism. A 2014 survey found that only 51% of Chinese visitors were satisfied with the availability of Chinese language facilities in Australia, and 37% cited the 'language barrier' as a reason for not recommending Australia as a destination.

Thus, **smart engagement with Asia requires breaking 'the vicious circle of monolingualism'.** Foreign language education remains essential for Australia. It is not sufficient to rely solely on English in the expectation that others will adapt. The principle of reciprocity demands that Australians need to cultivate a preparedness to recognise the inherently complex language diversity within the region, and the capacity and sensitivity to navigate this complexity. More use can be made of the large presence of Asians within Australia, many of whom are multilingual, to familiarise mainstream Australia with Asian languages and to present Australia as an inherently multilingual society.

There is considerable room for improvement in connectivity between Australian and Asian researchers.

Asia is the most dynamic region for research investment and output today. R&D expenditure in the region exceeded that in North America for the first time in 2011. China is now the third largest producer of research articles, behind

only the United States and the European Union bloc, and is on course to overtake the United States before the end of the current decade. Japan's status as a global research power is in long-term decline, but it is still very strong. South Korea and India are also increasingly prominent regional research powers. China now dominates international research networks in the region. The density of research collaboration between countries in the region has increased strongly in the past decade. This suggests that intra-Asian research collaboration is on the increase, though from a low base.

National governments, including those in Asia, are increasingly investing in science diplomacy to promote international research collaboration, both to advance the research endeavour itself (e.g. by the sharing of scientific facilities) and as a way to enhance international relations (e.g. by establishing mutually beneficial partnerships between research institutions). An important focus for science diplomacy in the 21st century is the need for international research collaboration in addressing challenges that cross national borders, such as climate change, infectious diseases and ageing populations. This provides opportunities for Australian researchers with specialist knowledge in such fields to collaborate with researchers in Asia. However, this requires appropriate resourcing and the creation of opportunities through more robust and proactive science and research diplomacy, as well as attention to overcoming cultural barriers.

At present, Australian researchers' collaboration with colleagues in Asia is below par compared with collaboration levels with Western countries, especially the United States and New Zealand. The exception is collaboration with China, which has risen exponentially. Much of Australia's collaboration with China is conducted by Australia-based Chinese diaspora researchers, implying that researchers without Chinese backgrounds do *not* collaborate as much with counterparts in China. Universities and research organisations could do more to harness the networks and knowledge of their diaspora researchers to extend collaboration with Asian countries to other Australian researchers.

Deepening cultural relations between Australia and Asia requires patient relationship building to foster sustained and long-term interconnections and networks.

Being the only country in the region with a predominantly European heritage (apart from New Zealand), **Australia has a long history of distant relationships with neighbouring countries**. This sense of cultural distance has persisted despite strong growth of trade with the region, with seven Asian countries in the top ten of Australia's largest trading partners. **The sense of distance is mutual: in most countries in the region there is a lack of knowledge about contemporary Australia and outdated stereotypes prevail**. Transforming this state of affairs will require patient and long-term investment in deepening cultural relations.

There has been an exponential rise in investment in cultural diplomacy in the countries of the Asian region. But much of the focus of governments has been on the one-way projection of national soft power arguably to increase their global cultural standing. Australia also invests in cultural diplomacy to counter its perceived soft power deficit in the region. **Analysis of Australia's cultural diplomacy programs and activities shows that there is a beneficial trend towards more collaborative approaches**. For example, Australian cultural practitioners are already initiating or participating in such bilateral or region-wide cultural collaborations, indicating a strong appetite for on-the-ground engagement with Asia. In particular, Asian and Pacific diaspora activity is extensive but receives little public acknowledgement in Australia.

Much more can be done. For governments, **smart cultural engagement with Asia means creating the conditions for broad and deep cultural exchange and collaboration to flourish**, not just by direct investment but by supporting a wide range of community, third-sector and commercial initiatives. **Embracing long-term relationship-building will be more effective than short-term, one-off programs to foster sustained regional connectivity**.

Both science diplomacy and cultural diplomacy are increasingly important dimensions of public diplomacy, but there is a lack of clarity and consensus about policy-making in these areas.

Despite their considerable differences, science diplomacy and cultural diplomacy have a number of characteristics in common. Both are increasingly important policy areas globally, especially in emerging industrialising countries (including those in the Asian region). Both are seen as 'fuzzy' policy domains with multiple goals, stakeholders and participating organisations. In both, there is a tension between national and transnational regional (or global) goals, that is, between competition and cooperation. At the same time, **the need to establish more reciprocal, mutually beneficial approaches, based on sustained and long-term partnerships and commitment, is increasingly being recognised**.

The need to focus on more international cooperation and collaboration is especially challenging in the Asian region, where attachment to the principle of national sovereignty is strong. Narrow interpretations of the national interest are detrimental for a world that faces many shared challenges and common problems. **Developing institutional arrangements that allow countries to go beyond the self-interested bias of the national state, their own and that of others, is an important priority for the 21st century**.

Diaspora diplomacy is now an important component in governments' international relations toolkit.

Diaspora diplomacy implies drawing on the human capital and transnational connections of diaspora groups to develop and enhance links between host and home countries. The reliance of developing countries in Asia and the Pacific on their overseas citizens for remittance income has been well-known for some time. Countries such as China and India have very well-developed policies and practices to capitalise on the resources, skills and knowledge of their diaspora populations in the West in domestic economic and technological development. More recently, Western immigrant nations have woken up to the potential of diaspora diplomacy. For example, the US Department of State has initiated the establishment of an International Diaspora Engagement Alliance to harness the role of US-based diaspora communities as informal ambassadors in their countries of origin, focusing on entrepreneurship, innovation, philanthropy and volunteerism. Given Australia's relatively large Asian immigrant population, this can be a model for Australia. **Smart diaspora diplomacy should not focus on serving the national interest only; instead it can be a vehicle for transcending national divides to embrace broader global perspectives and common interests**.

There is an urgent need for action.

This report finds that Australia will be left behind if it does not step up its transnational connectivity with the region. Time is not on our side. Since the beginning of the 21st century the countries of the region have themselves become increasingly interconnected, as the geopolitical balance of global power irrevocably shifts towards Asia, especially China. Engaging with Asia is therefore more than ever a national necessity for Australia. But such engagement needs to be *smart*: it needs to be focused on the development of a wide spectrum of sustained connections and relationships, based on the principles of reciprocity, mutual benefit and shared interests. An example is the Federal Government's New Colombo Plan, which provides opportunities for Australian students to study in Asia. Growing the connections—between people as well as institutions—cannot be a 'quick fix': it requires long-term investment and commitment. This report shows that many on-the-ground initiatives already exist. Asian diasporas in Australia and Australian diasporas in Asia, in particular, naturally have the linguistic and cultural resources that make them inclined to establish and maintain transnational connections. Building on such initiatives, and scaling them up, will help Australia and Australians to become more integrated within the region in the decades to come.

Key findings

Chapter 1: Introduction

1.1. **The rise of Asia requires that Australia becomes more deeply engaged with the region than ever before.**

The rise of Asia is a defining characteristic of the 21st century, dominated by the rising influence of the giant regional powers of China and, to a lesser extent, India. To secure regional prosperity and security, a key policy priority in the region is enhancing cross-border connectivity, at physical, institutional and people-to-people levels. It is crucial that Australia positions itself more strongly in the growing web of regional interconnections that is currently emerging. Australia needs to pursue smart engagement with Asia, which goes beyond the pursuit of purely transactional relationships for short-term gain and focuses on the patient cultivation of genuine partnerships through mutually beneficial cooperation and collaboration.

1.2. **Australia has a relatively large Asian population, which is a comparative advantage.**

In comparison to other Western countries, Australia has a high percentage of residents and citizens of Asian descent (more than 8%, compared with the US which has less than 4%, the UK 2% and Germany less than 1%). This is a significant comparative advantage

for engaging with Asia. Asian diasporas are a resource for linguistic skills, cultural knowledge and social networks, which help connect Australia and Asia. Diaspora diplomacy is key to connecting Australia more extensively and intensively with countries in the region.

1.3. Australian businesses are under-prepared to maximise on emerging opportunities in the region.

Australian business is a long way from the level of engagement, investment and commitment needed to secure its long-term share of the region's growth. Foreign direct investment in Asia is particularly low. Australia invests more in New Zealand than in China, Indonesia, or all ASEAN countries combined. A prevalent view is that doing business in Asia is 'too hard', because of real and perceived differences in cultural practices, traditions and language. Developing Asia capabilities is a major priority for Australian business. There is broad agreement that key to business success in Asia are sustained networks and relationships, far more than in the West.

1.4. International education is a key sector for strengthening Australia's ties with the region.

International education is an important arena for Australia's connectivity with Asia. Of the more than 400,000 international

students studying in Australia in 2013, nationalities in the top ten were almost all Asian, with students from China contributing 29%, India 9% and Korea 5%. Students from Vietnam, Malaysia, Thailand and Indonesia were also in the top ten in terms of numbers. Australia's international engagement through education has shifted from a focus on aid to a focus on trade, reflecting a dominant emphasis on the economic value of international education. We should strengthen international education's role as a driver for establishing sustained relationships and mutual engagement, for example by engaging alumni organisations.

Chapter 2: Languages for smart engagement

2.1 English is a global language.

In the Asian region, there is little disagreement regarding the status of English as a global lingua franca in many professions and fields of knowledge. It also plays an essential role in facilitating the development of people-to-people links. Interest in learning English is high. However, proficiency in English varies across the region and cannot be taken for granted.

2.2 To maintain sustainable and reciprocal relationships with Asia, it is not enough to be monolingual in English.

There are two disadvantages in the arrangements of current global communication: not knowing English; and knowing only English. Because Asian users of English are developing Englishes to suit their needs rather than relying on the norms of 'standard' English (i.e. the US or UK variety) or Anglophones, the global dominance of the monolingual native English speaker is in decline. Familiarity with Asian languages facilitates comprehension and communication in the varieties of English being used in Asia. Knowledge of Asian languages is also critical for deep, mutual and long-term engagement with Asia.

2.3 Multilingualism facilitates international exchange and professional effectiveness.

Multilingualism is a competitive advantage. While English is currently the dominant language of international communication, knowledge of Asian languages such as Chinese can contribute to reciprocity, facilitate international exchange and collaboration, and promote business links. In a multicultural and multilingual society, effective communication and service provision in professions such as medicine and mental health necessitate that practitioners be multilingual. Professions where transnational teams characterise work environments, will also benefit from a multilingual workforce. Moreover, successful business engagement with Asia and within Asia, particularly at the SME level, is heightened with language familiarity. Australia's tourism sector is one of the largest in the world, with 64% of international visitors coming from the Asia Pacific region. The sector's National Training Framework includes language and cultural awareness training to address shortcomings in the level of linguistically and culturally responsive services, e.g. the lack of quality Chinese-speaking tour guides. Raising the levels of linguistic and intercultural capability in the tourism industry will enrich the quality of tourists' experience of Australia, with positive, long-term implications for this sector.

2.4. Interest in studying foreign languages, especially Asian languages, is declining in Australia.

Only 12% of Australian parents see foreign language skills as an important priority for their children at secondary school. This is lower than for parents in other Anglophone countries (Canada 20%, US 23%, UK 28%). In New South Wales, the proportion of students studying a foreign language for the Higher School Certificate is now less than a fifth of what it was during the 1950s. There has been a decline in the actual number of school students studying Asian languages

since 2000. As of 2013, the popularity of Indonesian had fallen 76% since it peaked in the mid-1970s, and more students studied Latin than Chinese. Promotion of the study of foreign languages, especially Asian languages, should therefore prioritise investment in creating demand, rather than the more common emphasis in government policy on the supply side.

2.5 Diasporas are linguistic resources for smart engagement.

Asian diasporas in Australia are multilingual, and a substantial resource for the learning and transmission of Asian languages. However, given the pressure to assimilate into English, diasporic multilingual capabilities tend to be lost within three generations and cannot be taken for granted. Formally valuing the linguistic, cultural and link-building/networking resources Asian diasporas offer will benefit Australia domestically, and enhance its competitive edge regionally and internationally. Australian expatriates in Asia are likewise positioned to benefit Australia's regional connectivity. They will gain from a deeper understanding of Asian languages and cultures, in order to optimise engagement with Asia.

2.6 Multilingual capabilities need to be mainstreamed in Australia.

Even though the great majority of Australians are still monolingual, the simultaneous use of many languages in Australia is already an everyday experience, particularly in large cities. This reality can be harnessed to facilitate language learning as an integral part of education and socialisation. Innovative pedagogic approaches to language learning, such as content and language integrated learning (CLIL), which integrate language acquisition with other school and academic subjects, have proved effective and should become more widespread in Australian education.

Chapter 3: Research collaboration as smart engagement

3.1 R&D expenditure and research outputs are increasing rapidly across Asia.

The Asia Pacific region has seen a steeper rise in R&D expenditure and scientific publication outputs than anywhere else in the world. As of 2011 the region accounted for 28% of global output, close to US output at 30%. China is fast becoming the world's largest producer of research output and is expected to overtake the United States before the end of the current decade. In 2011, its share of total regional output in science and engineering papers was 38%. Although Japan still has a strong R&D establishment, its share of outputs has been in long-term decline (20%, down from 44% in 2001). South Korea (11%) and India (10%) are also rapidly growing research powers in the region: both have overtaken Australia (9%) in terms of share of outputs. Indonesia, on the other hand, still has very low R&D intensity (only 0.1% share of total regional output).

3.2 China is emerging as the dominant research power in Asia.

China's rise in research, especially in science and technology fields, is because of a number of factors: a large population and human capital base, a large diaspora of Chinese-origin researchers, a culture of academic meritocracy, and a centralised government willing to invest in research. Although the United States is still the most important global research nation, China is now the referent country in the region. As Chinese collaboration networks increasingly dominate the region, it provides incentive for all other nations to increase their own regional engagement in research. China is also becoming an important destination country for international students, especially from other Asian countries. In 2012 China took in 8% of all globally mobile students

worldwide, after the US (19%) and the UK (11%) but before France (7%), Germany (6%) and Australia (6%).

3.3 Intra-regional research collaboration and student mobility are on the rise across the Asia-Pacific region and may, over time, transform the geography of international knowledge networks.

Although the main Asian countries have shown less international research collaboration than researchers in North America, Europe and Australasia, bilateral international collaborations between Asian researchers have risen steeply, especially since 1997. This suggests that an increasingly dense intra-regional network of research collaborations is emerging. Similarly, while outbound Asian students have tended to go to the West for their higher education, student mobility within the region is on the increase as some Asian countries themselves have become destination countries for international students. Intensifying student and researcher mobility within Asia may leave Australia out of the loop if Australian students and researchers do not step up their participation in these mobility trends. Most study-abroad Australians still tend to go to Western countries, with the top five destinations being the US, New Zealand, the UK, Germany and France as of 2010. Incentives for Australians to study in Asia, such as the New Colombo Plan, should be a policy priority.

3.4 Proactive science diplomacy in the Asia-Pacific region, focusing on enhancing cooperation to address shared, transboundary challenges is needed.

There is significant scope within the region to improve more strategic collaborative research to address the many common challenges facing different parts of the region. An important focus for regional science diplomacy would be work towards the development of effective institutional frameworks for multilateral collaborative research to promote regional public

goods, which has the support of the most important countries in the region. The participation of China, newly emerging as the most powerful research nation in the region, is crucial in this regard. To date, the region lacks such region-wide multilateral frameworks, and skilful and persistent diplomatic legwork would be required to bring them into being. The Chief Scientist's proposal for an Asia Research Zone resonates with some regional cooperative efforts that are already underway, such as those developed within ASEAN and by Japan. It may be possible to build on these initiatives.

3.5 Australian research collaboration with China is well developed. However, Australia's research relationship with other Asian countries is relatively weak.

Bilateral collaborations remain important. Australian research engagement with China exceeds that with other countries in the region by a wide margin. Although Australia has substantial links with Japan and India, overall Australian researchers have weak connections with their counterparts in the region, compared both with the level of China engagement and the level of interconnections among Asian countries themselves, which has intensified significantly in the past decade. In a time when intra-regional connectivity is strengthening as a result of rising student and researcher mobility, there is a danger that Australia might miss out on newly developing regional research networks if Australian researchers do not manage to strengthen and deepen their collaborative links with researchers across the region.

3.6 Australian research collaboration with China has developed mostly through the diaspora.

Chinese diaspora researchers play a disproportionately large role in Australia's collaborative effort with China. Of all scientific publications co-authored by researchers in China and Australia, a large majority of the Australia-based authors,

66%, were of Chinese descent. This suggests that Australian researchers who are not of Chinese background do not collaborate with China-based colleagues as much as they could. There is considerable unmet potential for extending diaspora research networks to other Australian and regional researchers by recognising the leadership roles Australia-based diaspora researchers can play in bridging national differences and nurturing collaborative networks.

3.7. **There are important obstacles to increased research collaboration.**

Survey data show that, according to Chinese and Indian researchers in Australia, there are different obstacles to collaborating with China and India. For collaboration with China, the main two obstacles mentioned were (1) Inadequate resources or capabilities at Australian universities (according to 51% of respondents) and (2) Inadequate support from the Australian government (42%). For collaboration with India, the main obstacles were (1) Bureaucratic red tape in India (51%) and (2) Lack of interest from Australian institutions (41%). Addressing such obstacles requires targeted policy measures specific for each country.

3.8 **Smart research engagement with Asia requires paying greater attention to the people-to-people dimension of research collaboration.**

Although institutional and resourcing barriers will be important reasons for the weak links of Australian researchers with their Asian peers, a lack of social connections and of intercultural capabilities play a crucial role in this relatively poor performance. Chinese and Indian diaspora researchers strongly argue that their linguistic skills and familiarity with their cultural heritage are of great benefit in their collaborative activities with researchers in these countries. For many of them, existing relationships (e.g. through postgraduate studies, former workplace relations or family or personal connections) have been fundamental for initiating collaboration.

This suggests that the social and cultural dimensions of international research collaboration require more attention in assisting Australian researchers who do not yet have the links to engage with Asia. International research collaboration is likely to be productive only through long-term commitment, multiple repeat encounters and spending significant amounts of time together, facilitating mutual familiarisation and trust. Short-term missions and delegations are unlikely to generate the results desired.

Chapter 4: **Cultural relations and smart engagement**

4.1 **Australia's cultural relations with the countries of the Asian region are characterised by a strong lack of mutual knowledge.**

Despite a massive increase in trade and other transactional linkages, many Australians continue to feel a strong sense of cultural distance towards the countries of the Asian region. They tend to know little about their regional neighbours and their feelings towards Anglophone and Western European countries are persistently much warmer than towards any Asian country. Feelings towards Japan and Singapore, the most westernised countries in the region, are the warmest, while attitudes towards Indonesia are unrelentingly cool.

4.2. **Australia suffers from a soft power deficit in the region.**

Conversely, most people in Asian countries know little about Australia. An informal poll in China found that impressions of Australia were extremely sketchy and focused on koalas and kangaroos. While many people in the region consider Australia 'a good place to visit', significant minorities perceive the country as white and racist, suggesting the persistence of longstanding stereotypes. Thirty-eight percent (38%) of Indians still believed that race is an important factor

in Australian immigration intake, even though this has not been Australian official policy since the early 1970s. The lack of common heritage and history is a barrier for close cultural relations, which can only be alleviated by long-term investment in proactive cultural engagement.

4.3 **There has been a substantial increase in investment and interest in cultural and public diplomacy in all Asian countries since the beginning of the 21st century.**

Asian governments invest in culture and cultural diplomacy to increase their international cultural standing and soft power, in line with their growing economic power. Overall, an emphasis on outward cultural projection and cultural export predominates, with much less attention being given to reciprocal cultural exchange. Paradoxically, this can limit the soft power effects of cultural diplomacy, as attitudes within the region remain tinged by mutual distrust between nations. More collaborative approaches to cultural diplomacy are required to counterbalance suspicions raised by narrow schemes of nation branding and soft power projection.

4.4 **Australian cultural diplomacy practices— both those resourced by the Department of Foreign Affairs and Trade (DFAT) and by other government agencies—are very diverse and demonstrate a strong tendency towards embracing more collaborative approaches.**

In line with international trends towards more cooperative and relational approaches to cultural diplomacy, DFAT-funded cultural diplomacy programs show a move away from projective 'showcasing' efforts to more emphasis on cultural exchange and collaboration for mutual benefit. As well, while support for Australian creative industries is focused on gaining access to Asian markets and audiences, experience on the ground points to the need for patient, intense people-to-people engagement to establish mutually beneficial and long-term, sustainable collaborations.

4.5 **To pursue smart cultural engagement with Asia, Australian cultural diplomacy needs to support a broad spectrum of initiatives to enhance society-wide cultural relations and people-to-people connections on the ground.**

Many cultural organisations, community groups and independent producers (including diaspora groups) are already committed to building strong connections with Asia through a plethora of disparate projects and initiatives, many of them small-scale and based on volunteers. For example, a survey showed that 79% of arts organisations in Victoria have engaged in cultural exchange activities with Asia in the period of 2008–2012, mostly using their own cash. While such small projects don't seem 'big enough' to make a difference, their impact will be achieved in a cumulative and iterative way. It is important that such bottom-up initiatives are nurtured so that they can flourish. A devolved approach to cultural diplomacy, which supports projects that are sensitive to local contexts and builds relationships on the ground, is more effective than centrally planned public diplomacy campaigns.

4.6 **Australian cultural professionals have been at the forefront of the development of new region-wide, sector-specific cultural networks and organisations, which facilitate long-term connectivity and institutionalise a shared, regional sense of community.**

Organisations such as the Asia Pacific Film Academy bring together film professionals from across the region and establish the necessary cultural infrastructure to nurture peer to peer exchanges and multilateral cultural collaboration across the region. Australian cultural professionals have played a leadership role in initiating such networked organisations. As they nurture long-term relationships beyond short-term, one-off projects, they are important and innovative contributions to Australian cultural diplomacy, promoting Australia's

role as an engaged regional citizen. Such initiatives require appropriate resourcing and deserve support.

4.7 There is a great lack of recognition for the role of Asian and Pacific Islander diaspora groups in linking Australia with their various countries of origin through cultural engagement.

Diaspora cultural practitioners based in Australia demonstrate many of the key attributes of smart cultural diplomacy, including peer-to-peer trust, self-reliance, a focus on impact, a high degree of literacy in digital and traditional media, autonomous organisations, and a commitment to building long-term relationships. They account for a significant proportion of Australia's people-to-people ties with countries in the region. Any official approach towards such diasporas to serve as 'bridges' between nations needs to acknowledge their autonomy as independent actors with creative visions of their own.

Box 1: Note on geographical terminology

In this report the term 'Asia' is used as a shorthand label to describe the geopolitical region in which Australia finds itself. The geographical boundaries of this region are ambiguous, and can range from the west coast of the Americas to the east coast of Africa, spanning the Pacific and Indian Oceans.

In recent decades Australian governments have tended to focus most strongly on East Asia, where major economic interests lie, linking it to the Pacific where Australia has strong regional influence, and to the alliance with the United States. By the 1970s the term Asia-Pacific had become common in Australia, combining 'a well-established definition of Australia's region as the Pacific with a new emphasis on Asia' (Edwards & Goldsworthy 2003, p.19). The Asia-Pacific Economic Cooperation (APEC) forum, first proposed by Prime Minister Bob Hawke in 1989, reflects this view of Asia. APEC originally included twelve nations: Australia, Brunei Darussalam, Canada, Indonesia, Japan, Korea, Malaysia, New Zealand, the Philippines, Singapore, Thailand and the United States, with China, Chinese Taipei (Taiwan) and Hong Kong joining a few years later. APEC has now been extended to 21 'Pacific Rim' nations, mainly countries with a Pacific coastline including Russia and Pacific South American nations, while excluding Pacific Island nations.

In the past few years successive foreign ministers from both sides of politics have used the term 'Indo-Pacific', to include South Asia, and particularly India (though not the Gulf states or East Africa which are of course, geographically, littoral Indo-Pacific) more definitively into Australian considerations of Asia.

Institutionally, the region has been defined differently again by a number of East Asian countries through the building of regional institutions such as ASEAN + 3 (from 1997), which added China, Japan & South Korea to the ASEAN nations, and the East Asia Summit (from 2005), which includes the ten members of ASEAN, Australia, China, India, Japan, New Zealand, the Republic of Korea, the United States of America (US) and Russia.

At a broader societal level, the Asian Football Confederation (AFC) has a membership of 47 countries ranging from West Asia (including Iraq, Lebanon and Saudi Arabia), Central Asia (Afghanistan, Iran), South Asia, East Asia and Southeast Asia. Australia joined the AFC in 2006 after having left the Oceania Football Confederation, of which it was a founding member.

Although terms such as Asia, Asia-Pacific and Indo-Pacific are influential in defining our 'neighbourhood' and our place in the world, what they represent remains imprecise and contested. Therefore, the term 'Asia' will be used throughout this report, except when another term is required to reflect the specific contexts in which they arise.

1 Introduction

1.1 Background: The rise of Asia and regional connectivity

There is little doubt that the rise of Asia will be a defining characteristic of the 21st century. The coming decades will see an irrevocable geopolitical shift in wealth and significance towards Asia. This will have huge implications for Australia. These implications are not only economic, but also political, social and cultural. Engaging with Asia is, more than ever, a national necessity.

The Asia-Pacific region is rapidly being reshaped by the rising influence of the giant regional powers, particularly China and, to a lesser extent, India, in an era of accelerated globalisation. In this challenging new context, the quest for future global prosperity and security is commonly sought in the fostering of greater connectivity between societies. The common wisdom is that increasing the density of transnational networks and interdependent relationships will play an important part in promoting growth, maintaining peace and safeguarding stability.

Enhancing cross-border connectivity is a key policy priority in the region. For example, in November 2014 the Asia Pacific Economic Cooperation

(APEC) adopted a connectivity blueprint to bring the Asia-Pacific region closer together by 2025 through a three-pronged approach of physical, institutional and people-to-people connectivity (APEC 2014). The blueprint points to the work to be done to ease existing barriers to interaction and mobility, and to develop endeavours that support seamless flows of people across the region. The Association of Southeast Asian Nations (ASEAN) has its own Master Plan on Connectivity, adopted in 2010 (ASEAN 2011). Facilitating cross-border business travel, tourism and educational exchanges are some of its key objectives. Meanwhile, the East Asia Summit (EAS), comprising 18 member states, is envisaged to be 'advancing closer regional integration and cooperation at a time of particular dynamism in East Asia' (Department of Foreign Affairs and Trade n.d.).

Such high-level multilateral fora may or may not be effective. Yet it is clear that in a volatile world with rapidly evolving configurations of power and influence, individual countries in the region are all intensifying their investments in a multiplicity of cross-cutting alignments and relationships, characterised less by formal agreements than by actual substantive cooperation based on shared perspectives (Wesley 2011, pp.162–170). Australia would do well to position itself more strongly in the growing web of regional interconnections that is emerging as a result.

Successive Australian governments have made Australia's relationship with the region a policy priority since at least the 1990s and Australia's economic prosperity is increasingly driven by two-way trade with the region, which now accounts for 55% of total trade with the world (Australian Trade Commission 2014a). Nevertheless, a recent PricewaterhouseCoopers (2014) report found that a great majority of Australian businesses (88%) have no experience of doing business in Asia at all, and most of them have no intention of changing this distant stance towards Asia in the next few years. A key reason for this, according the report, is the belief that engaging with Asia is 'too hard': many business owners and executives think Asia is 'very different' and uncomfortably so (PricewaterhouseCoopers 2014, p.12). The report warns that the opportunity for Australia to participate in the region's dynamism for the long-term is 'passing us by', and that now is the time to overcome cultural and other barriers to step up our engagement with Asia.

1.2 The need for smart engagement

This report finds that enhancing Australia's connectivity with the region requires *smart engagement with Asia*. Too often engagement with Asia is characterised by short-termism, opportunism and an exclusive focus on financial gain. By contrast, *smart* engagement means more than the pragmatic emphasis on economic benefit, and working towards deepening and broadening Australia's enmeshment with the countries in the region by nurturing wide-ranging, long-term, and mutually beneficial relations based on the principle of reciprocity. This principle stresses the value of cooperation and trust in international relations.

Building stronger transnational links across the region is in the national interest because it will, over time, allow Australia and Australians to become more integrated within a region increasingly characterised by overlaying networks of cross-border connections and relationships. Growing the interconnections—between people as well as institutions—will help sustain economic development and regional stability by enhancing mutual trust and understanding and facilitating transnational cooperation for greater prosperity and security.

Promoting broad social, cultural and institutional links is a core focus of Australia's public diplomacy effort and a key priority in the Government's foreign policy framework. It is recognised that to seize the opportunities arising from Asia's ascendancy, a deepening of 'Australia's knowledge and engagement with countries in Asia' is required. Developing stronger people-to-people relationships between Australia and Asia will 'foster the mind-set and skills-set needed to make the most of Asia's ongoing economic transformation' (The Liberal Party of Australia 2013, pp.24–25). One of the Federal Government's signature initiatives is the New Colombo Plan, a large-scale scholarship program to encourage and support Australian undergraduate students to undertake study in universities in Asia. It has the emphatic aim to foster closer ties between Australia and the region through stronger people-to-people links (New Colombo Plan Steering Committee 2013).

Inaugurated in 2014, the New Colombo Plan is an important example of smart engagement. It is intended to be transformational, deepening Australia's relationships in the region, while also aiming to develop a more Asia-aware Australian workforce for the future. Over time, the Australian Government wants to see study in the region become a highly valued 'rite of passage' for Australian students (Department of Foreign Affairs and Trade n.d.).

It is clear that the full impact of this initiative is not going to be immediate: it will require long-term, sustained commitment and the participation over time of a critical mass of young people. It involves gradual cultural change within the society that cannot be adequately measured with short-range indicators. Importantly, it requires reciprocal engagement for relationships to deepen and mature.

In general terms, this report demonstrates that smart engagement with Asia consists of the following elements:

- It promotes active and meaningful interactions between Australians and Asians.

- It involves a wide spectrum of social actors including businesses, professional organisations, community groups and ordinary citizens.

- It recognises that building sustained relationships takes time and requires long-term investment and commitment.

- It embraces mutuality, reciprocity and collaboration as key principles of engagement.

- It builds on the resources and connections that Asian diasporas in Australia and Australian diasporas in Asia already represent.

In particular, smart engagement requires an outlook that goes beyond the pursuit of purely transactional relationships for short-term, self-interested gain. Rather than the one-way outward projection and promotion of Australia's national interest, smart engagement focuses on the patient cultivation of genuine partnerships through mutually beneficial cooperation and collaboration.

Smart engagement also requires thorough knowledge and insight on the complexity and diversity of the vast region that is Asia. It is not surprising that in recent times China has been the inordinate focus because of its enormous size and its transformative impact on the Australian and global economy and on world affairs. But other countries and cultures, collectively and individually, also play important roles in the rise of Asia and its ensuing transformation into the most dynamic region in the world (Australian Government 2012a). Moreover, less developed parts of the region—such as the countries of the Pacific—should not be ignored because they are a quintessential dimension of Australia's regional engagement.

This report focuses on three areas of activity that are of critical importance in enhancing smart engagement with Asia: language, research and culture. Each of these can be leveraged in facilitating or promoting Australia's enmeshment with Asia through durable, reciprocal relationships. Language, research and culture are of fundamental importance because they mobilise capabilities and resources for comprehensive engagement at economic, social and cultural levels, as required in the complex, interdependent world of the 21st century.

Moreover, both science diplomacy and cultural diplomacy are important foci for governments today, although they have not received major policy attention in Australia. By considering them side by side, together with the crucial enabling role of languages, in the context of an overarching 'smart engagement' focus, this report will assist in the development of a more strategic vision with gains across several portfolios. While public diplomacy is in principle the province of the Department of Foreign Affairs and Trade, a number of other agencies have a role to play including Industry and Science, Education and Training, Arts and Sport. This report focuses on these policy areas from the point of view of Australia's engagement with Asia.

1.3 The importance of multilingual competency

Language is a fundamental communication tool without which no social interaction can take place. The importance of language—and language differences—is often underestimated, especially in a largely monoglot, English-speaking country such as Australia. Promoting Asian languages has been an educational policy goal since the 1990s, with mixed success. Levels of interest have remained stubbornly low in this regard. Of the approximately 70,000 students enrolled in the NSW Higher School Certificate in 2014, only 2.2% studied Japanese, 1.3% studied Chinese and 0.3% studied Indonesian (PricewaterhouseCoopers 2014, p.16). A significant increase in uptake will be difficult to achieve, unless we make foreign language learning compulsory or provide positive incentives for learning them.

Many Australians believe that they do not need to learn other languages because of the status of English as a lingua franca, including throughout Asia. However, evidence shows that monolingual English speakers are at a significant disadvantage when engaging in a world where others are

multilingual. For the UK context, the British Council argues that the English language is the UK's single greatest soft power asset. However, it also says that as a country the UK is far too dependent on the dominance of the English language. It cites an estimate by the Education and Employers Taskforce that poor language competency is resulting in a direct loss of at least £7.3 billion per annum to the UK economy (or 0.5% of Gross Domestic Product (GDP)). This is because the UK's capacity to build connections is constrained by the small number of citizens who are able to speak foreign languages (British Council 2014). The situation is no different in Australia.

Chapter 2 examines the linguistic competencies required for smart engagement with Asia. It provides a brief overview of the linguistic landscape of various countries in the region, including Australia. It explores necessary linguistic capabilities in select disciplinary and professional fields, and assesses the advantages and disadvantages of English-language monolingualism in negotiating relations in a region of great linguistic and cultural diversity.

1.4 Enhancing and facilitating international research collaboration

Asia is a growing hub for scientific research. Although the United States is still the global leader in research, China is now the third-largest producer of research articles, behind only the European Union (EU) bloc and the US, and the economies of China and other Asian countries together accounted for more than one-third of the world's total spending on R&D in 2011 (National Science Board 2014). At the same time, research is increasingly globalised, with international collaboration strongly on the rise (The Royal Society 2011). National governments, including those in Asia, are increasingly investing in science diplomacy to promote international research collaboration, both to promote the research endeavour itself and as a way to enhance international relations. In practical terms international research collaboration is beneficial for a number of reasons: it expands researchers'

exposure to diverse skills and perspectives, it reduces unnecessary duplication of effort, and it broadens the scale and scope of research teams. Data show that internationally co-authored publications in Science, Technology, Engineering and Mathematics (STEM) achieve higher citation rates than average (Office of the Chief Scientist 2014a).

From the point of view of smart engagement with Asia, international research collaboration is particularly relevant because it represents a sustained mode of connectivity. Global research networks can be a potent platform for the exchange of ideas and cooperation of people (researchers), regardless of cultural, national or religious backgrounds. International research collaboration is also important to address global challenges, such a climate change, water security, or ageing populations, which cannot be addressed by single governments (OECD 2012a). Investing in international research collaboration through science diplomacy is thus an important focus for smart engagement, as it will build constructive partnerships between researchers and contribute to regional cooperation and integration.

Chapter 3 deals with the potential of research collaboration as smart engagement with Asia. It plots the rise of research investment and productivity across the region, summarises the broad policies and strategies that aim to facilitate international research collaboration in a range of countries in the region, and examines the general trends in actual research collaboration between countries in the region, including Australia.

1.5 Nurturing and deepening cultural relations

As the only Western country in the Asia-Pacific region (apart from New Zealand), Australia's cultural relations with Asia can be described as distant. As Nick Bryant points out, Australia 'has no natural regional allies, little common heritage to fall back on and sharp, arguably insuperable, differences in national values' (Bryant 2014, p.235). Therefore, the goal of enmeshing Australia

more deeply in the region requires major cultural investment to establish greater mutual familiarity and understanding.

Throughout the Asian region there has been an exponential rise in investment in cultural diplomacy. Traditionally, cultural diplomacy has been defined as the projection of a nation's culture abroad to increase its international standing. The practice was initiated by France when the French government established the Alliance Française in 1883, whose task was to promote French language and literature to repair the nation's shattered prestige after its defeat in the Franco-Prussian War (Nye 2004, p.96). In the 20th century, the medium of international broadcasting (such as the BBC World Service and The Voice of America) has been a key tool for the national cultural diplomacy effort.

However, more reciprocal approaches to cultural diplomacy, based on the principles of mutuality and collaboration, are now favoured by experts in the field as more suitable for the globalised, interconnected world of the 21st century. The rise of cultural contact between people globally, as exemplified by the pervasive uptake of social media, makes centrally orchestrated cultural diplomacy messaging less effective. In this context, 'people need to learn about others far more than they need to project themselves' (Holden 2013, p.11). This is 'a world in which listening is at least as important as talking, and relationships are deliberately geared to mutual benefit' (Aspden 2004).

This has important implications for smart engagement. Smart engagement with Asia means focusing on the long-term, society-wide nurturing and deepening of mutually beneficial cultural relations.

Chapter 4 provides a sketch the current state of cultural relations between Australia and Asian countries. It summarises the national cultural diplomacy and soft power strategies of key countries in the region, and gives an overview of the diverse array of Australia's cultural diplomacy program and activities, as conducted by DFAT, other Australian government agencies, and independent cultural sector and civil society players.

1.6 The role of diasporas

A recent House of Representatives Joint Standing Committee on Migration (2013) has highlighted the potential role of diaspora communities in establishing and facilitating trade, investment and commercial opportunities between Australia and their home countries, and in strengthening bilateral relationships through their informal networks (House of Representatives Joint Standing Committee on Migration 2013).

Comparatively speaking, a much larger percentage of Australia's population was born in Asia than in other Western countries (see Figure 1). Asian diasporas are thus a particularly significant group in Australia. By contrast, the size of Australia's diaspora in Asia is relatively modest. While an estimated one million Australian expatriates reside overseas, their numbers in Asia are only approximately 100,000, although precise figures are difficult to determine (Freeman & Rizvi 2014, pp.8–9). Nevertheless, with the rise of Asia the number of Australians living and working in Asia is increasing.

For Australia, smart engagement with Asia needs to involve specific attention to diaspora diplomacy. This implies drawing on the linguistic skills, social networks, and cultural knowledge of diaspora groups to develop and enhance links between host and home countries. An important focus of this report in each of the chapters is the significant role the strong cultural and social ties of diasporas can play in leveraging language, research and culture to connect Australia and Asia.

Figure 1.1: Population born in Asia*

*Includes East Asia, South-East Asia and India.
Source: P. Lowe 2014.

1.7 Business and education

This report does not dedicate separate chapters to two of the most prominent areas of Australia-Asia engagement: business and education. This is not because they are not important, but because more information already exists about these areas. The focus on connectivity highlights the importance of the human factor in smart engagement with Asia. Both business and education provide enormous opportunities for closer relationships between Australians and Asians. We provide here a brief overview of these two areas.

1.7.1 Business

Asia's economic importance for Australia is already well recognised. Today, seven of Australia's largest trading partners are within Asia. China is now by far Australia's largest trading partner, taking a 23.3% share of Australia's total exports and imports in 2013 (Australian Trade Commission 2014a). Japan comes second, with South Korea, Singapore, Thailand and Malaysia all in the top ten. Two-way trade values with India and Indonesia are still comparatively low, but can be expected to grow rapidly in the coming decades. In particular, services trade with Asia is an increasingly important part of Australia's trade relationship with Asia. Services trade is more likely to involve culturally sensitive interactions than trade in goods (PricewaterhouseCoopers, Melbourne Institute & Asialink 2012).

Australian businesses need to be ready to make the most of the economic opportunities presented by the rise of Asia. Yet a recent survey with over 1000 Australian businesses found that 'Australian business is a long way from the level of engagement, investment and commitment needed to secure a long-term share of the region's growth' (PricewaterhouseCoopers 2014, p.5). According to the survey, just 9% of Australian businesses are currently operating in Asia, while only 12% have any experience of business in Asia at all. Around two-thirds (65%) have no intention of changing their stance towards Asia in the next two to three years. Large companies (over 200 employees) are far more likely to do business in Asia than SMEs: about half of large companies

surveyed do business in Asia. However, in many instances their business consisted of little more than shop-fronts or offices to source goods, or outsourcing part of their business functions. For those large companies that do have an Asian strategy, the total contribution of it to their bottom line was only 12 per cent. Foreign direct investment (FDI) statistics also show a low level of effective engagement by Australian businesses in Asia. Australia invests more in New Zealand than in China, Indonesia or all ASEAN countries combined. At the same time, China, Japan and South Korea have invested across Asia to a much greater extent than Australia, while global brands from Europe and the US are also well established within the region (PricewaterhouseCoopers 2014, p.12).

The Passing Us By report (Pricewaterhouse-Coopers 2014) found that many companies are complacent and don't see a need to change: 'Putting it bluntly, Australian business has operated in a relatively sheltered, comfortable competitive environment' (p.12). The report suggests that there is a consistent 'folklore' circulating in Australian business circles that doing business in Asia is 'difficult' and that they are held back by a fear of the unknown. This is largely because of real and perceived differences in cultural practices, traditions, and, of course, language. As one informant said: 'You'd have to learn the cultural side of things, which is why it is unattractive [to do business in Asia]' (p.16). Moreover, several informants observed that companies were often driven by short-termism, demanded by market analysts and fund managers who deem Asia risky and devalue the long-term investment required to succeed in Asia. Obviously, if we are to pursue smart engagement with Asia, such attitudes and preconceptions need to change.

A 2012 Asialink report, Developing an Asia Capable Workforce: A National Strategy, produced by a high-powered taskforce chaired by ANZ CEO Mike Smith, argues that developing Asia capabilities in the Australian workforce is a major priority for business. Based on survey data and interviews with business leaders and other stakeholders, the taskforce has identified a range of individual and organisational capabilities as being critical to business success in and with Asia.

Individual capabilities include a sophisticated knowledge of Asian markets and environments, long and trusted Asian relationships, and a useful level of language proficiency. Organisational capabilities include leadership committed to an Asia-focused strategy and supportive processes to share Asian learnings (Asialink 2012, pp.14–15).

The report recommends that steps be taken to boost Asia capability in the Australian workforce 'from the boardroom to the factory floor' (p.17). Large Australian companies are seen as possessing only 'average' Asia capabilities compared to international competitors. The challenge is even greater for small- and medium-sized enterprises (SMEs), which are seen (on average) to fall behind their international competitors with regard to understanding of and experience in operating in Asian markets, cultural and language proficiency, dealings with Asian governments and regulators, and customisation of their organisations, people, products and services to the context of specific Asian markets. More generally, a recurring view was that corporate Australia lacked deep Asian experience, especially at board and executive level. A common theme emerging from the consultations was that the culture of Australian business is rooted in Western, transactional models, and that Australian businesses were not adapting to the different cultural norms in Asia (Asialink 2012, p.15). In a follow-up report, Asialink found that the most pressing challenges faced by Australian businesses operating in Asia relate to cultural capability (including human resources strategies, negotiating and making sales, and finding local partners) and insufficient market and industry information (Asialink Business 2014). Overall, there is broad agreement that the key to business success in Asia is sustained networks and relationships, far more than in the West.

In short, although business relationships tend to be described as purely transactional in nature, governed by economic bottom lines and simple inputs and outputs calculations, it is clear that in business too the imperatives of smart engagement—as defined in this report—apply: it has to focus on deepening enmeshment with the countries in the region by nurturing wide-ranging, long-term, and mutually beneficial relations.

1.7.2 International education

A very important arena for Australia's connectivity with Asia is international education. In 2013, there were 410,925 international students studying in Australia (Department of Education 2014a). Nationalities in the top ten were almost all Asian, with students from China contributing 29% of all international students in Australia, the highest of any nationality. India and the Republic of Korea were the next highest, contributing 8.8% and 4.9% respectively. Students from Vietnam, Malaysia, Thailand, Indonesia and Nepal were also in the top ten in terms of numbers. Many university campuses across Australia now boast highly diverse student populations, a significant percentage of whom are from Asia or have Asian backgrounds.

International education services are one of Australia's largest export industries, contributing $16.3 billion to the economy in 2013–2014, up 8% from the previous year. The higher education sector generated almost 70% of this export income (Department of Education 2014b). The economic value of international education is thus huge, reflecting the shift in Australia's international engagement through education from a focus on aid to a focus on trade (Byrne & Hall 2013). The commercially oriented nature of Australia's international education sector tends to overshadow its significance as a driver for establishing sustained social and cultural connections. As Byrne and Hall observe, 'International education is a vehicle that enables and fosters authentic engagement, exchange and collaboration at the individual, institutional and community levels' (Byrne & Hall 2013, p.425). However, they comment that at present this public diplomacy dimension of international education suffers from a lack of strategic leadership and institutional coherence.

The Indian student crisis in 2009, following a spate of attacks on Indian students in Melbourne and Sydney, highlighted the reputational risks for Australia associated with international education. International students who return to their countries with negative experiences might become 'poisoned alumni', undermining Australia's international reputation and

hampering important bilateral relationships (Wesley 2009).

Therefore, smart engagement with Asia through international education requires serious attention not only to educational quality, but also to the social experiences of the students themselves. In particular, the co-presence of domestic and international students on campuses provides an opportunity for enhancing cross-cultural interactions, potentially leading to longer-term peer-to-peer connectivity and mutual engagement. Education providers have paid insufficient attention to this important dimension of international education, although initiatives in this regard have begun to emerge (Arkoudis et al. 2010; Australian Education International n.d.).

Australia's involvement in the Colombo Plan (1950–1967) represented an earlier phase in Australia's engagement with Asia through international education, sponsoring thousands of Asian students to study at Australian tertiary institutions (Lowe 2010). It has been widely recognised as a successful program, which familiarised many Asian students and Australian communities with each other, and sowed the seeds for many lasting regional connections. The Colombo Plan was an exemplary model of smart engagement in a time when most Asian countries were still poor and underdeveloped.

The current New Colombo Plan is a smart engagement initiative for very different times. We now live in a globalised world where Asia, and the Asia-Pacific region more broadly, is increasingly becoming the centre of global wealth and power. Yet very few Australian students are inclined to make studying in the region a priority. The New Colombo Plan has been devised to reverse this trend, although it is only available for undergraduate students. Extending such opportunities to other age groups and categories would be important to allow more Australians to spend time and learn in Asia. Educational interactions with Asia, including both Asian students integrated on our campuses and Australians studying in Asia, will foster the kind of smart engagement needed for success in this era.

1.8 About this report

The Expert Working Group was formed in late 2012 to produce a research report dedicated to the theme 'Asia Literacy: Language and Beyond', part of the ACOLA Securing Australia's Future research program. The EWG began its deliberations by developing a conceptually coherent approach to addressing the Project Aims, which were set by the Program Steering Committee. The EWG found that to respond to its terms of reference, the central focus of the project would be how Australia's engagement with Asia can be leveraged by investment in language competency (Asia literacy), international research collaboration (science diplomacy) and enhancing cultural relations with Asia (cultural diplomacy).

The Program Steering Committee subsequently suggested also drawing attention to diasporas in Australia's engagement with Asia. In the course of the project, the EWG proposed to change the name of the project's report from 'Asia Literacy: Language and Beyond' to 'Smart Engagement with Asia: Leveraging Language, Research and Culture', to reflect more accurately the focus and content of the report.

The Expert Working Group undertook a review of literature pertaining to the key themes constituting the report, which also helped identify gaps in requisite information. Additionally, two Round-Table events held in Canberra in early November 2013 assisted this process:

1. On 4 November 2013, the Round Table on research diplomacy drew together approximately 45 established scholars and early career researchers from both HASS and STEM disciplines, primarily from universities in the Australian Capital Territory, New South Wales, Victoria and Queensland, as well as representatives from Australian government departments (such as the Department of Foreign Affairs and Trade and the Department of Industry) and from select Asian diplomatic missions. Established scholars included members from the four Learned Academies.

2. On 5 November 2013, the Round Table on cultural diplomacy drew together approximately 12 academics, cultural policy developers, culture curators and representatives from DFAT and select Asian diplomatic missions.

The Round Tables offered insights on regional societal challenges as well as opportunities and challenges for research collaboration and cultural relations between Australia and its Asian neighbours. Consequently, the EWG commissioned a series of independent reports from consultants and researchers (all of which are available on the ACOLA website at <http://acola. org.au/index.php/saf03-contributing-reports>):

a. 'Australian research collaboration in Asia' by Dr Thomas Barlow

b. 'A strategy for Australia's international engagement in science and research based on positioning in key transnational research value chains' by Dr Mark Matthews and Jonathan Cheng

c. 'International cultural engagements among Australians of Pacific Islands and Asian descent: A preliminary research report' by Professor John Fitzgerald and Wesa Chau

d. 'Engaging culturally with many Asias' by Professor Yudhishthir Raj Isar

e. 'Australia's approaches to cultural diplomacy with/in Asia: An overview' by Dr Phillip Mar

Fresh data for the project were generated by two surveys:

1. 'Australians living and working in Asia' which surveyed Australians who currently live and work in Asia, or who had very recently returned to Australia after being based in Asia. The report of this survey was written by Brigid Freeman and Professor Fazal Rizvi.

2. 'Chinese and Indian diasporic scholars in Australia' which surveyed scholars of Chinese and Indian descent currently based in Australia. The report of this survey was written by Brigid Freeman.

Data and analyses from all of the above reports have been utilised in the development of this report.

The Expert Working Group provided two Interim Reports to ACOLA during the course of the project. It convened for several face-to-face meetings over the project's duration, as well as held telephone conferences when necessary. A representative from each of this project's main stakeholders—the Office of the Chief Scientist and the Department of Foreign Affairs and Trade—usually participated in the meetings.

This report finds that Australia risks being left behind if it does not step up its transnational connectivity with the region. As the rise of Asia continues apace, time is not on our side. However, growing the interconnections— between people as well as institutions—cannot be a 'quick fix': it requires long-term investment and commitment. This key principle of smart engagement applies across all three areas of focus in this report: enhancing linguistic competencies, promoting international research collaboration, and deepening cultural relations.

1.9 Key findings

1.1. **The rise of Asia requires that Australia becomes more deeply engaged with the region than ever before.**

The rise of Asia is a defining characteristic of the 21st century, dominated by the rising influence of the giant regional powers of China and, to a lesser extent, India. To secure regional prosperity and security, a key policy priority in the region is enhancing cross-border connectivity, at physical, institutional and people-to-people levels. It is crucial that Australia positions itself more strongly in the growing web of regional interconnections that is currently emerging. Australia needs to pursue smart engagement with Asia, which goes beyond the pursuit of purely transactional relationships for short-term gain and focuses on the patient cultivation of genuine partnerships through mutually beneficial cooperation and collaboration.

1.2. Australia has a relatively large Asian population, which is a comparative advantage.

In comparison to other Western countries, Australia has a high percentage of residents and citizens of Asian descent (more than 8%, compared with the US which has less than 4%, the UK 2% and Germany less than 1%). This is a significant comparative advantage for engaging with Asia. Asian diasporas are a resource for linguistic skills, cultural knowledge and social networks, which help connect Australia and Asia. Diaspora diplomacy is key to connecting Australia more extensively and intensively with countries in the region.

1.3. Australian businesses are under-prepared to maximise on emerging opportunities in the region.

Australian business is a long way from the level of engagement, investment and commitment needed to secure its long-term share of the region's growth. Foreign direct investment in Asia is particularly low. Australia invests more in New Zealand than in China, Indonesia, or all ASEAN countries combined. A prevalent view is that doing business in Asia is 'too hard', because of real and perceived differences in cultural practices, traditions and language. Developing Asia capabilities is a major priority for Australian business. There is broad agreement that key to business success in Asia are sustained networks and relationships, far more than in the West.

1.4. International education is a key sector for strengthening Australia's ties with the region.

International education is an important arena for Australia's connectivity with Asia. Of the more than 400,000 international students studying in Australia in 2013, nationalities in the top ten were almost all Asian, with students from China contributing 29%, India 9% and Korea 5%. Students from Vietnam, Malaysia, Thailand and Indonesia were also in the top ten in terms of numbers. Australia's international engagement through education has shifted from a focus on aid to a focus on trade, reflecting a dominant emphasis on the economic value of international education. We should strengthen international education's role as a driver for establishing sustained relationships and mutual engagement, for example by engaging alumni organisations.

2 | Languages for smart engagement

2.1 Introduction

Linguistic competency and language-learning are essential components of Asia literacy and capability. They are considered here in terms of how they would enhance Australia's smart engagement with the region, particularly their role in moving from national self-projection to mutuality and collaboration with regional neighbours. Competencies in Asian languages, as the core of (inter) cultural competencies, are relevant to achieving the main initiatives under consideration in this project—research collaboration and cultural relations—as well as to Australia's business engagement with Asia. At the same time, English is incontrovertibly an Asian language, and many citizens and residents in countries across the region are keenly engaged in acquiring it. However, English-language competency across the region is uneven. Furthermore, the 'globalising' of English raises many questions, as does the rise of nations such as China and India and the linguistic nationalism

inevitably accompanying such ascendance. Multilingualism, i.e. the capacity to speak more than one language or pertaining to a society where many languages are spoken, is widespread in the Asian region and English is not the only foreign language being learned. Globally, the monolingual native English speaker is in retreat. (Monolingualism indicates operating in a single language or pertaining to a society where a single language dominates.)

This chapter:

- provides a brief overview of the linguistic landscape of various countries in the Asian region, including Australia

- explores necessary linguistic capabilities in select disciplinary and professional fields

- assesses the advantages and disadvantages of English-language monolingualism in negotiating people-to-people relationships in a region of great diversity

- discusses the value of diasporas in relation to languages.

2.2 Linguistic landscapes

2.2.1 Australia

Australians are primarily monolingual, with 81% of citizens and residents communicating only in English at home, according to the 2011 census (Australian Bureau of Statistics 2012). At the same time, at least 350 other languages, including those of Aboriginal Australians and migrants from Europe and Asia, are in use.

Seventeen per cent of Australian citizens and residents speak a language other than English at home. Of these, 1.7% speak Mandarin, 1.5% speak Italian, 1.4% Arabic, 1.3% Cantonese and 1.3% Greek. Therefore nearly one fifth of Australia's population, or approximately 3.6 million people (of 21.5 million in 2011), already communicate in at least two languages. Given Australia's current ethnic and cultural diversity, several of these languages are Asian. Vietnamese (1.2%), Hindi (0.5%) and Tagalog (0.4%) number among the top ten languages spoken at home, after Mandarin and Cantonese. Just two per cent of residents speak no English at all.

As Table 2.1 from the 2011 census indicates, English is spoken with varying degrees of fluency among those who speak another language, or are bilingual, at home. Among speakers of European languages between 62% and 65% speak English very well. Among Mandarin speakers 38%, among Cantonese speakers 46%, among Tagalog speakers 67%, and among Hindi speakers 80% speak English very well. The 3.8 million bilingual speakers referred to above do not include those who either have learnt or are learning a language other than English in a classroom context, or use it in particular contexts outside the home, such as in a professional setting. Neither does census data hitherto collected by the Australian Bureau of Statistics account for those who communicate in two or more languages, other than English, at home (Australian Bureau of Statistics n.d.).

Fifty-three per cent of first generation Australians spoke a language other than English at home. This dropped to 20% for second generation Australians, and plummeted to just 1.6% for third-generation Australians and subsequent generations (Australian Bureau of Statistics 2012). Lo Bianco notes that all immigrant communities 'are experiencing language shift away from first languages, through a transitional stage of bilingualism, to English only. This process of subtractive bilingualism is the universal experience of immigrant populations' (Lo Bianco & Slaughter 2009, p.4).

Even if systems of counting other than the census are considered, it is difficult to obtain a realistic estimate of how many Australian residents speak a language other than English regardless of the level of fluency. For instance, given the tendency of Year 12 students to drop a second language they are studying, ostensibly because of fear of compromising their Australian Tertiary Admission Rank (ATAR) scores (Lo Bianco & Slaughter 2009), Year 12 statistics for language study are unreliable indicators of how many graduating high school students are reasonably familiar with a language other than English.

Table 2.1: Top ten languages spoken at home (a)(b)

Language spoken at home	Persons ('000)	Proportion of total population (%)	Proportion who spoke English very well (%)	Proportion born in Australia (%)
English only	15 394.7	80.7		83.8
Mandarin	319.5	1.7	37.5	9.0
Italian	295.0	1.5	62.1	43.2
Arabic	264.4	1.4	61.9	38.5
Cantonese	254.7	1.3	46.4	19.9
Greek	243.3	1.3	65.0	54.1
Vietnamese	219.8	1.2	39.5	27.9
Spanish	111.4	0.6	62.1	21.9
Hindi	104.9	0.5	80.2	9.8
Tagalog	79.0	0.4	66.9	5.9

(a) Excludes persons aged under five years.
(b) Proportion of people reporting this language who were born in Australia.

Source: Australian Bureau of Statistics 2012.

According to a global comparative study on the value of education conducted by HSBC, only 12% of Australian parents see foreign language skills as an important priority for their children at secondary school. This is lower than for parents in other Anglophone countries (Canada 20%, US 23%, UK 28%), and considerably lower than for parents in non-Anglophone countries (France 45%, Hong Kong 40% Indonesia 42%). English monolingualism is thus more entrenched in Australia than in other countries (HSBC 2014).

Given the large number of Australians of migrant backgrounds for whom English is not a native language, having learned it as a foreign language in the home country or only once they have arrived in Australia, the argument can also be made that many types of English are spoken in Australia, not only the English regarded as 'standard' in Anglophone countries (cf. Kirkpatrick 2008).

2.2.2 Other Anglophone states

If Australia has a largely 'monoglot' population, that is, a population able to communicate in just one language, then most other OECD Anglophone countries appear to fare only slightly better. This is the case even when noting that national statistics have been organised differently in different countries.

In the United States of America, 75% speak only English at home, with 25% speaking a language other than English (US Census Bureau 2010). While Spanish is the primary language other than English spoken at home, Chinese, Tagalog, Vietnamese, Korean and Japanese (ranging from highest number of speakers to lowest in 2007) are included in the seventeen languages for which data are available from 1980 to 2007.

Canada has two official languages—French and English. According to data from the 2011 census (Statistics Canada n.d.) over 200 languages are in use, including Aboriginal languages. While 58% regard English as their mother tongue, 66% speak English at home; 22% regard French as their mother tongue, and 21% speak it at home. Of Canada's population, 1.8% is able to speak neither English nor French, while English-French bilingualism is reported by 17.5%. Chinese is the next most reported mother tongue (3.4%) after French and English.

In the United Kingdom, from data covering England and Wales, 92% claimed English as their main language in the 2011 census (Office for National Statistics 2013), and 0.3% spoke no English at all. Polish was the second largest major language. Among Asian languages listed as being widely spoken, South Asian languages dominated (Punjabi, Urdu, Bengali, Gujarati) with Chinese following (Stokes 2013).

The British Council noted that 'English gives the UK a competitive edge' in areas ranging from culture and commerce to international education, research and soft power (Howson 2013, p.3), not least because English is a global lingua franca and in high demand by non-native speakers. The House of Lords noted that the accessibility of British cultural resources to a vast number of 'overseas English speakers' made English a core element of British soft power (Select Committee on Soft Power and the UK's Influence, House of Lords 2014, para 218). In contrast to the advantages of English, the British Academy raised concerns about the UK's increasing deficit in foreign language capabilities (Tinsley 2013). While economic benefit has often been used as the rationale for learning foreign languages, the dwindling capacity of the British school system to provide training in such languages has implications beyond the commercial arena. Noting that foreign languages capability is key in 'the formation of relationships, mutual cultural understanding, trust and networks that facilitate interaction and cooperation across borders and societies,' the Academy cautioned that a foreign languages deficit will have serious implications for diplomatic relations, national security and defence (Chen & Breivik 2013, p.8).

2.2.3 China

China has approximately 290 languages and dialects with Standard Chinese or Putonghua being promoted as the official language since the 1950s (Li & Li 2013). Since the early 1990s, foreign languages uptake, especially Russian and Japanese, has consistently been developed in the curricula of primary and secondary schools. The surge in globalisation in many sectors (including tourism, overseas trade, and education) and China's high visibility at major international events

such as the 2008 Olympics and the 2010 Shanghai Expo have popularised English language learning. The China Daily estimated that in 2010 there were 400 million learners of the English language in China (Murphy 2013), and in 2011 'the market for English language training was worth 46.3 billion yuan (USD 7.5 million) according to market data provider Beijing Zhongzhilin Information Technology Ltd' (Murphy 2013).

Both Chinese and English are taught as subjects from primary school onwards, and English is also used as the main medium of instruction in some schools. But there is concern about teacher training and the quality of teaching, both within and outside the secondary school system (Whiteley & Xiao 2011). Opportunities to learn quality English vary between urban and rural locales, and coastal areas and inland provinces (Feng 2012). The 'crazy' demand for English which has swept China has prompted concerns among some policy makers about English decentring Chinese in schools (Feng 2012).

Between 2001 and 2005, a 'Content and Language Integrated Learning' (CLIL) approach, i.e. 'a dual-focused educational approach in which an additional language is used for the learning and teaching of both content and language' (Coyle, Hood & Marsh 2010, p.1) was keenly considered by local governments for secondary schools. The actual exposure of students to the CLIL approach, however, was low. Since then, enthusiasm for Chinese-English bilingual education at school level appears to have declined in cities such as Shanghai (Wei 2013).

For universities, in 2001 the Ministry of Education proposed that 5–10% of the curriculum be taught in English (Wei 2013). Since 2001, the Ministry has also mandated textbooks in English for postgraduate courses in IT, science, law and finance, and a range of courses across disciplines are now taught in English to both undergraduates and postgraduates (Montgomery 2013, p.33). Some universities encourage teaching in English, and invite overseas scholars to teach in English as well. As China seeks to draw increasing numbers of undergraduate and postgraduate students from developed countries, this trend is likely to expand (Feng 2012). Other

languages, such as French, German, Japanese, Korean and Russian, are also taught at various universities in China, e.g. Fudan University (College of Foreign Languages and Literatures, Fudan University n.d.). Peking University notably has departments or institutes covering a range of language studies, from Arabic and South Asian languages to the key European ones (School of Foreign Languages, Peking University n.d.).

Recently, the English 'craze' has again been challenged, with calls to end teaching English to very young children (Murphy 2013). Early in 2013, tertiary institutions such as the Beijing Institute of Technology dropped the English test requirement for certain fields such as Engineering (Murphy 2013). Such moves notwithstanding, the desire to be familiar with English for international communication needs continues, with some local governments mandating goals for English-language proficiency by civil servants (EF Education First 2013, p.12).

2.2.4 India

India has 22 languages formally recognised in its Constitution's 8th Schedule, with another 100 regarded as non-scheduled languages. A further 234 'mother tongue' languages are clustered under these 122, each with at least 10,000 speakers (Government of India – Census 2001 n.d.). If smaller language groupings are considered, the number of languages increases considerably (Kapur 2011). One among the 22, Hindi, is the official federal language, but English is widely used for official business, including as the language of the Supreme Court and High Courts (Government of India n.d.). It is estimated that India has 125 million English speakers (Masani 2012).

While English was a colonial inheritance, its significance has been formally noted by the Government of India since 1968, when the National Policy on Education observed that the study of English was essential to India's capacity to benefit from and contribute to world knowledge, especially in science and technology (cited in Kapur 2011). Multilingualism in the school system is assured under the Three Language Formula (TLF) taken up by

government/state schools in 1968. Students typically learn the regional standard language, English and Hindi from Grade 8 through 10 (Hornberger & Vaish 2009, p.310). Two languages are studied in Grades 5 through 7 (mother tongue or regional standard plus Hindi or English). At primary level, recommended instruction is in the mother tongue. No language studies are mandatory in Grades 9 through 12, with decisions left to schools. Multilingualism, based on the Three Language Formula, is also endorsed in the National Curriculum Framework, 2005. While the National Curriculum Framework acknowledges the importance of instruction in the mother tongue (National Council of Educational Research and Training 2005), the capacity to ensure this has dwindled within the Indian educational system (Subhash 2013). Implementation of the Three Language Formula itself faces challenges across India, including teaching capacity.

While multilingualism is widespread in Indian society, according to the National University of Education, Planning and Administration (NUEPA) the number of children studying in English-medium schools had increased by 274% between 2003 and 2011, to over 20 million students (quoted in Rahman 2012). Because of demands imposed and opportunities offered by globalisation, the Three Language Formula approach has been replaced by English-language instruction from primary school (Hornberger & Vaish 2009) in some parts of the country. However, the quality of English-language education and English-language competency, including of teachers who are expected to teach in English, are causing concern (Masani 2012), as they are in China. At university level, English is widely favoured for both instruction and research (Rizvi & Gorur 2011).

Despite the often-articulated view that English is an Indian language, integrated into a multilingual and multicultural society (e.g. Kachru 1998), popular concerns have been expressed that studying in English may gradually lead to an eclipsing of capability in national languages (Ghosh 2012), and therefore the compromise of national cultural heritages. At the same time, the rising confidence of the new Indian middle classes and business leaders has led some of India's

longstanding trading and strategic partners to rethink their modes of engagement. For instance, British diplomats are required to learn Hindi in order to comprehend better the language dubbed 'Hinglish' (Nelson 2012; Shukla 2012).

2.2.5 Indonesia

Indonesia has approximately 600 languages in use (Paauw 2009), with Bahasa Indonesia the official language. Long established as a lingua franca in the wider Malay region, and adopted within a nation-building framework following independence from the Dutch, it is now used for communication by the majority of Indonesians, in addition to their ethnic or regional language(s). Indonesian is the medium of instruction from primary school through university, with instruction in the regional language permitted in Years 1 to 3 in school, in nine national regions (Paauw 2009, p.6).

While English is one of several foreign languages available for study, it is the only one that is compulsory at school level (Lauder 2008). Government attempts in 2012 to offer English beginning only at lower secondary level rather than at primary were widely opposed, with the result that it can continue to be offered at primary level but as an elective (Osman 2012). At the university level, English texts are relied on primarily because insufficient texts for tertiary education are produced in Indonesian (Paauw 2009), especially in subject areas such as science, technology and economics. While Indonesia's upper and middle classes, especially in urban contexts, are invested in increasing their proficiency in English (Osman 2012), there is concern over low English language proficiency among the majority of graduating high school students (Mattarima & Hamdan 2011).

2.2.6 Japan

Japan has one major, extant language, Japanese. (The Okinawan and Ainu languages have received no state support and the latter is nearly extinct.) In spite of the presence of long-term non-Japanese residents such as Koreans and Chinese, Japanese has been the 'overwhelmingly' dominant language used in

the public sphere (Hino 2009). Although English is deemed important and taught as the main foreign language, most graduating school students cannot communicate successfully in English despite having studied it since at least Grade 7. They would, though, have acquired the literacy skills necessary for entrance to university (Sakamoto 2012). Sakamoto observes that public ambivalence towards support for effective education in English, such as bilingualism and immersion, contributes to the still-limited options available to acquire it at school. Concerns about the influx of foreign values via English and the compromise of Japanese language have circulated (Hino 2009). What type of English should be taught (Anglo-American English or English as an International Language which could reduce incursion by Anglo-American values), and by whom (native speakers or speakers from other countries with strong English capabilities such as the Philippines) have also been keenly discussed (Hino 2009, p.107, p.112).

In regard to multilingualism Sakamoto (2012) further notes, '[Japan's] inability to capitalise on the multicultural base offered by minority children attending ethnic schools is stagnating the globalisation and internationalisation that Japan so desperately aspires for' (p.410). Children from non-Japanese backgrounds may begin their elementary education in schools that offer instruction in an ethnic language such as Korean as well as Japanese, and sometimes also English, and then transfer to schools that come under the Japanese Education Law Act (p.416). Such movement would, however, take away the opportunity to maintain active multilingualism. Students attending international schools with English as the primary medium are at an advantage when applying for tertiary education overseas.

At university level, while Japanese still dominates, English tends to be used for research in areas such as science and technology (Hino 2009). Some Japanese universities teach postgraduate and doctoral courses in science and engineering in English, for both Japanese and international students (Montgomery 2013, p.33). Teaching in English in other disciplines is being increasingly encouraged. In part, at least, this is a bid to attract more overseas students to Japanese universities. In 2010, 3.4% of all foreign tertiary education students chose Japan (OECD 2012b). The vast majority of Japan-bound students came from elsewhere in Asia (93.2%), with nearly two thirds from China and a fifth from Korea. Most of them attended shorter academic or VET programs, including in the humanities and social sciences. At private universities, overseas students may study in Japanese or English at undergraduate and postgraduate levels depending on the languages in which courses are offered ('Why Study in Japan?' n.d.). At national universities, Japanese is usually the medium of instruction.

Japanese corporate culture has had mixed responses to the need for English fluency in a globally competitive economy. While a few corporations such as Rakuten, an international internet service company, have gone so far as to declare English their 'official corporate language' and to mandate the linguistic upskilling of their workforce (Smith 2012), others perceive bilingualism or multilingualism as portending a threat to Japanese corporate cultural values (EF Education First 2013, p.17).

2.2.7 South Korea

South Korea has a single official language, Korean. English has long been taught as a foreign language from primary school through university. However, parents spend considerably to enable their children to acquire English more thoroughly by attending extra-curricular English classes at a hagwon or language institute (Lawrence 2012). Since 2008, the issue of immersion teaching in English at school level has been intensely debated, and put into practice in elite private schools. Bilingual education, using both Korean and English, is also provided in some public elementary schools (Jeon 2012). Since 2005 'English villages', numbering about 30 in 2010, have been operating across Korea. They provide short-term total immersion in English for students 'as a publicly funded domestic alternative' (Jeon 2012, p.401) to going overseas for this experience, thereby enabling less privileged students to access such learning. There is also the development of Konglish, an 'interlanguage',

where a learner develops 'second language knowledge that may have characteristics of the learner's first language (Lawrence 2012, p.72). This appears to be similar to the variants of English developed in other parts of the region (Deterding & Kirkpatrick 2006). As in other countries in Asia, the encouragement and desire to learn English have been countered with concerns over the decline of the national language and the consequent compromise of national identity (Lawrence 2012).

Korea has aimed to increase its intake of international students at university level by providing scholarships and government support for graduate job-seeking. In 2008, the Korean Government proposed increased support for university courses to be taught in English, as well as for Korean language training (Kang 2008). Currently, universities interested in globalising their educational services teach about 30% of their courses in English, especially at the postgraduate level (Korean Government n.d.).

2.3 Language as an essential capability

2.3.1 Australia's language policies

The role and acquisition of Asian languages has been a public policy issue in Australia for several decades, and received renewed attention in the 'Australia in the Asian Century' White Paper (2012). The persistence of the issue indicates that questions remain as to how successful these policies have been. These in turn raise other questions such as why so few Australians desire to learn a second language, especially an Asian language, what sorts of structural issues pose barriers to learning, and why the policies themselves may have proven contentious. The current government aims to have, within a decade, 40% of high school students studying a foreign language, preferably an Asian language, in Year 12 (Lane 2013a; Department of Education and Training n.d.).

The merits of learning Asian languages, especially those that are the national language of countries with which Australia has close diplomatic,

strategic and economic ties have been discussed at regular intervals since the early 1970s. Informed by the Labor Party's vision for Australia's closer engagement with Asia (Henderson 2008), the committee that generated the Rudd Report in the early 1990s drew on previous reports from both governmental and nongovernmental sources to underscore 'the relationship between linguistic competence and economic performance', with special pertinence to Asian languages and Australia's exports capacity (Rudd 1994, p.5). These included the Auchmuty (1971), FitzGerald (1980) and Lo Bianco (1987) Reports, and the Commonwealth Higher Education White Paper (1988). The Lo Bianco Report generated 'The National Policy on Languages', under which pioneering programs such as sign language and Indigenous languages were also supported. Community and Asian languages were covered by the national policy, which identified nine for 'wider teaching': Arabic, Chinese, French, German, Modern Greek, Indonesian, Italian, Japanese and Spanish (Lo Bianco & Slaughter 2009, p.22). The Garnaut Report, Australia and the North East Asian Ascendancy (1989), strongly advocated for Australian school children to be taught multiple facets of Asia, ranging from history and economics to geography and culture, and for secondary school pupils to have access to at least one Asian language in school. It proposed Chinese, Indonesian and Japanese as high priority languages with Korean next in line (Garnaut 1989, p.317). The Ingleson Report (1989), drawing in personnel from technical and scientific areas in addition to marketing and management, suggested that even some familiarity with other languages would 'lead to greater sensitivity to another culture' which could result in 'more effective personal contact and business relationships' (Rudd 1994, p.9). Other reports followed in the early 1990s. The Asian Studies Council (1991) advocated for high quality curriculum development to increase the numbers of students studying Asia and Asian languages, and 'the integration of studies of Asia into a wide range of current core curriculum areas' (Rudd 1994, p.9). The Rudd Report also drew attention to the variable fortunes of Year 12 second-language learning in schools, including Asian languages, since the early 1980s.

Among the Rudd Report's recommendations, leading to a national strategy designed to run for at least twelve years, were the following:

a. Schools would be a primary delivery site for Asian languages and knowledge about Asia.

b. Targets would be set for numbers learning languages by school year, beginning in Year 3.

c. The four priority languages for future expansion through the Australian school system should be Japanese, Chinese, Indonesian and Korean.

d. Other languages could be prioritised in parallel, following triennial reviews of regional trends. (Rudd 1994, p.48)

The Rudd Report therefore institutionalised the four Asian languages approach, while allowing for other Asian languages to be added as needed. Anticipating critics of the prioritising of Asian languages, the Report endorsed the views of the Asian Studies Council, among others, to contend with the position that English was so widely used in business that learning an Asian language was redundant. The Asian Studies Council had argued that (a) relying on interpreters provided by trading partners meant Australians had no means to determine whether they were being understood; (b) ignorance of Asian languages and cultures translated into ignorance of Asian colleagues, business partners, client preferences informed by culture and therefore markets, thereby compromising economic relationships and opportunities for Australia; and (c) the competitive edge was being lost because, while Australians were relying on just English, their trading partners were educating themselves on the languages and cultures of the countries with which they had trading interests.

Implementing the national strategy proposed in the Rudd Report was undertaken by the National Asian Languages and Studies in Australian School (NALSAS) Taskforce in 1995. The taskforce was to coordinate the strategy while implementation was to be carried out by state and territory education authorities in the partnership (Henderson 2008, p.186). By 1998, in the first term of NALSAS, 53.4% of government schools offered the priority languages with 600,000 students studying an Asian language (Henderson 2008). This was accompanied by a considerable increase in numbers of teachers trained or re-trained in these languages. A change of government in 1996 resulted in declining interest in a multifaceted engagement with Asia. The Commonwealth Literacy Policy of 1997, fuelled by anxiety over a perceived decline in English literacy, prioritised English at the expense of other languages (Lo Bianco & Slaughter 2009, p.23). In 2002, Commonwealth funding to NALSAS ceased, leaving the states and territories responsible for continuing with it. At the time, 785,355 students were studying one of the four priority languages across Australia (Henderson 2008) even if the increase was uneven—uptake of Japanese and Indonesian rose twofold, Chinese by one and a half, and Korean by very little (Lo Bianco & Slaughter 2009, p.23). Over $200 million had been made available to the NALSAS program (Lo Bianco & Slaughter 2009).

The termination of NALSAS had immediate flow-on effects, such as the 75% drop in participation in teacher professional development programs. Studies of Asia lost status and Asia expertise gradually declined over a period in time when Australia's Asian neighbours were growing in political and economic power (Henderson 2008, p.189).

The National Asian Languages and Studies in Schools Program (NALSSP) was intended to run from 2008 to mid-2012. It was funded at $62.4 million per annum to cover the teaching of Chinese, Indonesian, Japanese and Korean in schools (Lo Bianco & Aliani 2013, p.17). Its plan was to have 12% of Year 12 graduates fluent enough in one of the targeted languages to engage in commercial activity or university education. Achieving the targets was deemed unlikely considerably early in its implementation, especially given the capacities of existing school languages programs. The Henry White Paper, Australia in the Asian Century, released in late 2012, lamented the decline in Asian language study over the 2000 to 2008 period. It laid out the curricular requirements for Asian languages and knowledge about Asia, observing that

relying on Asian-Australians for all connections and relationships with Asia was inadequate. It also noted that 'Proficiency in more than one language is a basic skill of the 21st Century' (Australian Government 2012b).

The need for Asian-language skills has been urgently re-stated by people such as Stephen FitzGerald, Australia's first ambassador to China, who, being involved in a number of initiatives on Asia Literacy commented that 'analysis and understanding of China depends on "a high capacity" in the Chinese language' (Lane 2013b). In addition to its plan for 40% of Year 12 students to study a foreign language, the Australian Government has championed the New Colombo Plan. The New Colombo Plan will afford opportunities for upskilling in languages, especially when students experience the value of multilingualism in practice during work internships in participating Asian countries (Trounson 2014).

2.3.2 Asian languages in Australian schools

The study of languages other than English, including Asian languages, has faced significant challenges in Australian schools. In NSW, the proportion of students studying a foreign language for the Higher School Certificate is now less than a fifth of what it was during the 1950s. Student numbers taking Indonesian have dropped by 76% since the mid-1970s, when it was at its peak (Tovey & McNeilage 2013). In Victorian schools, there were more students studying Latin in Year 12 than Chinese in 2013 (Garnaut & Wen 2013). Four reports published under the auspices of the Asia Education Foundation discussed the in-school challenges facing the teaching of the four priority Asian languages at the time—Chinese (Orton 2008), Indonesian (Kohler & Mahnken 2010), Japanese (de Kretser & Spence-Brown 2010) and Korean (Shin 2010). In the summaries below, 'L1' refers to learners for whom the language is their first language, 'L2' to learners for whom it is a second language, and 'heritage' to learners who are from a particular language background (e.g. spoken at home) and have some proficiency in it without necessarily being fluent.

i. Chinese: Retaining L2 learners was a priority. As it stood, in the senior year the great majority of students were L1 learners (Orton 2008, p.4). Ninety-four percent of L2 learners dropped out in Year 12, when a second language was no longer mandatory. Different systems of assessment were needed for L1 and L2 learners to retain the latter group. Difficulties for English speakers in learning Chinese, and inadequate time to both teach and learn, were important challenges.

ii. Indonesian: Since 2005, the number of language learners has steeply declined, despite Australia being a world leader in teaching Indonesian as a second language (Kohler & Mahnken 2010, p.5). Political events in Indonesia have had a direct impact on the uptake of Indonesian in Australia, reflecting the close and complex relationship between the two countries. Ninety-nine percent of students have discontinued learning Indonesian before Year 12. Strategic intervention at junior secondary level was important to retain sufficient numbers at senior secondary.

iii. Japanese: Japanese is the most widely studied language (other than English) in Australian schools and universities, with over 10% across all school years, from Kindergarten to Year 12 (de Kretser & Spence-Brown 2010, p.6). But it has declined since 2000, especially at primary level. Structural factors in schools (such as teaching different levels of students within a single class) and course requirements, in addition to declining student interest once languages become an elective (Years 8–10) have contributed to attrition, as well as the disincentives for heritage and L2 learners in some states and territories.

iv. Korean: Korean, regarded as a 'small candidature language', was nevertheless listed among the priority languages, thus generating ambiguity as to its importance in schools (Shin 2010, p.6). Its low uptake in schools had generated the suggestion that it be regarded a 'Tier 2' language. Building

demand, especially among L2 learners, has proven a challenge, and the majority of students are L1 learners. There is no provision for heritage learners.

A significant increase in uptake of foreign language learning will be difficult to achieve in Australia. Given the low level of interest among Australian parents for their children to study a foreign language at school (HSBC 2014), investment in stimulating demand for language learning, especially of Asian languages, should the focus, rather than the more common emphasis in government policy on the supply side.

Strategic options include integration into the curriculum, an example of which is the International Baccalaureate where language study is mandatory as part of the program's commitment to multilingualism (International Baccalaureate n.d.). While such integration offers the possibility for students to learn a language more thoroughly, sufficient resources would need to be allocated across both primary and secondary school programs. Given scarce resources, Anderson argues that priority should be given to language acquisition at secondary level (Anderson 2013). As noted before, many Year 12 students drop a second language they are studying, ostensibly because of fear of compromising their ATAR scores (Lo Bianco & Slaughter 2009). In Australia, just 13% of Year 12 students study a language other than English (Blakkarly 2014). Language study in senior secondary school could be made compulsory for university entrance (Anderson 2013), or be made a requirement for some university courses (Rowbotham 2013). Alternatively, ATAR calculations can offer a bonus for LOTE study in Year 12 and thereby boost scores for university entrance, e.g. University of Western Australia (The University of Western Australia n.d.); universities in South Australia (SATAC 2014); University of Queensland (University of Queensland n.d.) Learning a foreign language can also be made compulsory at university regardless of the course followed, similar to practices at US universities (Anderson 2013).

Pedagogic innovation is also important. An approach such as Content and Language Integrated Learning (CLIL), or 'immersion', which is discussed further in Section 2.5.5, has been trialled in select schools in Australia (Asia Education Foundation 2013, pp.29–34), with positive outcomes in certain programs. While this approach can be successful in specific contexts depending on funding and the scope or ambition of the project, it is questionable whether full immersion is practical or financially viable in Australia. An assessment of which models of language learning would work best for Australia today, whether long-term or short-term, would require a separate report.

Among strategies for attracting students to learn an Asian language, the Asia Education Foundation lists the following incentives, noting that these will be informed by 'the stage and circumstances of life' (Asia Education Foundation 2012, p.3): friendships; curiosity about other countries and their inhabitants; travel; life, work and career futures.

A new design for languages other than English, covering levels from Foundation to Year 10, is currently being developed for the Australian National Curriculum. While curricula for Chinese and Indonesian (along with Italian and French) were rolled out in 2014, those for Japanese and Korean targeted at second-language learners are being developed (ACARA 2014). Other European languages and a framework for Aboriginal and Torres Strait Islander languages are also being worked on. Languages being considered for later addition include Hindi (ACARA 2014). The Australian Curriculum, Assessment and Reporting Authority (ACARA) offered the following as a rationale for learning languages:

> '[B]eing able to communicate proficiently gives learners essential communication skills in the target language, an intercultural capability, and an understanding of the role of language and culture in human communication. It provides the opportunity for students to engage with the linguistic and cultural diversity of humanity, to reflect on their understanding of human experience in all aspects of social life, and on their own participation and ways of being in the world.' (ACARA 2011, p.6)

It further notes that being monolingual in English is insufficient, despite the status of English as a world language, and that 'a bilingual or plurilingual capability is the norm in most parts of the world'. The development of 'intercultural understanding' as a key aim of language learning, with such understanding integral to 'developing global citizenship', is also underscored (ACARA 2011, p.33).

There is also evidence that foreign language learning has a significant positive effect on knowledge and perception of another country. A 2013 Newspoll survey on Australian attitudes towards Indonesia, commissioned by the Department of Foreign Affairs and Trade, found that those who have studied the Indonesian language:

- have a higher level of awareness and understanding of Indonesia

- have more positive perceptions of Indonesia

- are more likely to think Australia and Indonesia have things in common

- are more likely to consider Indonesia important to the Australian national interest

- are more supportive of increased links between the two countries. (Newspoll 2013)

This finding strongly suggests that language learning is beneficial not just for instrumental, transactional reasons, but more broadly for enhancing engagement with other cultures and societies for mutual benefit.

2.3.3 Language learning and translingual capabilities

Regarding language learning, the concerns of the Modern Language Association of America (MLA) are important to note. The MLA suggested that 'the need to understand other cultures and languages' should be among the top imperatives if higher education is to stay relevant and complex societal challenges are to be addressed (MLA Ad Hoc Committee on Foreign Languages 2007, p.1). While this may have been accepted as a desirable objective, the functions of, and approaches to, language learning remain contested. On the one hand, language is regarded in instrumental terms, as a skill used for communicating thought and information. On the other, it is considered an integral element of human thought processes, perceptions and expression—therefore essential to translingual and transcultural competence. 'Language is a complex multifunctional phenomenon that links an individual to other individuals, to communities, and to national cultures' (MLA Ad Hoc Committee on Foreign Languages 2007, p.2).

While some tertiary institutions simply focus on developing language skills (the instrumental approach) others espouse a 'constitutive' approach that draws together the relationships between language, culture and other types of knowledge. The MLA proposes an approach of translingual and transcultural competence: 'the ability to operate between languages', where students 'are trained to reflect on the world and

Box 2.1: Australia-Asia BRIDGE School Partnerships

The BRIDGE School Partnerships aim to develop the linguistic and intercultural capabilities of students in both Australia and Asia through online collaboration and in-person exchanges. Current partnerships link Australian students and teachers with students and teachers in China, Indonesia, South Korea, Thailand and Malaysia. Indonesia has the most partnerships and is the longest-running. Begun in 2008, the BRIDGE program is managed by the Asia Education Foundation (Asia Education Foundation n.d.) and supported by the Australian Government. In addition to the acquisition of high-quality linguistic skills and substantial intercultural awareness, the partnerships highlight the development of sustainable people-to-people links between young Australians and Asians by using web technology. Such an approach promotes the cultivation of intercultural knowledge and relationships while advancing technical skills in the online medium increasingly familiar to youth across the Asia Pacific region.

themselves through the lens of another language and culture' (MLA Ad Hoc Committee on Foreign Languages 2007, p.3). Consequently, students are challenged to cultivate a worldview different to the one they inhabit through English, and as native speakers of English, by developing capabilities to grasp, for instance, the history and cultures of the society whose language they are learning, to critically interpret its media, etc. In an Australian context, where the rationale for learning an Asian language has primarily been economic benefit, and thus unattractive to many students, such an approach could encourage them to acquire an Asian language for purposes beyond the economic, including the tools to advance people-to-people links in non-commercial contexts.

2.4 Language in select sectors: English, its possibilities and limits

The following knowledge fields and professions—the sciences, engineering, medicine, business and tourism—are selected for discussion because it is often presumed that, in these areas, proficiency in English is sufficient for both knowledge sharing and professional efficacy.

2.4.1 The Sciences

The utility and limits of an English-only approach in academic disciplines and professional fields obviously depends on the discipline or field. While research activity in a range of fields in the humanities and social sciences may require the capacity to operate fluently or adequately in more than one language, at first glance English seems quite sufficient in the STEM disciplines. It is the predominant language of international communication in the natural sciences, medicine and most fields of engineering. This common language resource facilitates the sharing of scientific knowledge and therefore collaboration. Regardless of levels of fluency, English is often the default language at international scientific conferences. It is also the dominant medium for publications.

The dominance of English in international collaboration does not mean that it is also the language of scientific enterprise and communication at national level. National languages such as Chinese, Japanese, Korean and Russian are used for local communications, including in technical journals, especially in instances where national government support is essential to scientific activity. Several regional science periodicals are produced in languages other than English, e.g. Chinese, Spanish and Portuguese. Articles appearing in Latindex, the Spanish-language database, are rarely picked up by the high-status English-language databases such as the Science Citation Index through Web of Science (Montgomery 2013, p.83). It is here that the first rip in the English holdall emerges: while those scientists aspiring to international collaboration need to prioritise communicating in English, anyone wishing to understand what is happening at a national or regional level in areas where English is not in comfortable use will need to know the local or regional language.

Assessing language competition in the sciences, Scott Montgomery, who innovatively examines the relationship between science and global English, does not see a language such as Chinese duelling with English to become the dominant language of international science. This is despite the extremely rapid rise in the number of Chinese scientists active internationally—'between 1999 and 2009, the annual number of scientific publications that included one or more Chinese authors increased from less than 30,000 to nearly 120,000 in international journals...(by comparison, US output grew by only 30%)' (Montgomery 2013, p.5). Chinese scientists are publishing in English, both to secure high-level jobs as well as to share their research and innovations as widely as possible. Institutions such as the Chinese Academy of Sciences recognise the importance of publicising their work internationally through having an English-language version of their website <http://english.cas.cn/>. But English-language systems are not the only medium for conveying Chinese scientific advancement in an international context. Thomson Reuters and the Chinese Academy of Science now host the Chinese Science Citation Database, which carries

articles in Chinese with some abstracts available in English (Thomson Reuters n.d.). Given the extensive networking among Chinese diasporic scholars based in different countries (see Chapter 3), bilingual skills in Chinese and English will be a distinct advantage in advancing both scientific knowledge as well as community eminence.

The vast majority of the approximately 200 Chinese postgraduate students, postdocs and scientists based in North America with whom Montgomery spoke, expressed the wish to improve their English skills. But they also presented the second rip in the English holdall—many also wished that Westerners would learn Chinese (Montgomery 2013, p.6). Thus, while Chinese scientists recognise the need for facility in English, their wish that Westerners learn Chinese suggests that it is multilingualism on the part of both Chinese and non-Chinese that would contribute to advancing trust and therefore multilayered success in international scientific collaboration.

For scientists who acquire English for professional or career reasons, written facility in English may not be as developed as spoken facility, or vice-versa. However, as Montgomery notes, a key goal of the STEM disciplines—to improve human wellbeing on a global scale and therefore attend to issues such as environmental degradation, adequate food supply, and new energy sources—motivates scientists to acquire English as a necessary skill to advance education and training. It is also essential for the international communication of research results: communication is integral to research and better communication results in better science. Competence in 'scientific English' and therefore the capacity to share scientific knowledge internationally through publications and conference presentations can be achieved, even if not with the fluency of native English speakers. As Montgomery further asks: 'Is it possible that over the next several decades, as nations become richer and English becomes a routine skill, science will itself become multipolar (Europe and North America sharing leadership with East Asia, South Asia, and Latin America) so that monolingual Anglophones become more marginal in importance, due to restricted language competence?' (Montgomery 2013, p.117).

To date, English has not lost its role as a global norm in professional written discourse. International publishers prefer Standard Written English (i.e. Anglo/American English) because intelligibility, even across different Englishes, is the key criterion. This is unsurprising given that most highly-cited scientific journals are still based in the US and UK. If variations in English usage are accommodated by some journals, 'flexibility in rhetoric' is not—the standard form of presenting an argument in (normative) English scientific writing prevails (Montgomery 2013, p.99).

This is confirmed by the expectation of some science editors, which appears to assume that there is only one 'standard' English, the norm of North America or the United Kingdom and its dominions. Drubin and Kellogg (2012) observe that English is now used almost exclusively as the language of science, even though it is not a language in which many scientists around the world are fluent or speak as a native language. This creates problems for the writing and publication of scientific papers. They urge journal editors and reviewers not to reject papers because of grammatical errors rather than content, while writers of scientific papers who are 'non-native speakers of English' are urged to write 'clearly, logically and concisely', and to have their work professionally edited before submission (Drubin & Kellogg 2012). The authors make no reference to nuances in English usage and their impact on science communications, and the challenges these pose to non-native speakers.

2.4.2 Engineering

An assessment made under the banner of the UNESCO International Centre for Engineering Education (Riemer 2007), then based at Monash University, recognised the importance of communication skills in the engineering industry, with multilingual capabilities being essential to the 'global engineer'. Internationalisation is increasingly a characteristic of engineering projects, with English the global lingua franca when internationally mixed teams work on a project. However, Riemer (2007) notes that the importance of multilingualism for the global engineer is not confined to learning English. Given the strong relationship between

intraregional development and globalisation, learning the main languages of a country or region (e.g. Chinese, Malay, Hindi/Urdu) is as important as learning English. Approaches for addressing communication skills include identifying how second language skills can be integrated with an already demanding engineering curriculum, and encouraging engineering students to appreciate the acquisition of wider linguistic skills for professional advancement in a globalised work environment (Riemer 2007, p.90). There is also potential for combining language education and technology education, given expanding internet use by speakers of languages other than English.

In contrast, in a country such as Thailand where English is not a primary language, learning English was considered of high importance for automotive engineers working in an industry considered critical to economic development (Hart-Rawung & Li 2008). The notion of 'global engineers' is again invoked. English language proficiency was considered key in recruiting, because work teams in the industry were likely to be international. There is also recognition that different roles in the industry required different levels of competency in English, resulting in a range of language training arrangements (Hart-Rawung & Li 2008, p.326). But the latter was accompanied by concerns as to whether the type of English taught and the manner of teaching were suited to the English-language needs of the industry, e.g. Technical English for process and production engineers and Business English for marketing engineers.

Accompanying these linguistic concerns was the acknowledgement that communication patterns are braided with cultural behaviours and expectations. For instance, some Thai engineers were unlikely to say they did not understand a communiqué in English because acknowledging this could mean a loss of face. The authors propose that the consequences were not only frustration of purpose for both parties but also Thai engineers not being able to present their professional knowledge in the most favourable light.

More recently, as China's role as both producer and consumer has expanded, jobs in countries such as Singapore and Hong Kong, long known for receptivity to skilled Westerners who did not speak Chinese, now require facility in Chinese. This may apply to engineers as well where, in a bid to keep costs down, they may be dealing directly with suppliers in China rather than relying on a middle-person who speaks Chinese (Wassener 2013). Given the increasing numbers of highly skilled personnel who are from China, are Chinese-language proficient, and willing to stay on in the region long-term (Wassener 2013), and who will therefore be competing with non-Chinese for plum positions, some level of Chinese-language competence will need to be part of the global engineer's kit bag to work in the greater China region.

2.4.3 Medicine

The utility and limits of English are particularly sharp in the context of medicine and health care, whether in regard to multinational/multilingual contexts of medical training, or the provision of health care within a dominantly Anglophone country. For instance, in the assessment of a postgraduate training program on psychological and psychosomatic issues, offered by the European Union to doctors in China, Vietnam and Laos, language proved a particular challenge although the trainings were deemed successful (Fritzsche et al. 2012) . The trainers were from Germany and spoke English as well. Communications between trainers and trainees relied on the translation capabilities of participants and therefore on capacities to speak English, which varied considerably. Often, when doctors were treating patients, content from the local language was only partially translated into English; with the authors observing that some intentional censorship may also have taken place (Fritzsche et al. 2012, p.11). Participants with limited English felt 'ashamed to ask questions'; and texts were not always available in the local language, of particular issue in Laos. Another abiding complexity of this exercise was how mental health issues themselves are regarded in the respective societies, and how 'Western' modes of diagnosis and treatment can best be engaged with in diverse Asian contexts.

The limits of English as lingua franca are also evident in-country when there are substantial populations that do not communicate in it at all or where it is not the dominant language. In the US, for instance, doctors who are fluent in Spanish or an Asian language are more likely to reach, and be accessed by, patients whose dominant language is not English (Moreno et al. 2011), in contrast to doctors who speak only English. The doctors' multilingualism enables caring for patients who are less likely either to access health services or to become aware of vital health-related information (Fernandez et al. 2011) because of their very limited or non-existent English language capabilities. Moreno et al. observe that there is a growing need for physicians who can provide culturally and linguistically appropriate health care services because of the rapid increase of language diversity in the US (Moreno et al. 2011, p.512). Health care providers in Australia may well need to be attentive to similar concerns.

2.4.4 Business

Economic growth and the expansion of commercial enterprise have frequently formed the basis of official policies to promote the uptake of foreign languages. As evidenced by the Rudd Report and NALSAS, Australia is no exception. In other Anglophone states, as in Australia, the decline of language learning in schools has been linked to adverse economic effects. For instance, the role of languages in business received attention in a report by the British Academy (Tinsley 2013). Focusing on the United Kingdom, it concluded that capabilities in different languages, not only English, are needed 'at all levels of the workforce, and not simply by an internationally mobile elite' (Tinsley 2013, p.11). The report notes that in 2011, 27% of vacancies in administrative and clerical positions remained unfilled because applicants lacked foreign language skills. This language deficit affected sectors ranging from financial intermediation, transport, communications, hotels and hospitality at the end of greatest deficit, to manufacturing, health and education at the mid-level of deficit (Tinsley 2013, p.62). The British Academy's 'Born Global' project (2014),

aimed at assessing the 'economic and social benefits of language study to individuals' in the United Kingdom (British Academy 2014, p.6), noted that global companies prefer to employ multilingual people (p.21), given the importance of building relationships with overseas clients and suppliers and not simply sales. Monoglot British candidates, those able to communicate only in English, are at a disadvantage.

While the United Kingdom's geographical position and trading opportunities necessitate skills in European languages as well as Asian, Australia's location and mercantile relationships foreground the capabilities required in Asian languages—because English alone is clearly insufficient. Kent Anderson has pointed out that SMEs in Asia dominate the field of commercial opportunities for Australia. Given that proprietors of such businesses are much less likely to speak English than the executives of multinational corporations, competencies in Asian languages are as necessary as in English (Anderson 2013). An important business-related national strategy for Australia, Developing an Asia Capable Workforce (Asialink 2012), proposes a 'useful level of language proficiency' among critical capabilities for individuals, ostensibly for 'better communication and to demonstrate commitment and cultural sensitivity' (Tinsley 2013, p.14).

Asialink Business was established in 2013 (originally as the National Centre for Asia Capability) with Commonwealth Government funding of $35 million over ten years (Asialink 2013). It is intended to help Australian businesses '[develop] Asia capabilities in the Australian workforce through business training programs, business information products, and business advocacy' (Asialink Business 2014). In 2014, Asialink Business conducted a survey to determine the challenges faced by Australian businesses. Nearly one third of the 419 corporations and SMEs that responded noted that insufficient skills in Asian languages posed a challenge to their business operations in the region. However, only a very small percentage considered this a priority business challenge (Asialink Business 2014, and information supplied by Asialink Business). While it is unclear why this is the case, Australian businesses that

are normatively Anglophone should not be complacent that their Asian counterparts will simply develop their English skills because English is currently the dominant lingua franca of global commerce. As Wassener (2013) notes, expanding markets in the region, such as China and the territories, are attracting Chinese-speaking entrepreneurs to deal with their increasing domestic market, with English even becoming unnecessary in some instances (Murphy 2013). As the United Kingdom's House of Lords notes, while one in four people globally speak English, three of four do not, with the UK's poor capacity in foreign languages resulting in an annual loss of £7.3 billion or 0.5% of GDP (Select Committee on Soft Power and the UK's Influence, House of Lords 2014, para 225). It also notes that the newly-industrialised BRICS economies 'place a high value on intercultural and language skills'.

2.4.5 Tourism

As the world's eighth largest tourism sector, Australian tourism has been characterised as a 'super-sector', generating $91 billion in terms of gross domestic product (GDP) and providing around 929,000 jobs in 2013 (Kookana, Tien & Quinn 2014). Sixty-four percent of almost 6.8 million international visitors to Australia came from Asia and the Pacific, with the largest visitor numbers in 2014 coming from New Zealand (1.2 million), China (789,000), Singapore (368,000), Japan (329,000), Malaysia (322,000), Korea (202,000), Hong Kong (201,000) and India (190,000) (Tourism Australia 2014a).

A report by Tourism Training Australia in 2000 recommended that languages of international visitors be widely disseminated and promoted throughout the tourism industry. Since that time, language and cultural awareness training have been incorporated into various training packages as part of the National Training Framework. These provide 'competency standards' for non-English languages, and furnish guidelines for language training for the tourism industry (Queensland Tourism Industry Council 2013a).

Australia's continuing success at attracting increasing numbers of Asian visitors has sometimes obscured the responsibility to provide linguistically and culturally responsive tourism services. A survey of over 3600 visitors from the People's Republic of China, done in 2014, showed that only 51% of Chinese visitors were satisfied with the availability of Chinese language services in Australia. The 'language barrier' was cited as a reason for not recommending Australia as a destination in 37% of cases (ORC International & Tourism Research Australia 2014).

A strong response has come from the Queensland government's partnership with tourism providers DestinationQ, which aims to mainstream tourism skills development programs, including training in Mandarin language and Chinese cultural awareness (Queensland Tourism Industry Council 2013b). A Federal Government-supported program, Servicing Chinese Visitors, addresses the problem of the lack of quality Chinese-speaking tour guides in Australia. The program provides Chinese speakers with a recognised qualification enabling them to work as accredited tour guides to form a pool of competent and professional guides able to engage with Chinese tourists ('Servicing Chinese Visitors' n.d.). Utilising capabilities within diaspora populations would be a good strategy to address deficits in linguistic and cultural understanding.

2.4.6 Summary

In several sectors, it is possible to succeed with knowledge of English only. For example, in fields such as science and engineering, English is well established as the lingua franca, whether in research relationships, communications at international fora, or publications. However, the examples presented in this section also indicate that multilingualism enhances the development of long-term professional links, and communication at the coalface with transnational teams. In sectors such as business (especially engaging with SMEs) and tourism, knowledge of other languages is important for success. In fields such as medicine and mental health, familiarity with other languages is invaluable because the capacity to communicate in a first language (or strong second language) is significant to the development of effective care and therapeutic relationships.

2.5 English in the Asian region

2.5.1 English in Australia

That English is sufficient to operate both within Australia and in various international or global contexts has frequently been asserted, not only in the press but also in some research contexts. An example of the latter is an analysis by Benjamin Herscovitch. In 'Australia's Asia Literacy Non-Problem' (Herscovitch 2012) he argues that a number of existing conditions in Australia make new policies proposed to increase Asia Literacy, most notably through the uptake of Asian languages, unnecessary. Key among the conditions highlighted are the already-existing Languages Other Than English (LOTE) programs, English being spoken by nearly 800 million people in Asia, and Australia's substantial migrant population from Asia with about 2.2 million speakers of Asian languages. According to Herscovitch, Australia's demographics, especially the significant numbers of speakers of Asian languages; Australia being a multicultural society which makes it 'naturally Asia literate' through cultural osmosis; and the status of English as 'the pre-eminent world language' are further reasons for Australia being already sufficiently 'Asia capable'.

There are two objections against this argument. First, although the language skills of Asian migrants are certainly a useful resource, Australia cannot rely only on its Asian diaspora population for its Asian languages capability. This point will be further elaborated in section 2.6. Secondly, Herscovitch does not address the implications of the globalisation of English for monoglot native English speakers (the vast majority of Australians). A defining characteristic of a global lingua franca is the absence of a single, standard form of the language. Native speakers will struggle to understand local versions of English without some familiarity with local languages. This point will be discussed further in 2.5.3 and 2.5.4. In the words of Kent Anderson and Joseph Lo Bianco, 'While not knowing English is a disadvantage, knowing only English is a disadvantage too' (Anderson & Lo Bianco 2009).

2.5.2 English is an Asian language

The claim that English is an Asian language is now more or less accepted across Asia. This acceptance has occurred more easily among former colonies of Britain, such as Singapore and India, than elsewhere. Braj Kachru, whose 'Three Circles of English' model (Kachru 1998) is widely influential as the basis for Global Englishes or World Englishes, places countries such as Singapore and India in the Outer Circle (between the Inner Circle, the domain of native English speakers such as the UK and US, and the Expanding Circle, which includes countries such as Indonesia, China and South Korea). Such globalising of English in Asia means that select region-wide operations, such as science communication and negotiating research collaboration, are likely to take place in English even though English competency may vary among researchers within and among countries.

Formal communications in intergovernmental bodies at subregional level, such as the South Asian Association for Regional Cooperation (SAARC), are conducted in English. SAARC, founded in 1985, consists of eight states— Afghanistan, Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan and Sri Lanka (SAARC n.d.); most of these are former British colonies. English is also used for official communications in the Association of Southeast Asian Nations (ASEAN), founded in 1967, which consists of ten states (ASEAN n.d.)—Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Vietnam. Despite suggestions that French or Malay be adopted as a second official language in ASEAN, these were never taken up (Kirkpatrick 2008). In 2009, English, which had until then been the de facto language of operations at ASEAN, was officially adopted (Kirkpatrick 2012).

While English is indisputably an Asian language, the level of proficiency varies across countries as indicated in Table 2.2.

The global country rankings of the English Proficiency Index are based on data obtained in 2012 from 750,000 adults internationally, who voluntarily took online English tests offered by Education First, the organisation that developed

Table 2.2: English Proficiency Index, Asia

Rank	Country	Proficiency
11	Malaysia	High Proficiency
12	Singapore	High Proficiency
21	India	Moderate Proficiency
22	Hong Kong SAR	Moderate Proficiency
24	South Korea	Moderate Proficiency
25	Indonesia	Moderate Proficiency
26	Japan	Moderate Proficiency
28	Vietnam	Moderate Proficiency
33	Taiwan	Low Proficiency
34	China	Low Proficiency
55	Thailand	Very Low Proficiency

Source: EF Education First 2013.

the EPI (EF Education First 2013, p.11). While Education First's data collection is problematic, e.g. it is not statistically controlled, and depends on self-selecting test-takers having access to the internet (R.L.G. 2012), it does provide some idea of the range of proficiencies in English across Asia.

2.5.3 English is a multicultural language

As English globalises, it becomes a multicultural language (Honna 2005). Andrew Kirkpatrick made the following observation about the variety of Englishes emerging in South East Asia:

> '[In the ASEAN context] English is used as a lingua franca [ELF] by people ranging from those who speak a local variety of English such as Malaysian to those whose proficiency in English remains relatively low.... It is important to clarify here, therefore, that ASEAN ELF is not a single variety. It is perhaps helpful to see lingua franca more as a functional term rather than a linguistic one'. (Kirkpatrick 2008, p.28)

While ASEAN's working language is English, its ten member countries have different relationships to English and its use. Some that were once colonies of Great Britain and the US continue to use English among their other national languages (e.g. Brunei, Philippines, Singapore). In other states, English has the status of the major taught/learned foreign language (e.g. Indonesia, Thailand). In the former French colonies of Cambodia, Laos and Vietnam, while actual use of English is quite low, there

is recognition that English is necessary for participation in international fora (Kirkpatrick 2008). Kirkpatrick, referring to work by T. Clayton on the spread of English in Cambodia, remarks: '[T]he major role of English is not to communicate with Anglophones, but with fellow multilinguals who have themselves learned English as an additional language. In this context, we can refer to ASEAN as a post-Anglophone setting' (Kirkpatrick 2012, p.339).

Deterding and Kirkpatrick recorded conversations among ASEAN nationals in order to discuss the various communication strategies they used in a situation of group conversation. They found that, while facility with 'standard' English was quite varied among group members, members acted to keep conversations flowing and the content intelligible to one another. The various strategies reflected that 'the overarching goal in this type of lingua franca conversation is to ensure communication on the one hand, while preserving the face of the participants on the other' (Kirkpatrick 2008, p.33). The communicators make clear that they are sensitive to the linguistic patterns of their fellow conversationalists and how these patterns inform their respective spoken Englishes. This sensitivity is rooted as much in purposeful conversing as in maintaining respect, therefore requiring both linguistic and cultural familiarity within the ASEAN region, across member countries and cultures.

Honna (2005) describes how English is adapted to local and regional usage by non-native speakers of the language. For instance, expressions in a local language are converted directly into English, e.g. in Japanese-English, 'he has a wide face' (i.e. 'he is well known'). An 'intercultural literacy', where speakers of different types of English nevertheless understand one another because of their awareness of the other's culture, coupled with a 'capability and willingness to understand what the other has to say, not…impose one's values and norms [of communication] upon the other' (Honna 2005, p.80), also facilitates the acquisition and use of English in Asia. As Honna importantly observes, 'The likelihood of using English with other Asians motivates an increasing number of students to learn the language better' (Honna 2005, p.77).

Increasing travel among ASEAN countries will further generate a type of English lingua franca that is best suited to the needs of its users. Such an ELF will have its own features and pronunciation. Consequently, native speakers of English from countries such as the UK and US will need to retrain in ASEAN English if they wish to conduct business in the region (Deterding & Kirkpatrick 2006, p.406).

That first-language English speakers need to retrain would apply to Australia as well, particularly so given Australia's proximity to, and close engagement with, several ASEAN countries. Furthermore, mutual intelligibility in multiple Englishes necessitates a sensitivity to nuance which can only be enabled or cultivated by an awareness of languages other than English. As Lo Bianco observes, '[The] important ideas about negotiation and variety in English and its pluri-centric forms actually strengthen the pragmatic and intellectual case for bilingualism in English-speaking countries' (Lo Bianco & Slaughter 2009, p.10).

The value of attending to the social-psychological dimensions of language in multilingual, multicultural societies is also underscored by Murray and Scarino. They note that in such contexts language users are required to 'assume the role of intercultural mediators of languages and cultures, facilitating communication in the context of diversity without relinquishing their cultural allegiances and senses of who they are' (Murray & Scarino 2014, p.5). The expectation is that the mode of communication be adapted to the individual(s) with whom the speaker is engaging, not simply follow the conventions of any lingua franca being used. The authors suggest that in interpreting, creating and exchanging meaning, speakers will draw on 'language and cultural references that come from their primary and ongoing socialisation in diverse linguistic and cultural systems'. Its effectiveness will necessarily depend on an active receptivity to cross-cultural similarities and differences at societal level, nationally and internationally, rather than passive osmosis, regardless of lingua franca.

Abram de Swaan offers another perspective on English as a global lingua franca (de Swaan 2001). While the fact that the world is multilingual is a given, he proposes that English be regarded as the 'hypercentral' language in an asymmetrical 'global language system'. The linguistic hierarchies created by this asymmetry need to be taken into consideration when assessing the global use of English. This applies even when English is used across multilingual realities and formations, such as the EU, ASEAN and SAARC, and within multilingual countries such as India and Singapore. His assessment suggests that native English speakers in particular need to become more sensitive about these hierarchies and their impact on social exchanges in multilingual contexts.

2.5.4 Implications for native speakers of English

The global economic environment has been characterised increasingly by high degrees of mobility and competition. Given that much of this movement is between countries where English is not a primary language, David Graddol in his report *English Next* observes that it requires mobile persons and travellers to communicate in a foreign language, including English. While acknowledging the rapidly increasing, global demand to learn English, he cautions that this 'global' form of English is very different to that used by native speakers or taught as a foreign language. Because English is increasingly taught as a part of basic education in various countries, the need for native speakers and instructors as standard setters is declining, thereby undoing the hegemony they have so far enjoyed.

To foster communities that can communicate globally in ELF, Asian countries are likely to hire teachers already familiar with multilingual realities or to hire English-language teachers from other Asian countries. For instance, Graddol points out that China has hired teacher-trainers of English from Belgium because of their familiarity with bilingual education, and India has set up Centres for English Language Training for high-level professionals, English-language

teachers and tertiary students in countries such as Sri Lanka (PRIU, Presidential Secretariat Sri Lanka 2010) and Myanmar (Embassy of India, Yangon 2014).

At the same time, the unevenness of English-language teaching and learning, including at university levels, threatens to undermine the availability of qualified graduates in countries such as China and India to work in multinational, corporate contexts, and in jobs such as IT, engineering and Business Process Outsourcing (Graddol 2007, p.75). Recent assessment also indicates that, even for Chinese graduates with degrees from universities in Anglophone states such as Australia, poor facility in English can undermine the chances of securing a high-status job on returning to China (Gribble & Li 2013) where competition for such jobs is fierce.

The tools of international communication reflect linguistic competition. The dominant web presence of English is being slowly challenged by the rise of web content in other international languages such as Arabic and Spanish (Graddol 2007, p.45), with blogs and chat rooms also offering space for many other languages. Graddol concludes that, even in an English-dominant country such as the UK or US, being a monoglot Anglophone is a disadvantage, whether at community level, for economic advancement, or in the interest of national security (Graddol 2007, p.119).

Competition to the spread of English, not only in Asia but globally as well, is being offered by countries such as China, Korea and Japan. While China has made a substantial commitment to learning and using English, the rise in Confucius Institutes internationally and the accompanying promotion of Standard Chinese (Putonghua) reflect China's exertion of 'soft power'. This is in addition to a pragmatic assessment of what is required for strategic advancement in fields ranging from business and public relations to science research. As at January 2015, worldwide there are 443 Confucius Institutes that are university affiliated and 648 Confucius Classrooms at secondary schools (Hanban n.d.). The Japan Foundation has a number of

offices internationally, including in China, India, Indonesia, South Korea, Malaysia, the Philippines and Vietnam. Japanese language education and the promotion of Japanese Studies and scholarly exchanges are key components of its international program ('The Japan Foundation' n.d.). The Korea Foundation has overseas offices in China, Japan and Vietnam, among others ('The Korea Foundation 한국국제교류재단' n.d.). Korean language teaching is part of its initiative to promote Korea Studies internationally, as are scholarly exchange programs.

2.5.5 Emerging bilingualism and interlingualism

Languages themselves are often bilingual, or becoming increasingly so. The vocabulary of one language may enter another, or words may be adopted from another language with their meanings attached when an appropriate term does not exist in the first language.

A bilingual approach to teaching at school level is one of the means to enabling acquisition of a second language. One such approach is 'Content and Language Integrated Learning' (CLIL), which is underpinned by the 'interrelationship between content, communication, cognition and culture' (Cross & Gearon 2013, p.6). This immersion approach to education results in school curricular subjects, such as science or history, being taught in a language that students are just learning—for instance, students may learn curricular history taught through Japanese and curricular science taught through English at the same school. As Lo Bianco notes, 'It thereby displaces the focus of language teaching away from language itself and onto meaningful and significant communication around concepts and information drawn from regular school subjects' (Lo Bianco & Slaughter 2009, p.30). A trial and evaluation of the CLIL approach in a range of Victorian schools, during 2012–2013, indicated that it was viable, on condition it received parental support and strong commitment from the entire school community (Cross & Gearon 2013). While these small-scale initiatives are successful, introducing CLIL on a mass scale will require adequate resources and

teacher capacity. In the US, a bilingual or two-way immersion strategy has been used at the primary-school level. Pupils whose first language may be either Spanish or English are taught in linguistically mixed classrooms. Each language is used for 50% of instruction. Such two-way immersion programs 'aim for proficiency in all domains of both languages for both ELLs [i.e. English language learners] and native speakers of English, high levels of academic achievement, and cross-cultural understanding' (Genesee & Lindholm-Leary 2013, p.14). This has resulted in both bilingually competent students as well as improved, overall academic performance. Children from underprivileged, Spanish-dominant Hispanic backgrounds have especially benefitted (de Jong 2013).

Interlingualism indicates functioning in two or more languages, where rather than being equally proficient in both or all, the speaker utilises necessary constructions in an appropriate language to suit a specific situation. Giraldo Aristizabal (2014) suggests that this includes a range of speakers, e.g. people who require a select or small linguistic repertoire to function in another language; those who function comfortably in more than two languages; those who will use another language only for a very specific purpose, such as to take a proficiency test; those who use coexisting languages in different spaces, such as one at home, another at work or school; those in the process of learning languages other than their first language. 'At the individual level, interlingualism denotes a person's knowledge and use of linguistic, pragmatic and sociolinguistic features of two, three or more languages' (Giraldo Aristizabal 2014). For Australia, smart engagement with Asia will benefit from upscaling and encouraging the development of interlingualism. Given that many students in Australia already speak an Asian language because of their Asian backgrounds, valuing interlingualism can contribute to language learning as an everyday experience with their non-Asian peers.

2.6 Diasporas as linguistic resource

Diasporas are an important linguistic asset and resource in Anglophone countries, including Australia. In its assessment of languages as an essential competency for the United Kingdom's diplomacy and security, the British Academy remarked that the UK's 'diverse population… provides a valuable pool of language resources, particularly for languages that are not commonly taught in schools' (Chen & Breivik 2013, p.45). Valuing and engaging native speakers of other languages within the British Civil Service 'could enable greater integration and…potentially produ[ce] positive effects for community engagement and the prevention of terrorism' (Chen & Breivik 2013, p.7).

Australia has a substantial number of residents (whether citizens, permanent residents or temporary residents) who are conversant in Asian languages. They have the potential to offer an invaluable resource to Australia, but are often under-recognised and therefore under-utilised. For example, the under-resourced teaching capacities for Hindi in primary and secondary schools can be augmented by drawing on the Indian diaspora, at least initially for the primary level (McDonald 2013).

However, there are risks inhering in a simplistic reliance on diasporas as language teachers. Firstly, a native speaker of a language is neither automatically a trained teacher nor necessarily conversant with school curricular requirements. According to McDonald (2013), in the context of Indian languages, federal- and state-level strategies are needed 'to turn qualified linguists in the Indian-Australian community into qualified teachers' (2013, p.9) for optimal engagement with the diasporic resources of both linguistic knowledge and potential teaching personnel.

Nevertheless, there are some roles that diasporic community members who are not trained teachers can still play in the area of language learning. In their work on student experiences of language study, with a focus on Italian and Japanese, Lo Bianco and Aliani assessed students' perspectives on how to stay engaged and learn

more effectively. In regard to Japanese, these included students' using the language much more than they were currently accustomed to doing, ensuring that they were able to follow the teacher's instruction, and enabling committed students to learn without being distracted by those with little or no interest—'a wish for a more active pedagogy' (Lo Bianco & Aliani 2013, p.115). Diasporic community members could provide conversational opportunities for students at various levels of competency, and through such engagement provide accompanying insights into Japanese culture.

Secondly, Lo Bianco's (2009) and Anderson's (2013) observations regarding the loss of immigrants' multilingualism because of the pressure to assimilate into (monolingual) English means that the capacity to operate in multiple languages rapidly declines by the second generation, and is almost wiped out by the third. This view is supported by census data from the Australian Bureau for Statistics (2012)—from 53% capacity among first-generation immigrants to 20% among the second generation to 1.6% by the third. Such loss means one cannot assume that Asian diasporas automatically assure a sustained Asia literacy in Australia, especially in languages. Our Survey of Australians Living and Working in Asia (Freeman & Rizvi 2014) reveals that many wished they had been better prepared, including linguistically, to optimise on the opportunity of being based in Asia. As our Survey of Chinese and Indian Diasporic Scholars in Australia makes evident (Freeman 2014), while nearly everyone surveyed was fluent in English, several agreed that a common cultural heritage, including language, transnationally shared, was instrumental in the development of their research networks. Hence there is a clear need for continued, accessible, high-quality, well-resourced Asian language learning to be available to anyone, regardless of cultural heritage, across education sectors as well as through training programs in professional contexts.

Given the current under-representation of Asian-Australians at the leadership levels of policy making, whether in business (Diversity Council of Australia 2014), federal politics or

universities (Harrison 2014), who defines the terms of engagement of diasporic resources, whether linguistic, cultural or otherwise, will have implications for the quality of that engagement. It will determine whether diasporic Asians or Asian-Australians feel they are actors, or simply acted upon. Writing in the context of the US, Ricento cautions that celebrating 'heritage' (through, for instance, language, music, literature, cuisine) can be done in such a way that validating cultural identities and marketing cultural products, including language, 'exploi[t] the minority culture for the greater benefit of the majority group' (2005, p.358). This is a concern applicable in Australia as well (Harrison 2014). The current level of engagement of diasporic Asians and Asian-Australians in language enrichment, research collaboration, cultural relations and business networks (as evidenced by the reports of Freeman (2014), Freeman and Rizvi (2014), and Fitzgerald and Chau (2014)) amply demonstrate their willingness to link Australia and Asia. Any alienation resulting from purely transactional terms of engagement, or from instances where term-setting is conducted on inequitable grounds, will be a loss for Australia. The retention of a 'bamboo ceiling' (Diversity Council of Australia 2014) would be detrimental to Australia's interests.

2.7 Conclusion

Linguistic and intercultural capabilities are at the core of Australia's smart engagement with Asia. English is indisputably the global lingua franca and being learned in all Asian countries, but multilingualism is widespread across the region and English is being adopted to suit local needs. Consequently, to understand Asian Englishes often requires familiarity with other Asian languages. Being monolingual in English is a disadvantage in this regard. Over the past two decades, Australian governments have provided varying degrees of support for the learning of languages other than English, including Asian languages. But language uptake by Australians has fluctuated, and has generally been low. Continued support, and

fresh approaches and incentives, for learning languages and intercultural skills are essential across sectors—whether at school, university, or the workplace—if Australia's Asia capabilities are to grow. Asian diasporas in Australia are an asset and resource linguistically and culturally, and can be engaged with to complement formal language learning. However, diasporas cannot be made to substitute for Australians' language learning if genuine, sustainable people-to-people links are to be developed. Multilingual capability is beneficial not just for instrumental reasons, but also because it promotes transcultural and translingual skills, necessary for operating successfully in a diverse, interconnected world.

2.8 Key findings

2.1   **English is a global language.**

In the Asian region, there is little disagreement regarding the status of English as a global lingua franca in many professions and fields of knowledge. It also plays an essential role in facilitating the development of people-to-people links. Interest in learning English is high. However, proficiency in English varies across the region and cannot be taken for granted.

2.2   **To maintain sustainable and reciprocal relationships with Asia, it is not enough to be monolingual in English.**

There are two disadvantages in the arrangements of current global communication: not knowing English; and knowing only English. Because Asian users of English are developing Englishes to suit their needs rather than relying on the norms of 'standard' English (i.e. the US or UK variety) or Anglophones, the global dominance of the monolingual native English speaker is in decline. Familiarity with Asian languages facilitates comprehension and communication in the varieties of English being used in Asia. Knowledge of Asian languages is also critical for deep, mutual and long-term engagement with Asia.

2.3 Multilingualism facilitates international exchange and professional effectiveness.

Multilingualism is a competitive advantage. While English is currently the dominant language of international communication, knowledge of Asian languages such as Chinese can contribute to reciprocity, facilitate international exchange and collaboration, and promote business links. In a multicultural and multilingual society, effective communication and service provision in professions such as medicine and mental health necessitate that practitioners be multilingual. Professions where transnational teams characterise work environments, will also benefit from a multilingual workforce. Moreover, successful business engagement with Asia and within Asia, particularly at the SME level, is heightened with language familiarity. Australia's tourism sector is one of the largest in the world, with 64% of international visitors coming from the Asia Pacific region. The sector's National Training Framework includes language and cultural awareness training to address shortcomings in the level of linguistically and culturally responsive services, e.g. the lack of quality Chinese-speaking tour guides. Raising the levels of linguistic and intercultural capability in the tourism industry will enrich the quality of tourists' experience of Australia, with positive, long-term implications for this sector.

2.4 Interest in studying foreign languages, especially Asian languages, is declining in Australia.

Only 12% of Australian parents see foreign language skills as an important priority for their children at secondary school. This is lower than for parents in other Anglophone countries (Canada 20%, US 23%, UK 28%). In New South Wales, the proportion of students studying a foreign language for the Higher School Certificate is now less than a fifth of what it was during the 1950s. There has been a decline in the actual number of school students studying Asian languages since 2000. As of 2013, the popularity of Indonesian had fallen 76% since it peaked in the mid-1970s, and more students studied Latin than Chinese. Promotion of the study of foreign languages, especially Asian languages, should therefore prioritise investment in creating demand, rather than the more common emphasis in government policy on the supply side.

2.5 Diasporas are linguistic resources for smart engagement.

Asian diasporas in Australia are multilingual, and a substantial resource for the learning and transmission of Asian languages. However, given the pressure to assimilate into English, diasporic multilingual capabilities tend to be lost within three generations and cannot be taken for granted. Formally valuing the linguistic, cultural and link-building/networking resources Asian diasporas offer will benefit Australia domestically, and enhance its competitive edge regionally and internationally. Australian expatriates in Asia are likewise positioned to benefit Australia's regional connectivity. They will gain from a deeper understanding of Asian languages and cultures, in order to optimise engagement with Asia.

2.6 Multilingual capabilities need to be mainstreamed in Australia.

Even though the great majority of Australians are still monolingual, the simultaneous use of many languages in Australia is already an everyday experience, particularly in large cities. This reality can be harnessed to facilitate language learning as an integral part of education and socialisation. Innovative pedagogic approaches to language learning, such as content and language integrated learning (CLIL), which integrate language acquisition with other school and academic subjects, have proved effective and should become more widespread in Australian education.

3

Research collaboration as smart engagement

3.1 Introduction

Scientific research is increasingly a globally interconnected endeavour, with more researchers around the world seeking opportunities to pursue their research interests by collaborating both within and across national boundaries. As such, international research collaboration represents a significant mode of institutional and people-to-people connectivity between countries. When researchers work together across national boundaries, they do not only contribute to the global production of knowledge; they also play a part in sustaining a culture of cooperation that contributes to more harmonious international relations. In this way, international research collaboration has a strong potential to be a powerful form of smart engagement.

This chapter examines the potential of research collaboration as smart engagement with Asia as an important focus for Australian public diplomacy. The chapter:

- plots the rise of research investment and productivity across the Asian region in a global context

- summarises the broad policies and strategies which aim to facilitate international collaborative research in a range of countries in the region

- examines the general trends in actual research collaboration between countries within the region, including Australia

- considers the role of diaspora researchers in driving research collaboration between their host and home countries.

We take the full range of the research spectrum into consideration, across both STEM (Science, Technology, Engineering and Mathematics) and HASS (Humanities, Arts and Social Sciences) disciplines. The word 'science' is used here to refer to this broad and inclusive meaning (similar to the German word 'Wissenschaft'), except when otherwise stated.

3.1.1 Science diplomacy

Globally, international research collaboration is increasingly seen as vital for the pursuit of national prosperity and security. In this regard, promoting international research collaboration is—or should be—an important government priority. This is where science diplomacy comes in. There are different views of what science diplomacy is and what it is for. The UK Royal Society distinguishes between three dimensions of science diplomacy (The Royal Society 2010, p.vi):

i. informing foreign policy objectives with scientific advice (science in diplomacy)

ii. facilitating international science cooperation (diplomacy for science)

iii. using science cooperation to improve international relations between countries (science for diplomacy).

The first dimension, the role of science in foreign policy formation (science in diplomacy), falls outside the remit of this report. Instead, the main focus here is on the interplay between the second and third dimensions—diplomacy for science and science for diplomacy—to explore the role of research collaboration in enhancing Australia's engagement with Asia. By facilitating research cooperation, whether in pursuit of centrally determined strategic research priorities or through bottom-up collaboration between individual researchers, governments can improve relations with other countries drawing on the 'soft power' of science (Nye 2004). Scientific research is seen as a non-ideological environment for the free exchange of ideas and cooperation between people, regardless of cultural, national or religious backgrounds. When aligned with wider foreign policy goals, international research collaboration can contribute to coalition building and conflict resolution; it also has the potential to build trust and understanding between countries. In this regard promoting international research collaboration is clearly in the national interest. For example, President Obama's Initiative on Science and Technology Engagement with the Muslim World (launched in 2009) is a compelling example of the use of science and technology partnerships to improve relations between the US and Muslim-majority countries (Office of Science and Technology Policy 2010).

Barlow (2014) has highlighted six core national diplomatic objectives and the way they can be supported by international research collaboration. Table 3.1 lists the strategic significance of international research collaboration in a number of ways: because nations whose intellectual communities work together are likely to improve their mutual understanding, to find pathways to common

Table 3.1: A role for research collaboration in international affairs

Diplomatic objective	Role for international research collaboration
i. To improve general relations between nations	• Enables intellectual communities to build trust, mutual affection and understanding • Helps to spread the scientific values of rationality, objectivity, and belief in evidence
ii. To resolve issues of international disagreement	• May provide the only mechanism for joint work to address a contentious issue • Can change the nature of a policy debate and expand the options available for policymakers
iii. To coordinate a response in a moment of crisis	• Enables rapid transfer of information and expertise in emergency situations • Mitigates the consequences of terrible events
iv. To gather information on other societies	• Provides access to knowledge (and beliefs) being developed in other parts of the world • Affords excellent opportunities for information gathering in a non-confrontational way.
v. To forge strategic advantage	• Has become an essential feature of the world's closest military alliances. • May prove critical in international arbitration on trade or disarmament
vi. To provide humanitarian and development aid	• Can ensure that aid money is well spent, and brings lasting benefit. • Helps to instil a culture of enquiry in developing societies.

Source: Barlow 2014.

goals, and to develop strategic advantages over competing powers. These are all justifications for policymakers to take a stronger interest in the patterns of international collaboration being established by researchers worldwide.

The heightened interest in science diplomacy in Western countries in recent times has occurred in parallel with a geopolitical shift in the balance of power towards Asia. Flink and Schreiterer (2010) have surveyed the science diplomacy approaches of six countries (France, Switzerland, Germany, the United Kingdom, Japan and the United States) as well as Japan. They found that in all these countries the rise of China and India as engines of economic growth and innovation in the 21st century has propelled a sense of urgency in pursuing collaborative science and research arrangements with these Asian countries (Flink & Schreiterer 2010).

In Australia, as elsewhere around the world, the importance of enhancing international research collaboration is clearly recognised (Australian Academy of Science 2011; Australian Academy of Science 2010; Chubb 2012), although robust government initiative in this field has been lacking to date. The strategic significance of international research collaboration receives little attention in Australian foreign policy. This neglect is damaging, especially in the context of Australia's positioning within the Asian region. Asia is the most dynamic region for research investment and output today, and Australian researchers have already developed rich collaborative relationships with these countries. A more strategic policy focus to enhance these relationships for the benefit of national and broader regional and global interests would be a useful component of smart engagement with Asia.

This chapter will provide a brief overview of key trends in research policy priorities and strategies across different countries in the region. It will examine the patterns of international research collaboration that already exist within the region, including the participation of Australian researchers within it.

3.1.2 Research diasporas and diplomacy

Even though international research collaboration has grown significantly, however, we should not lose sight of the fact that most researchers still do not collaborate with international colleagues. There are numerous incentives for both individual researchers and research institutions to seek international collaboration, including access (to expertise, equipment, data sets, research subjects etc.), the ability to participate in global scholarly networks, the potential to align one's work with high-status groups and increase the likelihood to publishing in high-impact journals, and the prospect of attracting international funding streams (Barlow 2014). So why is it that some researchers choose to collaborate internationally and others do not?

To address this question it is particularly useful to consider one subgroup that tends to collaborate more than others: migrant researchers. Migrant researchers are those who do not live and work in the country of their origin. Research shows that these internationally mobile researchers contribute disproportionately to the international openness of research networks. According to the Globsci survey, about 40% of foreign-born scientists have research collaborations with research groups in their country of origin. Moreover, the evidence suggests that foreign-born and foreign-educated scientists have larger international research networks than do native researchers who lack an international background (Scellato, Franzoni & Stephan 2012). Looking at research performance measures we can clearly see a 'mover's advantage': foreign-born researchers have more internationally co-authored publications and a higher Impact Factor for those publications than non-mobile native researchers, and they have higher mean citation rates (Franzoni, Scellato & Stephan 2012).

These trends have generated a rising interest in the role of research diasporas in countries' science diplomacy efforts. There is growing recognition of the benefits the collaborative activities of diaspora researchers bring to both host countries and countries of origin, by building strong knowledge bridges between them. In this way research diasporas are seen

increasingly as playing a vital role not only in driving innovation and economic growth, but also in improving cross-cultural understanding and cooperation (Burns 2013). This has spurred the establishment of a range of international initiatives such as the United States-based Network of Diasporas in Engineering and Science (NODES), developed in partnership with the American Association for the Advancement of Science (AAAS) and National Science and Engineering Academies. Launched in 2012, NODES is facilitating the formation of diaspora knowledge networks all over the world, tapping into the large pool of immigrant researchers in the United States (US Department of State, Office of the Science and Technology Adviser 2012).

Australia has been the destination country of large numbers of overseas researchers, many of whom hail from Asia (particularly China and India). This chapter concludes with a major discussion of the role of Chinese and Indian diaspora researchers in Australia.

3.2 Research activity in the Asian region

3.2.1 Overall rise

All countries in the Asian region have stepped up their science and technology strategies and initiatives in the past few decades. In recent years it has emerged as the dominant region globally

for R&D investment. This rise in R&D expenditure has taken place across all sectors: while business spending is the main driver, research investments in government agencies and universities have also been rising across the region.

OECD data (Figure 3.1) show that the amount of R&D activity in the Western Pacific (which, in this case, includes Australia, China, Japan, New Zealand, Singapore, South Korea and Taiwan) exceeded that in North America for the first time in 2011.

The global rise in R&D expenditure is mirrored in an equally dramatic increase in publication output of scientific articles world-wide. Here too, however, the rise in output involving authors from Asian Pacific countries is steeper than of those from other parts of the developing world. As Figure 3.2 shows, the Asian Pacific is the region with the most rapid rise in share of global publication outputs in the past fifteen years. While the absolute number of publications from North America and Europe is still, as of 2011, the largest, their relative share has been steadily declining.

India was classified as 'ROW' in this figure. If we combine India with the Asian Pacific and Oceania, we can ascertain that the Asia-Pacific as a whole accounts for 28% of the world's publication output, not far off from the combined North American share of 30% (Barlow 2014, p.15).

A recent article in the Asian Scientist reports that Asia now contributes nearly one-third of the 5.8 million researchers worldwide. The combined number of researchers in South Korea, Taiwan,

Figure 3.1: Trends in R&D investment
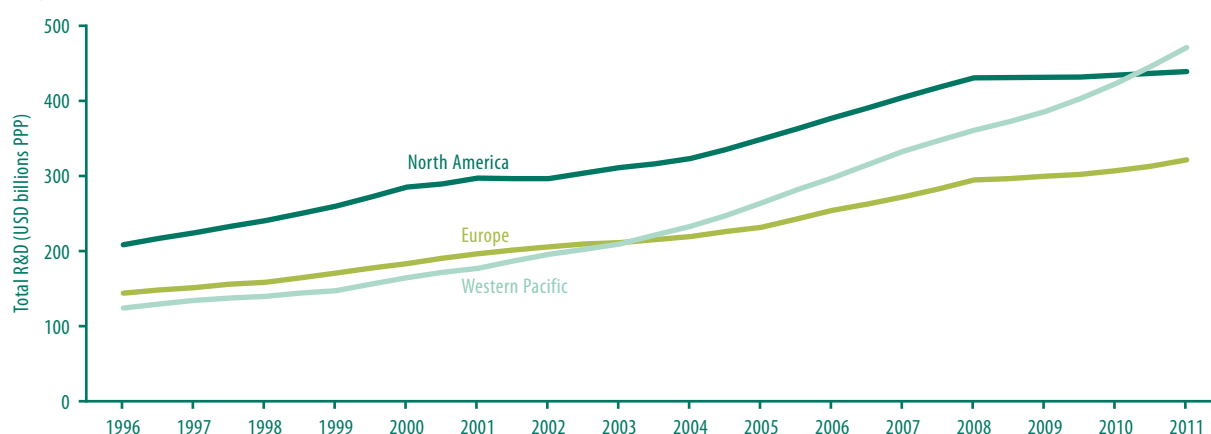
Note: Derived from OECD *Main Science and Technology Indicators* 2014. Current dollars are adjusted for purchasing power parity. N. America in this case combines only the US and Canada. The Western Pacific in this case combines data only for Australia, China, Japan, New Zealand, Singapore, South Korea, and Taiwan.

Source: Barlow 2014.

China, and Singapore rose from 16 percent in 2003 to 31 percent in 2007, driven mostly by China's rapid growth in R&D. In contrast, the number of US and EU researchers declined from 51 to 49 percent of the global total; Japan's share dropped from 17 to 12 percent (Chan 2011). As the pool of researchers in Asia grows, so too does the potential for research collaboration with them.

3.2.2 Internal diversity and China's increasing dominance

While the region's overall rise as the most rapidly developing research powerhouse in the world is beyond doubt, it is equally important to stress its internal diversity and differences in rate and speed of progress. The Asia-Pacific encompasses countries that vary enormously in size and in terms of stage of economic and technological development. This is reflected in major divergences in research capacity. A large part of the region, including the Pacific Island countries, are classed as 'underdeveloped' and do not have a strong research base. Timor Leste, Bangladesh and some ASEAN countries, such as Cambodia, Laos and Myanmar, also fall within this category.

On the other side of the spectrum, Japan has long been one of the core global research powers, particularly in science and technology (the other two being the United States and the European Union), while Singapore is emerging as a leading regional research power, especially in fields such as biotechnology and medical research. Most importantly, the rise of China as the pre-eminent power has already produced huge shifts in the research landscape in the region and globally. Its development has been spectacular, dwarfing the progress made in almost all other countries in the region.

The huge intra-regional differences in productivity come into stark relief when we consider country-based data. Table 3.2 presents the volume of science and engineering publication outputs in 2001 and 2011 of selected countries, as well as their share of total outputs across all countries in the cohort.

This table provides a clear indication of the changes that have occurred in the first decade of the 21st century. China's outputs have more than quadrupled during the decade. Strong growth can also be observed in South Korea, India, Taiwan and Singapore, each of which saw outputs more or less double. In this regard, it is interesting to note that the rise in outputs in Australia and New Zealand has been less pronounced, by 42% and 22% respectively. Dramatic adverse change can be seen in Japan, which saw its total outputs decline by 16%. Of the ASEAN countries, Thailand and Malaysia saw growth rates as spectacular as China, but from a much smaller base. All other countries in the region similarly saw growth in outputs (except for the PNG, which saw a decline), but their share of total output was and has remained very insignificant, if not negligible.

Figure 3.2: Regional share of global publication outputs
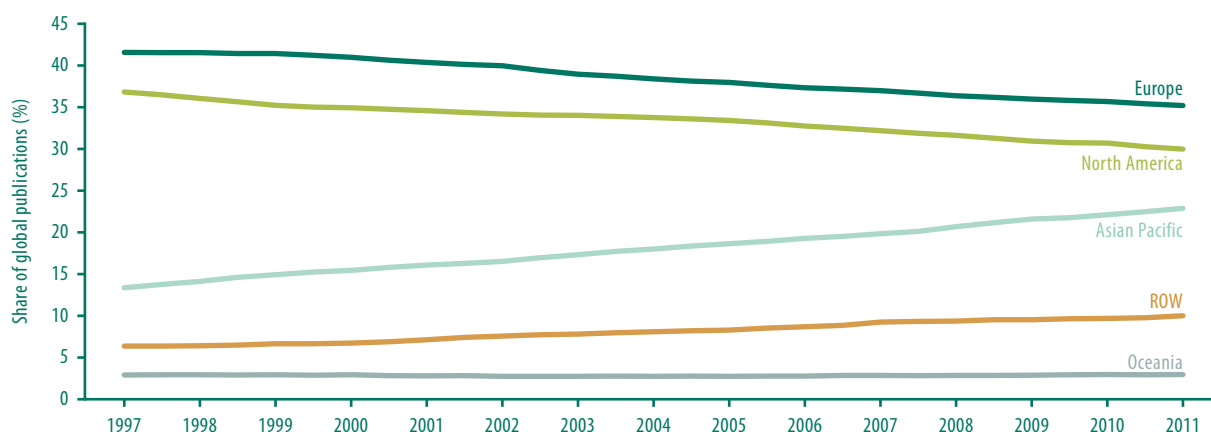
Note: Derived from National Science Board of the National Science Foundation *Science and Engineering Indicators* 2013. Data are fractionated by author residence. North America includes US, Canada, and Mexico. Asian Pacific includes all East Asian, South-East Asian, and Western Pacific nations. ROW includes Central & South America, Africa, the Middle East, and South Asia.

Source: Barlow 2014.

Table 3.2: Publication outputs for key regional cohort of nations

Country	2001		2011	
	Outputs	As % of cohort total	Outputs	As % of cohort total
China	21,134	16.4%	89,894	38.4%
Japan	56,082	43.6%	47,106	20.1%
South Korea	11,008	8.6%	25,593	10.9%
India	10,801	8.4%	22,481	9.6%
Australia	14,484	11.3%	20,603	8.8%
Taiwan	7912	6.2%	14,809	6.3%
Singapore	2434	1.9%	4543	1.9%
New Zealand	2851	2.2%	3472	1.5%
Thailand	727	0.6%	2304	1.0%
Malaysia	472	0.4%	2092	0.9%
Vietnam	155	0.1%	432	0.2%
Indonesia	189	0.1%	270	0.1%
Philippines	141	0.1%	241	0.1%
Sri Lanka	73	0.1%	130	0.1%
Cambodia	7	0.0%	33	< 0.1%
Fiji	16	0.0%	23	< 0.1%
Laos	5	0.0%	21	< 0.1%
Papua New Guinea	32	0.0%	21	< 0.1%
Other Pacific Island	7	0.0%	13	< 0.1%
North Korea	-	0.0%	4	< 0.1%
COHORT TOTAL	128,529	100.0%	234,084	100.0%

Note: Derived from National Science Board of the National Science Foundation *Science and Engineering Indicators* 2013. Counts are fractionated based upon author's place of residence.

Source: Barlow 2014.

Overall, these data paint a stark picture of the dramatic shift in relative strength in the region in terms of volume of publication output. While Japan was clearly the most prolific producer of research outputs in the region in 2001, accounting for 43.6% of all outputs, by 2011 it has been decisively overtaken by China, which is now responsible for 38.4% of the total number of outputs. While Australia's absolute number of outputs did see significant growth, its share of total research publication output saw a relative decline, from 11.3% in 2001 to 8.8% in 2011. Compared with China, all other countries saw only modest relative gains in share of total output (mostly at the expense of Japan and Australia). This is despite the fact that both countries have seen robust increases in national output in absolute terms.

This suggests that in terms of research activity, individual countries need to run in order not to stand still. It also confirms that since the beginning of the 21st century the rise of China has been meteoric. The UK's Royal Society predicts that the scientific publishing output of China is on course to overtake the United States before the end of the current decade (The Royal Society 2011).

This does not mean that China's research system is without problems. The surging number of papers may not have been accompanied by a rise in quality and impact (innovation), as acknowledged recently in the Chinese government's plan for reform in the country's research funding system (Larson 2014). Nevertheless, it is beyond doubt that China is rapidly emerging as a global powerhouse in science and technology, and fully intent on narrowing the gap between itself and the United States. Naturally, China's rapid development is in large part a virtue of it being the largest country in the world, with a population of 1.3 million. But China's research capacity has benefited enormously from huge investments by industry and by the Chinese government. Moreover, data show that China has a huge growth trajectory of business R&D investment from

abroad (Figure 3.3). International companies are obviously very keen to invest in research activities in China. What this figure also shows, however, is that Australia attracts very low investment from overseas companies for research. In this regard it is even surpassed by Singapore, which has a proactive strategy to encourage international companies to locate there and requires them to invest in R&D as part of the deal. South Korea and Taiwan also attract little international R&D investment.

## 3.2.3 Growth in research output by discipline area

China is now by far the world's leader in bachelor's degrees in science and engineering, with 1.1 million in 2010, more than four times the U.S. number (although adjusting for population size, the two countries have similar proportions of young people with science and engineering bachelor's degrees). This large disparity reflects not only China's dramatic expansion in higher education since 1999 but also the fact that a much higher percentage of Chinese university students major in science and engineering, around 44% in 2010, compared to 16% in the United States (Xie 2013).

The predominance of STEM disciplines, especially Engineering, is a broader phenomenon across Asia. This may reflect the fact that many of these countries are still in their national consolidation phase. A recent UNESCO report has used Scopus data to track trends in research productivity by discipline area in Asia. It has found that over the period of 1997 to 2012 Engineering has been the most important discipline focus in the region, accounting for 17% of all publications, followed by Medicine (11%), Physics and Astronomy (10%) and Materials Sciences (9%). The Social Sciences accounted for only 4%, while only a miniscule 0.2% of the region's publication output during this fifteen year period was in the Arts and Humanities (UNESCO Institute for Statistics 2014). Different publishing cultures may account for these differences: publications in the Arts and Humanities, for example, are more often in books rather than journals. They may also be more often in native languages rather than in English and thus not be picked up by the major bibliometric databases such as Scopus and Thomson Reuters. Direct publication volume comparisons across different fields should therefore be treated with caution.

However, looked at longitudinally, the UNESCO data show that the Arts and Humanities have seen the greatest growth between 1997 and 2012, at a rate of 19% (Figure 3.4). This growth was especially strong in the 2008–2012 period, when the number of publications in these fields grew more than four-fold compared with the previous five-year period. Computer Science and Nursing grew at an almost equal rate, while the growth in the Social Sciences (16%) was also substantially larger than in the established STEM disciplines.
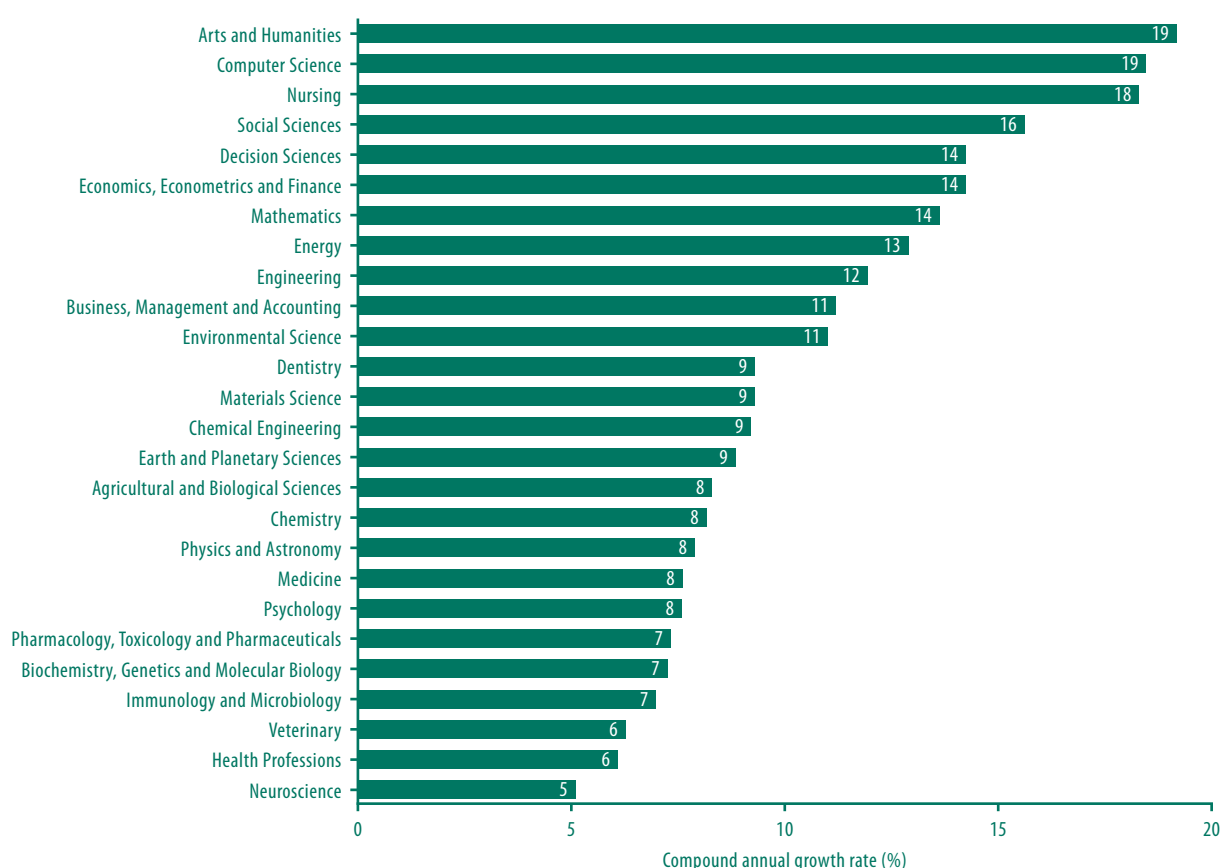
Figure 3.3: Business R&D investment sourced abroad
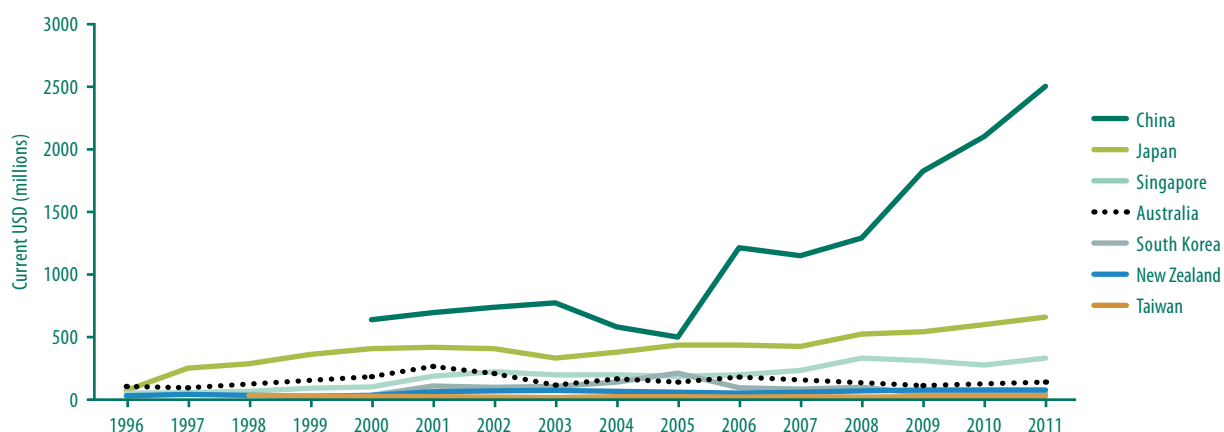
Note: Derived from OECD *Main Science and Technology Indicators* 2014. Figures are shown in millions of current US dollars, adjusted for purchasing power parity.

Source: Barlow 2014.

Figure 3.4: Growth rate of publications by discipline area in Asian countries, 1997–2012

Source: UNESCO Institute for Statistics 2014. Derived from Scopus DataLink <http://dx.doi.org/10.15220/2014/ed/sd/2/f33>.

These data suggest that as the countries of Asia are becoming more developed, research and scholarship in the Humanities and Social Sciences is growing in importance, although from a low base. This points to an increased interest in the HASS disciplines in the region, in line with the global trend to embrace a more rounded conception of knowledge, not just in science and technology but also on society and culture, required to understand and tackle more holistically the complex challenges of our time.

3.3 Research policies and strategies in the Asian region

The growth in Asia's share in the global research effort has been underpinned by more or less well-developed research policies to build and support their national research systems. Very different research governance models exist, ranging from a socialist model of central planning to a more liberal approach, with minimal state intervention and an emphasis on privatisation and deregulation.

In most countries in the region a relatively mixed approach prevails (Matthews & Cheng 2015).

On the whole, research policy has become integrated with innovation policies, as countries seek to use research to drive economic competitiveness and development. Given the strong focus on national development, strategies and policies for international cooperation and collaboration tend to be less well-developed. In this regard, science diplomacy in the Asian region is well behind the European Union, where international collaboration within the region is an integral part of the national policies of individual countries. Nevertheless, there is an increasing emphasis in Asian countries on enhancing research cooperation, mostly as an extension of national goals and priorities. Broadly speaking, less developed countries are more likely to seek exchanges to facilitate technology and knowledge transfer and access to technical and human capital expertise, while fully developed countries are primarily looking to link in with global hubs of excellence in particular research fields (Matthews & Cheng 2015).

Box 3.1: The George Institute

Established in 1999 at the University of Sydney, the George Institute for Global Health (GIGH) was created to address emerging global health issues, in particular to the challenges of chronic disease in disadvantaged populations and in poorer countries. Diseases such as heart disease, stroke and diabetes, once considered as 'western' diseases now cause much of the premature death in the developing world.

The George Institute for Global Health Australia has over 300 staff. Two of the Institute's four global offices are in Asia. The George Institute's development in China began with the China-Australia Partnership for Health in 2004. The George Institute, China (GIC), an affiliate of Peking University Health Science Center, now has 80 staff. GIC has built extensive networks connecting governments, universities, hospitals and research organisations. GIGH India (60 staff) has worked on chronic disease issues with government, public health authorities and medical research institutes for nearly a decade.

Institute activities are sustained by the idea of a genuinely global collaborative network. Questions of intercultural literacy and capabilities are integral to the vision of a global network. In both China and India strong local leadership is the basis for effective operations. Capacity building with Institute researchers focuses on enhancing research career opportunities and encouraging strong leadership that encompasses intellectual and managerial skills: 'people coming up with their own research questions, being able to design a study, get funding for the study and implement it'.

Language competency is an important challenge particularly in China, where few non-Chinese staff speak more than basic Chinese and where Chinese staff struggle with English, particularly in speaking and comprehension. With respect to language, capacity building is largely a one way flow. The Institute channels most language capacity building into English skills because of the dominance of English in the international health field. Some cultural competency training takes place—but the most important training is in the ongoing sharing of knowledge about appropriate ways to interact effectively and inclusively at many levels.

There are still asymmetries: most senior scientists are in Australia because the disciplines involved are less established in India and China. As Anushka Patel, GIGH's Chief Scientist put it: 'We're not there yet. It will take a while to build up the senior leadership in India & China. The vision is to have a confederation of offices focused on both domestic and global issues.'

Cultural understanding and capabilities in intercultural engagement are central to public health collaborations where actual impacts—on the health of populations, healthcare delivery systems, or industry practices—are dependent on communication and advocacy on many levels. Because chronic disease is increasingly critical for both rich and poor countries, research and policy must become truly global. Innovation within GIGH is increasingly becoming bi-directional. One example is mHealth, health care supported by mobile devices, where many of the ideas are being driven by the Indian and Chinese offices (Martel 2014; The George Institute 2013). GIC hosts the China Centre for m-Health Innovation (CCmHI) which aims to build Chinese capacity in digital healthcare, developing platforms to provide community healthcare workers with evidence-based guidance on care. At the same time CCmHI will support the integration of mHealth strategies into provincial and national policy, and promote the use of mHealth technologies globally. The concept of 'global health diplomacy' to describe "the multi-level and multi-actor negotiation processes that shape and manage the global policy environment for health" (Kickbusch, Silberschmidt & Buss 2007) is becoming an accepted reality. It is also a good description of the George Institute and its multidisciplinary research and advocacy work.

The strong emphasis on economic growth, innovation and commercialisation has led to the prioritising of competition over cooperation between countries. This can be a problem, especially when the importance of collaboration is increasingly recognised. The need for the world to develop multinational collaborative approaches to address global problems and challenges has become a central priority for global research governance today (OECD 2010; The Royal Society 2011; OECD 2012a)

The development of effective institutional frameworks for multilateral research collaboration would be a top priority for science diplomacy efforts in the Asian region. There are some beginnings in this regard (see section 3.4), and Australia could play a more active role in this area. A major challenge to make such collaborative initiatives work is to overcome the ubiquitous tendency to prioritise individual national interest at the expense of concerted collective efforts to addressed shared transboundary challenges. The concept of 'global sustainable development' and the role of research as global public goods need to become more visible in research policies, in addition to the preoccupation with consolidating

the competitive advantages of nation-states in international markets.

3.3.1 National strategies

The following brief country profiles focus primarily on S&T policies, reflective of the current research priorities, as well as a lack of information on the HASS in these countries. Nevertheless, specified societal challenges indicate the clear need for contribution of HASS-focused research in addressing these challenges.

China

The National Medium- and Long-term Program for Science and Technology Development (2007–2020) is a comprehensive document outlining many of China's policy and research priorities, and stresses the role innovation should play in addressing many of the country's short- and long-term challenges (The State Council 2006). The current Five-Year-Plan for S&T Development emphasises some strategic and emerging industries (including manufacturing, agriculture, ICT); challenges around resources, energy, water, and the environment; and issues around the changing demography of the country, for example urbanisation and an ageing population (OECD 2012b, pp.264–267; The State Council 2006). Social welfare issues will continue to be important, especially because of the government's intention to expand public-welfare provision, and the continuation of chronic low-level instability across the country because of land ownership disputes and environmental degradation (Economist Intelligence Unit 2014).

Since it began the process of opening up in 1978, China's approach to international research collaboration has been focused overwhelmingly on the strategic aim of advancing national economic development. Bound et al. (2013) describe China as an 'absorptive state', increasingly adept at attracting and profiting from global knowledge and networks. China's rapidly improving home-grown research and innovation capabilities are combined strategically with foreign technologies and knowledge to help sustain rapid economic growth.

By the end of 2010, China had established formal S&T relations with 152 countries and regions and signed 104 cooperation agreements. It also had 141 S&T diplomats working across 46 countries. An ever-intensifying web of international connections has spread across every aspect of China's innovation system.

There has been a shift in China's approach towards international S&T collaboration. In many ways, it has become even more strategic. While initially China focused on developing general international S&T cooperation, it is now becoming more proactive and targeted on science related to particular policy priorities, and is starting to 'go abroad' and not just be reliant on technology imports. It is also, at the same time, more open to cooperation driven by multiple players (Bound et al. 2013).

In 2014, the Chinese Academy of Sciences (CAS) announced it would reorganise its 104 research institutes and change the way it rewards its scientists, aimed becoming a worldwide science and technology leader by 2030. The reform is a response to pressure from the highest levels of government over CAS's failure to produce enough breakthroughs that are changing the world (Jia 2014).

Japan

Since the 1990s, Japan has been overhauling its research establishment with the goal of restoring strong economic growth and promoting innovation, to mixed (and slow) results. Coordination of S&T strategy, while involving several ministries, is managed by the Council for Science and Technology Policy, which reports directly to the Prime Minister and ensures executive level attention to S&T policy (National Research Council of the National Academies 2010).

Two key challenges that Japan has identified in The 4th Science and Technology Basic Plan (2011–2015) are 'an aging and decreasing population as well as a declining birth rate, plus a loss of social and economic vitality; and long, downward trend of industrial competitiveness'. A number of key priority areas identified included reconstruction and revival from the Fukushima disaster, promotion of green innovation (including renewable energy and low-carbon issues), promotion of life innovation (and a focus

on medical research, disease diagnosis and prevention, and improving life for the sick, elderly and disabled) (The 4th Science and Technology Basic Plan of Japan 2011). Even in spite of severe budgetary pressures, the government has preserved S&T budgets and certain areas (such as energy and green technologies) have even received more funding (OECD 2012b, pp.332–335).

It is recognised that a key weakness of Japan's research system is its low level of international collaboration, in both academia and the private sector (OECD 2013). Japan's current science diplomacy activities are aimed at resolving common regional issues across Asia, and in dealing with new developments in S&T such as the need to capitalise on Japan's strengths, promotion of international activities for advanced S&T, promotion of coordination and cooperation with developing countries for global-scale issues, and reinforcement of national foundations (The 4th Science and Technology Basic Plan of Japan 2011).

South Korea

South Korea is one of the most R&D intensive countries in the world, ranking 3rd in gross domestic expenditure on R&D (GERD) as a proportion of GDP in the world in 2011 (Ko 2013). The 2013 Third Science and Technology Basic Plan, as a holistic guiding document, identified thirty main strategic areas for R&D investment. These fell into a number of categories mostly focusing on: IT and telecommunications, green and environmental technologies, nanotechnology and biotechnology (Ko 2013). The government launched a Creative Economy Plan in 2013, focused on new job creation through creativity and innovation by leveraging the country's cutting-edge IT capabilities and its highly educated population. This links with the initiative to broaden STEM education into STEAM (Science, Technology, Engineering, Arts and Mathematics) by integrating STEM education with the fostering of artistic and creative talent.

South Korea maintains many connections with the United States because of strong alumni networks and the post-WWII legacy. An important focus for South Korea is the use of science diplomacy to navigate its tense political relationship with North Korea, e.g. through

research collaboration to tackle biodiversity protection in the North (Raven 2013). Overall however South Korea's international research collaboration is relatively weak. To overcome this weakness the country has started to facilitate more engagement and collaboration with European and regional partners with strong S&T capabilities (Ko 2013). The current Park government has included the globalisation of science and technology as one of 19 major policy agendas. This agenda will be implemented through a number of strategic programs including: strengthening science and technology diplomacy, activation of international co-projects in strategic areas such as climate change and energy, and building international cooperation infrastructure. A stated purpose of the strengthening of international research collaboration is to participate in the effort of addressing global problems and contribute to the world's science and technology development as a responsible member of international society (Ko 2013).

India

India's research base is dominated by universities and private research institutes. There has been, however a tremendous increase in the number of foreign R&D centres based in the country, growing from fewer than 100 in 2003 to around 750 by 2009 (UNESCO 2010). Many major multinationals are setting up R&D institutions in India to take advantage of R&D development capacity and availability of young and emerging scientists (Gupta & Gupta 2011).

At 66% of funding as per 2012, Government remains the main R&D funder (OECD 2012b, pp.312–315). The Government is hoping to drive the private sector to increase its R&D investment to at least match the public sector's R&D investment through public-private partnerships (Ministry of Science and Technology 2013).

India's science and research priorities revolve around faster, sustainable and inclusive growth. An 'inclusive' model of innovation has been quite critical because of the scale of the country and the importance placed on science and innovation to deliver improvements across all of society (Bound & Thornton 2012).

Strategic research priorities have been identified as 'space, nuclear and defence, ICT software, biotechnology and pharmaceuticals' (OECD 2012b, pp.312–315) and 'agriculture, telecommunications, energy, health and drug discovery, materials, environment and climate variability and change' (Ministry of Science and Technology 2013). India's heavy reliance on imported coal and changing demographics in the country means that energy supply security is also an issue of critical importance to the country. India's 2008 National Plan on Climate Change showcases India's interest in focusing on research relating to solar energy, energy efficiency, water and strategic knowledge on climate change (OECD 2012b, pp.312–315).

India has a number of bilateral R&D agreements focusing on particular themes. For example, its agreement with the United States focuses on clean energy, with the United Kingdom on next-generation telecommunication), with the EU on energy and water technologies and with Australia on strategic research (OECD 2012b, pp.312–315). Research collaboration is strongest with the United States, although Western Europe (the United Kingdom, Germany and France) and Northeast Asia (Japan, South Korea, and increasingly China) are also important partners (Adams, King & Singh 2009). Australia's collaboration with India is increasing, but from a low base (Bound and Thornton 2012; (Australia India Institute 2013).

Indonesia

Overall, there is very low R&D intensity in Indonesia. The Ministry of Research and Technology is responsible for driving S&T policy and has authority over seven R&D agencies (UNESCO 2010). Although the country had a long and rich history of science and innovation during the Dutch colonial era, all efforts were geared towards Dutch interests and the vast majority of support went to Dutch scientists (Mouton 2007).

Some of the key research institutions in Indonesia today are international research institutions, such as the Centre for International Forestry Research (CIFOR) and the Economic Research

Institute for ASEAN and East Asia (ERIA), the latter of which is strongly supported by Japan. Many of these research institutions focus on agriculture, and play an important role in the country's agricultural research system (Mouton 2007). However, since 2008 there has been a notable increase in scientific productivity, possibly because of favourable Government policy and financial incentives to encourage R&D collaboration and the allocation of at least 20 per cent of the budget to education.

Indonesia's National Research Council identified climate change, global warming and deforestation as the key thematic issues of interest for S&T (Schüller et al. 2008). With serious energy and environmental challenges (natural resources are overexploited and domestic energy demand is rising), these are clearly key policy challenges (OECD 2012b, pp.316–319). Some other identified thematic programs include agro-technology; marine science; and natural resource accounting (UNESCO 2010). The latest five year refinement plan (2010–2014) of the country's long-term development plan, Vision and Mission of Indonesian S&T Statement 2005–2025, focuses on quality of human resources, development of S&T through improved R&D capabilities, and economic competitiveness (OECD 2012b, pp.316–319).

Overall, international collaboration is seen as important to compensate for existing deficiencies in S&T. Government institutions indicate that funding and co-patenting, and a focus on country-specific and global thematic priorities, are the reasons why international collaboration is important. Individual scientists feel that access to new S&T knowledge; cooperation networks; exchange of research personnel; and an increase in reputation are the most important factors (Schüller et al. 2008). In a report for AusAID, Ford (2012) observes that it is necessary to promote research excellence in Indonesia's university sector if there is to be any hope of promoting long-term, large-scale change in the country's capacity to produce the quality research needed for good evidence-based policy making (Ford 2012).

Box 3.2: The Commonwealth Scientific and Industrial Research Organisation (CSIRO) and Indonesia—collaboration in marine fisheries research

The collaboration on marine fisheries between CSIRO and Indonesian partners such as the Research Centre for Fisheries Management and Conservation (RCFMC), and other regional fisheries management organisations, has been operational since the early 1990s. It exemplifies a successful, long-term research relationship with both mutual and regional benefits. While catalysed by CSIRO Fisheries scientist Dr Tim Davis, the collaboration has always been developed and sustained at an institutional level by both Australian and Indonesian counterparts. With a primary focus on tuna fisheries (as well as by-catch species in the tuna fisheries, snappers, sharks, rays, lobsters and sardines) the collaboration's objective is to provide Indonesia with capacity for better data collection and database development, monitoring and reporting, to serve the long-term goal of sustainable fisheries. The broader benefit is regional—an improved understanding of the connectedness of fish stocks will contribute to sustainable fishing of stocks common to Indonesia, Australia and other countries in the region.

Several Australian agencies including the Australian Centre for International Agricultural Research (ACIAR), the Department of Agriculture (which includes fisheries and forestry) and the Crawford Fund have funded the projects developed under this collaboration, with co-investment from CSIRO, and in-kind contributions from Indonesia's marine research agencies within the Ministry of Maritime Affairs and Fisheries (formerly Ministry of Marine Affairs and Fisheries). While CSIRO Oceans and Atmosphere Flagship (formerly CSIRO Marine and Atmospheric Research) is the primary manager of the projects under this collaboration, project leadership is provided by both Australia and Indonesia. Besides CSIRO scientists working in Indonesia, Indonesian scientists have visited CSIRO in Hobart and Brisbane for training programs.

One of the collaborations, the Southern Bluefin Tuna Monitoring Program, has been running since 1992. Based in Benoa Fishing Port, Bali, it monitors landings of Southern Bluefin Tuna (SBT) by the Indonesian tuna long line fleet. Until 2010, CSIRO was primarily responsible for the organisation and supervision of this program; since then, it has been led by the Indonesian partner institution, RCFMC. Both institutions are still jointly responsible for program aspects such as biological sampling. Data obtained are critically important to the annual assessment of the SBT spawning stock.

Craig Proctor, a CSIRO scientist involved for over two decades in this collaboration, underscored the importance of his being competent in Bahasa Indonesia, learned in high school in Melbourne. Essential activities ranging from oral and written communication with project partners and stakeholders, conducting surveys on fisheries, developing databases for local use, to translating resource materials and developing information resources, have all been benefited by competency in Bahasa Indonesia. Proctor also participates in CSIRO's Scientist in Schools program and the Asia Education Foundation's Asia Literacy Ambassadors program, which involve regular presentations regarding his work, and therefore introducing Indonesia, to schools and to teacher groups.

As Proctor indicated, 'the underlying goal [of the collaboration between CSIRO and Indonesian fisheries is] sustainable fisheries and food security—for Indonesia's population who are highly reliant on marine fisheries resources, for Indonesia's economy (fisheries exports are very significant), and for sustainability of Australia's fisheries resources that are linked to those of Indonesia (i.e. shared stocks such as Southern Bluefin Tuna)'. Therefore, the capacity building through this collaboration benefits both partners as well as the Asia Pacific region more broadly. It has moved from an arrangement of Australians training Indonesians to one of partnership, where the generation and application of research knowledge is mutually beneficial. The program's longevity has contributed to the development of people-to-people links, and cultural knowledge to benefit research practices (such as not scheduling a major meeting on a Friday because of Friday prayers).

Singapore

Singapore is the clear leader in research development in Southeast Asia, with Malaysia coming a far second. International S&T collaboration is strongly supported by government and has been the key to Singapore's economic and technological success (Schüller et al. 2008), especially given the country's city-state status and lack of natural resource endowments. The government has continuously placed a large emphasis on knowledge transfer from multi-national corporations, which has helped to increase the international competitiveness of Singaporean companies and firms.

Singapore's government has identified and developed an R&D agenda focusing on Singapore's competitiveness in four large economic clusters: biomedical sciences; electronics and info-communications; engineering; and chemicals and energy (A*STAR 2011). These strategic areas are aligned with what Singapore sees as driving forces for R&D on

the global stage, including: ageing, renewable energy, climate change and sustainability, urbanisation, infectious diseases, food security, and water supplies. With its highly educated and technologically developed society, Singapore aspires to becoming 'a major economic powerhouse by finding innovative solutions… and selling the knowledge it has developed' (National Research Council of the National Academies 2010).

Singaporean institutions collaborate extensively with partners across the globe. The government has continuously placed a large emphasis on knowledge transfer from multi-national corporations, which has helped to increase the international competitiveness of Singaporean companies and firms.

Malaysia

The Ministry of Science, Technology and Innovation is Malaysia's leading national institution on research policy. Malaysia's Second National Science and Technology Strategy, put out in 2002, highlights Malaysia's focus on linking S&T with economic interests. It aims to become a developed and industrialised country by 2020, and sees S&T development as a core component. The Strategy very importantly highlights a number of key areas for S&T focus, mostly focused on 'key technologies of the future' and sustaining support for Malaysian industry. These areas include: advanced manufacturing; advanced materials; microelectronics; biotechnology; information and communication technology; multimedia technology; energy, aerospace, nanotechnology; photonics; and pharmaceuticals (Krishna 2006). The government has focused on funding research in these areas, building on top of an already very established concentration in agriculture and commodity crops.

Research collaboration has historically been very strong with the UK because of colonial and language ties. Alumni networks and common research programmes have kept this connection strong, although there is no formal bilateral S&T agreement between the UK and Malaysia. In the 1990s, Japan was a preferred S&T partner given its leading technological and economic position in Asia, although the scope for collaboration

broadened to include many other countries in the 1990s, including other East Asian and Western European countries (Schüller et al. 2008). Because of its unique Islamic and cultural links, Malaysia also has a substantial number of S&T relationships across the Organisation of the Islamic Conference (OIC).

Vietnam

In many ways, S&T strategy in Vietnam is still subsumed to macro-economic planning, a legacy from the country's socialist roots. S&T was seen as a vital part of a self-sufficient economic model. Since the late 1980s, there has been a gradual shift toward greater liberalisation of higher education and science (Mouton 2007).

The Strategy for Science and Technology Development for the 2011–2020 period forms the basis of Vietnam's S&T strategy. The strategy is relatively holistic, as it stresses that the S&T should be used to help Vietnam meet the basic requirements of a modern industrial country. Key 'prioritised technology directions' include: information and communication technology; biology technology; new material technology with a focus on manufacturing; automation and electronic-mechanic technologies; and environmental technologies (Ministry of Science and Technology 2012).

Vietnam does not have an in-depth strategy for international S&T collaboration, although it is promising to see that 'international integration on science and technology' is classed as the fifth main viewpoint in Vietnam's S&T strategy (Ministry of Science and Technology 2012). Vietnam maintains and has continued to expand S&T collaborative ties with Europe, while Japan and the United States have emerged as two new key partners. While close ties with Russia and a number of Eastern European countries including Poland and the Czech Republic still exist, stemming from Cold War era ties, the European Union, the United States and Japan are the key cooperation partners in more recent times (Schüller et al. 2008).

Thailand

In general, Thailand is a developing S&T country with modest scientific output and research intensity. Within the Ministry of Science

and Technology, the National Science and Technology Development Agency (NSTDA) is the key institution focused on S&T policy. It has been responsible for the formulation of national S&T policy since 1992, and for the funding and administration of R&D projects and the four national research centres. These four centres represent the core technologies where government support is concentrated—ICT; biotechnology; materials technology and nanotechnology (Schüller et al. 2008).

The National Science Technology and Innovation Policy 2012–2021 forms the basis of Thailand's science, technology and innovation strategy. The strategy is relatively holistic, and recognises the need to balance between economic and social development. The four key critical thematic inputs into this Policy include 'demographic and social changes', 'energy and the environment', 'green innovation' and 'regionalism' (Durongkaveroj 2014), with a strong focus on social inclusion.

The country has strong collaborative ties across Asia, in particular with Japan and neighbouring countries in ASEAN. It also has a strong research relationship with the United States and with several European countries, including France, Germany, Hungary, the Netherlands, Sweden and the United Kingdom.

Philippines

The Philippines has struggled since the Asian financial crisis. While many countries in the region are forging ahead in science and research, the Philippines is falling behind (UNESCO 2010).

The Department of Science and Technology (DOST) is responsible for the formulation and implementation of national R&D strategies. The current National Science and Technology Plan for 2002–2020 takes a broad approach, recognising that it must take a holistic approach to development. Along with the Philippine Council for Advance Science and Technology Research and Development, the Plan has outlined a number of broad long-term S&T priorities for investment and development, including: agriculture, forestry and natural resources; health/medical sciences; biotechnology; information and communications technology; microelectronics; materials science and engineering; earth and marine sciences; fisheries and aquaculture; environment; natural disaster mitigation; energy; and manufacturing and process engineering (Planning and Evaluation Service, Dept. of Science and Technology 2002). The country is also trying to identify key areas for innovation-led growth, with particular mention to biotechnologies and ICTs (UNESCO 2010).

The ambitious targets set out in the National Science and Technology Plan for 2002–2020 are not supported by institutional and economic capacity, given the country's financial situation and its substantial host of policy challenges.

The country does not have a clear international S&T collaboration strategy. Where there is international collaboration, it mostly focuses on in-country development cooperation programs or collaboration with ASEAN partners on certain shared challenges. The Japan-led Asian Development Bank, the main multilateral provider of development support in the region, is based in Manila.

The Pacific Island countries

There is an emerging S&T presence in the Pacific region because of common concerns confronting many of the Pacific island countries, in particular climate change. A number of regional bodies, many of which are based in Fiji, and key regional organisations play an important role in providing high-quality information on research on critical issues and challenges facing Pacific island countries (UNESCO 2010). Some key regional organisations include the Asia Pacific Regional Environment Network, the Pacific Islands Forum Secretariat, and the Pacific Operations Centre of the United Nations Economic and Social Commission for Asia and the Pacific.

With the exception of Fiji, Papua New Guinea, New Caledonia and French Polynesia, Pacific island countries generally lack any substantial form of research systems. As of 2010, these four countries and territories accounted for 86 per cent of articles published in the Pacific region (UNESCO 2010). The Secretariat of the Pacific Community (SPC), previously known as the South

Box 3.3: Establishing a Pacific Islands regional research and education network

The Pacific is one of the most underserved regions in the world in terms of telecommunications infrastructure, yet it is the most dependent on such connectivity to combat the tyranny of distance in order to educate its citizens.

Australia's Academic and Research Network (AARNet) is a national resource—a National Research and Education Network. AARNet has been working with the University of the South Pacific (USP) for many years to bring to Pacific communities benefits long afforded to research and education in Australia. USP's Suva campus was first linked into AARNet in 2004, with immediate benefit of the internet, video conferencing and online research support for its staff and students.

The Pacific Island countries greatly value the opportunities that education affords to young people, who need to develop new skills and gain regionally and internationally recognised tertiary qualifications. Although individual Island governments allocate resources to the development of education within their countries, the Pacific region as a whole does not have access to a regional educational network that can leverage common capabilities, developmental resources and best practices.

Research is an integral part of higher education and economic development. National Research Networks (NRENs) leverage global knowledge for growth and development of local capabilities and expertise. Such networks exist in all regions of the world except the Pacific Islands. AARNet and USP are working to develop and enhance connectivity using the model so successfully deployed in Asia.

AARNet was a founding member of The Trans-Eurasia Information Network (TEIN), launched at the Asia-Europe Meeting (ASEM) in Seoul in October 2000. TEIN has had a catalytic effect on national research and education network development in all the beneficiary partner countries, including Bangladesh, Bhutan, Cambodia, China, India, Indonesia, Japan, South Korea, Laos, Malaysia, Nepal, Pakistan, The Philippines, Singapore, Sri Lanka, Thailand, Vietnam and most recently Myanmar. Using the powerful network links now in place, researchers across Asia are participating in world-class collaborative research projects in such areas as radio-astronomy, distributed (grid) computing, tele-medicine, climate, water and crop research. Regarded by both the European Commission (EC) and ASEM partners as a major success, the European Commission has contributed over €50million to the TEIN program since its inception. The vital relationship between the NRENs in Asia, Australia and the Pacific offers the model that AARNet and USP seek to develop and extend in the Pacific.

Health-related training is also underpinned by network development, with AARNet providing the ability for Australian teaching hospitals to be part of the Asia Telemedicine Development Centre of Asia (TEMDEC). This Project makes accessible world-class health care, education and training regardless of geographical or time zone constraints and connects hospitals in some 45 countries in the greater Asia-Pacific region including USP's School of Medicine in Suva.

AARNet is the regional operator of research and education network infrastructure in the Pacific through its network links to the US. Most recently, AARNet connected New Zealand to both North America and Australia and assisted USP with the connection of its campuses in the Marshall Islands and Tonga, thus vastly improving their access to video conferencing, learning management systems and collaboration technologies.

Pacific Commission, plays a key role in developing S&T capabilities in the region. Founded by Australia, France, New Zealand and the United States, the SPC now acts as an international body focused on providing S&T capabilities and technical expertise to its member countries (22 Pacific island countries and territories). Most of its programs are funded by the European Union and Australia (UNESCO 2010).

International research collaboration is relatively non-existent for most of the Pacific, except for Fiji, Papua New Guinea, New Caledonia and French Polynesia. For scientists in these four countries, co-authorship is very important given the shortage of research capacity within

the Pacific. France is a preferred partner of French Polynesia and New Caledonia because of cultural and historical ties, while Australia and the United States are common research collaborators across all of the countries (UNESCO 2010). Most international engagement is in the form of development partnerships, as overseas development assistance (ODA) is extensive. Key partners for the region include Australia and New Zealand, Japan, the European Union, and to a lesser but growing extent, China and South Korea. The World Bank and Asian Development Bank are multilaterals with a relatively large role, and numerous UN agencies and private foundations provide support and technical expertise in particular sectors.

Australia

The Chief Scientist has recently released a draft national strategy for the STEM disciplines only (Office of the Chief Scientist 2014b). A new Commonwealth Science Council, established in late 2014, has proposed eight research priority areas, with the aim to align areas of research excellence with Australia's industrial strengths, comparative advantages, community interests and global trends (Chief Scientist, Australian Government 2014). Further discussion on these proposed priorities will take place in 2015.

In 2012 a National Research Investment Plan was released, which recognised that some 97 per cent of global research occurs outside Australia, and that Australia "must engage with the international science community and access knowledge, research expertise and infrastructure that is not available in this country" (Department of Industry, Innovation, Science, Research and Tertiary Education 2012a). However, an international engagement strategy has not been articulated.

At present, the Department of Industry and Science supports just two bilateral collaborative research schemes, namely the Australia-China Science and Research Fund and the Australia-India Strategic Research Fund. These programs are managed and co-funded in a collaborative manner with counterpart agencies in China and India. There is currently no policy attention to research collaboration with Japan, in contrast to the increasing attention given to emerging nations (i.e. China and India). And yet, Japan remains a very important research power in the region and Australian research collaboration with Japan to date is not underpinned by the depth and scale of long-term networks and familiarity with funding agencies and programs compared with those with the US or the United Kingdom (Department of Industry, Innovation, Science, Research and Tertiary Education 2012b). This lack of focus on collaboration on Japan is also evident in the case of other Asian nations such as South Korea, a rising research power where Australia's research profile is very low. The Australian Academy of Technological Sciences and Engineering (ATSE) currently administers Australia-Japan and Australia-Korea exchange programs for emerging research leaders, and the Australian Academy of Science provides grants for research visits to Japan by Australian researchers. But these schemes are modest in scale and do not cater for collaborative research funding. The Australian Academy of Social Sciences (ASSA) and the Australian Academy of the Humanities (AAH) also have small international programs, though they are not country-specific.

DFAT, since its amalgamation with AusAID in 2014, provides funding under the Government Partnership for Development (GPfD) program for capacity building and development activities in the Asia-Pacific region. These activities do not tend to deliver high impact research, but may nurture long-term research connections with developing countries in the region.

There is substantial scope for improving Australia's current international collaboration policy in the region. The current infrastructure for international collaboration is relatively unfocused, given the lack of a national research policy. The focus on bilateral rather than multilateral relationships is a limitation, as is the focus on benefits for partner countries and Australia, rather than on potential collective benefits for the wider region (Matthews & Cheng 2015).

3.3.2 Shared priorities and challenges

While differences between countries in terms of national research systems, funding mechanisms and associated levels of performance are immense, there are clearly important areas of alignment when it comes to research priorities and identified societal challenges. Table 3.3 provides a rough summary of identified thematic priorities and challenges for research in key Asian countries.

It is clear that many of the problems and challenges facing countries do not cease at their borders: indeed, transboundary issues now dominate the policy agenda, both nationally and internationally. The challenge of how to adapt to climate change is the most obvious example, confronting all countries whether rich or poor. Environmental sustainability and food and water security are similarly transnational problems, and

Table 3.3: Priorities and challenges of selected countries

Country	Column A: Identified Research and S&T thematic priorities	Column B: Some long-term challenges
China	Advanced manufacturing; agriculture; information and communication technologies; resource management; water management; renewable and low-carbon energy; social welfare issues; environmental issues	Ageing population; managing mobility and urbanisation; environmental degradation; reducing dependence on technology transfer from developed countries; managing energy needs; sustainable and inclusive growth; food and water security; healthcare system
Japan	Green innovation; renewable and low-carbon energy; promotion of life innovation (focus on medical research, disease diagnosis and prevention)	Ageing population; decreasing population; loss of social and economic vitality, downward trend of industrial competitiveness; managing energy needs; healthcare system; attracting and maintaining human capital
South Korea	Green innovation; renewable and low-carbon energy; information and communication technologies, nanotechnology and biotechnology	Ageing population; managing energy needs; attracting and maintaining human capital; healthcare system
India	Space, nuclear and defence; information and communication technologies; biotechnology; agriculture; energy; health and drug discovery; materials; environmental issues; climate variability and change	Harnessing a demographic dividend; managing mobility and urbanisation; environmental degradation; reducing dependence on technology transfer from developed countries; managing energy needs; sustainable and inclusive growth; food and water security; human capital; transport infrastructure
Indonesia	Climate change; global warming; deforestation; environmental issues; natural disaster mitigation	Managing mobility and urbanisation; infrastructure; environmental degradation; reducing dependence on technology transfer from developed countries; sustainable and inclusive growth; food and water security; human capital; managing energy needs; transport infrastructure
Singapore	Biomedical sciences; information and communication technologies; engineering; and chemicals and energy	Managing mobility and urbanisation; attracting and maintaining human capital
Malaysia	Advanced manufacturing; advanced materials; microelectronics; biotechnology; information and communication technologies; energy, aerospace; nanotechnology; photonics; and pharmaceuticals	Harnessing a demographic dividend; environmental degradation; reducing dependence on technology transfer from developed countries; healthcare system; transport infrastructure
Vietnam	Information and communication technologies; manufacturing; materials; automation and electronic-mechanic technologies; and environmental technologies	Harnessing a demographic dividend; managing mobility and urbanisation; infrastructure; environmental degradation; reducing dependence on technology transfer from developed countries; sustainable and inclusive growth; human capital; managing energy needs; development concerns
Cambodia	No S&T strategy document	Institutional and human capital; development concerns; environmental degradation; social welfare system; education system
Philippines	Biotechnology; information and communication technologies; agriculture and forestry; health and medicine; micro-electronics; materials; the environment; natural disaster mitigation; energy; and manufacturing and process engineering	Population growth; institutional and human capital; sustainable and inclusive growth; development concerns; environmental degradation; social welfare system; education system; loss of social and economic vitality, downward trend of industrial competitiveness; transport infrastructure
Thailand	Information and communication technologies; biotechnology; materials; and nanotechnology	Institutional and human capital; social welfare system; environmental degradation; transport infrastructure; sustainable and inclusive growth
Australia	Food; soil and water; transport; cybersecurity; energy and resources; manufacturing; environmental change; and health (proposed)	Managing food and water assets; boosting transportation; supporting resource and manufacturing industries; improving cybersecurity; managing environmental change; improving health outcomes

Source: Matthews and Cheng 2015; for Australia: Chief Scientist, Australian Government 2014.

many countries already focus on the need to invest in the development of green technologies. Less developed countries share issues such as urbanisation, transport infrastructure, and human capital development, while the more developed countries in the region, especially in Northeast Asia, are all facing an ageing population.

Matthews and Cheng (2015) argue that to address such complex societal challenges it is important that research policy is not subsumed under innovation policy, to ensure that public good outcomes without tangible commercialisation benefits are still pursued. In other words, the region would benefit from more cooperative approaches to research—not an easy thing to achieve given the overwhelming emphasis on economic competitiveness as a national policy goal throughout the region.

At the same time, it is precisely such common and shared challenges that provide the basis for strategic international research collaboration across the region. Tackling such challenges requires not just bilateral, but multilateral collaborative effort (The Royal Society 2011). But this is not easy. A well-known example is the global challenge of climate change. Since 1988 the Intergovernmental Panel on Climate Change (IPCC), an international group of more than 2000 scientists, has cooperated to establish evidence on global warming and the devastating impact it would have on the world if no measures were taken to limit greenhouse gas emissions. However, this example of science diplomacy also shows that overwhelming scientific evidence alone has not been enough to spur international consensus on action to be taken, mainly because national self-interest has tended to trump global need. Patman and Davis of the University of Otago argue that for multilateral collaboration to be effective, governments need to learn that in an interconnected world their national interests can no longer be compartmentalised from those of other states (Patman & Davis 2014). This implies a questioning of the doctrine of unfettered state sovereignty that has been the traditional driver of international relations. They propose a reform of the United Nations, the chief custodian of the international interest, to make the organisation more effective in 'bringing diplomacy and science

together to address global problems that can only be solved on a multilateral basis'.

3.3.3 The role of the Humanities and Social Sciences

National research policies in the region are generally focused more on STEM disciplines, while the role of the humanities and social sciences remains relatively invisible. Even in the more developed countries (e.g. Japan, South Korea and Singapore) the Humanities, Arts and Social Sciences (HASS) do not seem to be a major focus of national policy. Support for HASS varies widely (Mouton 2007). As many of these countries are still focused on research that can be commercialised (especially where they are trying to incentivise private R&D investment), government planning in HASS research has been relatively neglected, although this is gradually changing (Matthews & Cheng 2015).

For example, the joint setup of a liberal arts college in Singapore between the National University of Singapore and Yale University is a case in point. In South Korea, the Ministry of Education, Science and Technology launched a Humanities promotion program in 2007. The Humanities Korea program aims to develop an infrastructure for world-class humanities research by providing selected university-based research institutes in the area with long-term financial support. A similar scheme exists for the Social Sciences in Korea. Interest in the humanities is on the increase also in China. As part of the 'Action Plan for Education in the 21st Century,' China's Ministry of Education (MOE) initiated a project to build key research centres of humanities and social sciences at universities in 1999, with a view to building some internationally prestigious national key research centres as the nation's 'think-tanks,' 'information bases,' and 'talent banks.' Once approved by MOE, these institutes are jointly funded by MOE and by the universities where they are based (Peking University n.d.).

These developments are significant, in light of the growing attention in the region not only to technological innovation (e.g. in renewable energy or to combat infectious diseases), but to the need to address broader, shared

challenges, such as climate change, sustainable development, population ageing, or food and water security, which are understood to require broad multi-disciplinary research input.

The World Social Science Report 2013 (ISSC & UNESCO 2013) focuses on the transformative role of the social sciences in confronting climate and broader processes of environmental change, and in addressing priority problems from energy and water, biodiversity and land use, to urbanisation, migration and education. A 2009 consultation on the future of earth system research highlighted the complex inter-relationships between biological, geochemical, climate and social systems and suggested that the research agenda should no longer be dictated by the natural sciences but must include social science perspectives (The Royal Society 2010, p.10).

A British Council report has pointed to the importance of the Humanities—broadly defined as the study of human culture and society—in meeting global development challenges. Important skills associated with these disciplines include critical and analytical thinking, flexibility and tolerance for ambiguity, ability to communicate and negotiate culturally sensitive relationships, and local knowledge (e.g. of political and administrative systems) (Ipsos Public Affairs 2014). This is especially relevant in collaborative initiatives in developing countries such as those in the Pacific.

3.3.4 Regional diplomacy for multilateral research collaboration

Currently, the Asian region lacks a strong platform on which to build the institutional infrastructure for strategic, multilateral collaborative research. Much work needs to be done in this important area for regional science diplomacy.

Australia's Chief Scientist, Ian Chubb, has suggested the establishment of an Asian Area Research Zone to facilitate research collaboration on shared priorities within the region, but no further work has yet been done in this regard (Chubb 2014). Kanishka Jayasuriya, Director of the Indo-Pacific Governance Research Centre at the University of Adelaide, has similarly proposed

the development an Asian Research Area: a framework for multilateral scientific cooperation for the development of knowledge as a regional public good (Jayasuriya 2014). He observes that the difficulties of creating an Asia Research Area lie in the nationalistic and militaristic bent to many national research policies in the region, making such a multilateral initiative difficult. Certainly, strong nationalism is pervasive throughout the region, and any effort to enhance regional cooperation and collaboration needs to overcome the wariness between nation-states, as they guard their national sovereignty. Geopolitical tensions, such as those generated by territorial disputes in the South China Sea, and longstanding animosities, such as those bred by the legacy of Japanese colonialism, also pose barriers for more integrative regional cooperation and collaboration.

Nevertheless, several regional initiatives already exist in this regard, which might provide points of connection for consolidating science diplomacy efforts in collaboration with regional partners. The main model for a regional infrastructure for research collaboration is the European Union.

European Union

The European Union has been a global leader in developing funding and governance mechanisms for multilateral collaborative research among member states under the guiding principle of the idea of a common European Research Area (ERA). The ERA is described as 'a unified research area open to the world based on the internal market, in which researchers, scientific knowledge and technology circulate freely… to collectively address grand challenges' (European Research Area n.d.).

Between 1984 and 2013 the European Commission's Framework Program (FP) has been Europe's main investment tool to promote intra-European collaborative research. FP funding was equal to approximately 5% of the funding available for European research through national budgets. At present, the European Commission's Horizon 2020 is the largest public funding program for research and innovation (nearly 80 billion Euro) that prioritises international

collaboration in research to address a series of grand societal challenges shared by citizens across Europe and elsewhere. The focus of Horizon 2020 is on the following challenges:

- health, demographic change and wellbeing
- food security, sustainable agriculture and forestry, marine and maritime and inland water research, and the bioeconomy
- secure, clean and efficient energy
- smart, green and integrated transport
- climate action, environment, resource efficiency and raw materials
- Europe in a changing world—inclusive, innovative and reflective societies
- secure societies—protecting freedom and security of Europe and its citizens.

One key instrument for realising collaboration to address these 'grand societal challenges' in the EU is the setting of joint programming initiatives (JPIs), which involves the pooling of national research efforts and the alignment of research budgets between European member states and Horizon 2020, around projects jointly driven by member states and the European Commission based on common visions and strategic research agendas.

The challenge-based approach calls not only for large-scale multinational collaboration, but also for broad multidisciplinary collaboration, including the involvement of the social sciences and the humanities. Global challenges are by definition complex and multidimensional, requiring the input not only of science and technology, but also expertise in economic, social, political, behavioural and cultural sciences. The role of the Humanities in addressing all the grand societal challenges spelt out in Horizon 2020 is showcased in a report by Science Europe (Science Europe 2013).

The European model is difficult to emulate in the Asian region because of the absence of established supranational governance frameworks (such as the European Union) in this part of the world, although different steps in this direction are being explored.

Association for South East Asian Nations (ASEAN)

The ten countries comprising the Association for South East Asian Nations (ASEAN) have taken slow steps towards greater regional integration (of Southeast Asia), with the formal launch of the ASEAN community scheduled for 2015. ASEAN leaders have recognised the role of science and technology as a key factor in achieving the goal of regional integration. The ASEAN Committee on Science and Technology (COST) prepared a Science and Technology Plan of Action (2007–2011), which was extended to 2015, to intensify S&T cooperation in a number of STEM areas, with flagship programs focusing on priorities such as an early warning system for disaster risk reduction, biofuels and health (combating infectious diseases).

In 2010 the ASEAN ministers for science and technology adopted the so-called Krabi Initiative (ASEAN 2010) to guide the preparation of the next Plan of Action beyond 2015, which will no longer be limited to S&T but places equal importance on innovation (STI). The Krabi Initiative identifies eight thematic tracks to be pursued:

- ASEAN innovation for global market
- Digital economy, new media and social networking
- Green technology
- Food security
- Energy security
- Water management
- Biodiversity for health and wealth
- Science and innovation for life

What is particularly interesting in the Krabi Initiative is a recognition of the need for a paradigm shift, where current ASEAN scientific activity is no longer confined to the academic domain but to bring about the benefits of science to ASEAN citizens. This is in line with ASEAN's ambition to be not just an association of states and institutions, but a people-oriented community.

Nevertheless, achieving these ideals is hampered by a number of usual obstacles and constraints, such as a lack of effective resource mobilisation and coordination mechanisms, absence of a monitoring and evaluation system, and weak ownership of the plans by relevant stakeholders (Lim 2014). Much work still needs to be done to turn the laudable aspirations for cooperation into reality.

ASEAN actively pursues close cooperation in S&T with its Dialogue Partners including China, Japan, South Korea, the European Union, Russia, the United States, Canada, Australia and New Zealand. It also promotes collaboration through international organisations such as UNESCO and the WMO (World Meteorological Organisation).

More generally, ASEAN plays a pivotal role in broader multilateral organisations in the region such ASEAN Plus Three (APT), the Asia-Pacific Economic Cooperation (APEC) and the East Asia Summit (EAS). While the relationship between these overlapping fora remains uncertain, Australia is a keen participant in all them. However, it tends to have a blind spot about ASEAN, according to some observers, prioritising bilateral relationships with the major Asian powers instead and often singling out Indonesia as a partner at the expense of ASEAN as a whole (Milner & Percival Wood 2012). But ASEAN's importance lies in that it provides a framework for cooperation between the region's major powers—such as China, Japan and India—and its smaller, weaker nations. Australia cannot afford to ignore ASEAN in the context of a rapidly changing region in terms of balances of power and interests. As one analyst observes, 'Without Australia, ASEAN would lose very little, but without ASEAN Australia could lose a great deal' (Percival Wood 2014).

Japanese science diplomacy

In the wider region, Japan has been the most active in regional science diplomacy. The reasons for Japan's interest in stimulating research collaboration in the region are not hard to find. Japan's relative strength in science and research has eroded in the past decade compared with the rising productivity of other countries, especially China. This process is not likely to

be turned around, given the slow decline in Japan's population, which will probably result in a decreasing investment in science and research and a drop in the number of researchers working in the country (Sunami, Hamachi & Kitaba 2013).

One of the primary objectives of science diplomacy for Japanese policy makers is to tap into the growing science and technology base outside its national borders, including research facilities and human resources. By expanding its volume of international research collaborations Japan hopes to revitalise its innovation system. More broadly, in a time of increasing geopolitical tension in the region, the Japanese government may use science diplomacy to smooth its relations with strategically important countries such as China, South Korea and others. Japan's 4th Science and Technology Basic Plan of August 2011 embraced the use of science and technology as diplomatic soft power, introducing a range of measures to strengthen Japanese research cooperation with both developed and developing countries in the world, particularly in Asia.

The Japan Science and Technology Agency (JSTA) oversees a Strategic International Research Cooperative Program, which funds collaborative projects with China, China-South Korea and India, as well as other countries in Asia and globally. The JSTA also sponsors the Asia Science and Technology Portal <http://astp.jst.go.jp/>, which provides research information and links for the 10 ASEAN countries plus Japan, China, South Korea, India, Australia and New Zealand.

The Japanese government is exercising leadership in science diplomacy through the establishment of an East Asia Science & Innovation Area, with the purpose of strengthening research and development capabilities in the East Asian region, together with the resolution of common problems in the region. A main part of the initiative is the East Asia Joint Research Program (e-ASIA JRP), whose aim is to support multilateral collaborative research among three or more of the member countries.

Prospective members of the program are public funding agencies including governmental bodies of countries participating in the annual East

Asia Summit (EAS). The e-ASIA JRP was formally inaugurated in Singapore in June 2012 with the relevant ministries of Japan and a number of ASEAN countries: Indonesia, Laos, Malaysia, Myanmar, the Philippines, Thailand and Vietnam. Some areas of collaboration already canvassed are the usual ones: nanotechnology, disaster prevention, and infectious diseases. Whether this fledgling Japanese initiative will succeed remains to be seen. Obviously more high-powered countries in the region would need to become involved. As of August 2014 New Zealand's Health Research Council has joined, as well as two US health institutes. However, China, South Korea, India, Singapore and Australia have not yet become members of the organisation.

A recent Australian Government report stresses the potential benefits of strengthening bilateral research links between Australia and Japan (Department of Industry, Innovation, Science, Research and Tertiary Education 2012b), but given Japan's interest in developing more regional multilateral research cooperation it might be smart for Australia to consider ways of collaborating with Japan in this regard.

Promoting multilateral collaboration through transnational value chains

A key question for Australia is how it can optimise its international research engagement strategies as part of an effective science diplomacy effort. To date the dominant focus has been on pursuing bilateral agreements and partnerships. Matthews and Cheng (2015) propose a perspective that goes beyond the usual focus on bilateral relationships and towards a more multilateral approach, which recognises the complex, interconnected and transnational nature of global research. Rather than representing the world's research effort as a combination of particular countries conducting activities around discrete areas of research, the global research endeavor should be seen as a system of 'transnational research value chains' that loop through many countries, linking collaborating researchers in these countries. In this networked approach Australia can position itself as a key regional node, using its location on the periphery of Asia to strengthen webs of collaboration

between established research powers such as the United States and the European Union, on the one hand, and emerging research nations in the region, on the other.

This systemic approach enables the development of a new strategic prioritisation framework, by critically assessing how to balance the three pathways for increasing Australia's engagement on the global science and technology stage, as sketched by the Chief Scientist: maintaining and strengthening research relationships with high-performing nations; nurturing long-term research relations with emerging research nations, and collaborating with nations that have complementary research priorities and challenges (Office of the Chief Scientist 2013). In this perspective it is the networks of collaborative relationships that link countries together that will be the central focus of international research engagement, rather than the individual countries in isolation. Implementation of such an approach would benefit from data that captures clusters of existing multilateral collaboration activity to map the key transnational research value chains in the global research effort. Such data is currently not yet available, but initiatives are already under way in this regard (Matthews & Cheng 2015).

3.4 International research collaboration patterns in the Asian region

A challenge for any science diplomacy strategy to be effective is the need to bridge two divergent modes of social interaction: that of the research community, on the one hand, which is governed by informal ties and collegial processes such as peer review and academic judgement, and the formal elaboration of policy settings and strategic priorities, on the other (Flink & Schreiterer 2010). This section looks at the actual patterns of research collaboration engaged in by researchers in the region. These patterns will be driven by a combination of 'bottom up' researcher initiatives and 'top-down' incentives provided by governments.

Box 3.4: The Square Kilometre Array (SKA) Telescope

The SKA telescope project is an international collaboration that will, in essence, provide a gigantic radio telescope for the world. Managed by the not-for-profit SKA Organisation (SKAO), it brings together technical expertise and infrastructure from several countries and global regions, exemplifying a large-scale, capital- and other resources-intensive project that would be impossible without such widespread and collaborative effort. Current SKA Organisation members are Australia, Canada, China, Germany, India, Italy, New Zealand, South Africa, Sweden, the Netherlands and the United Kingdom, with other countries expressing interest to join. In addition, about 100 organisations across twenty-one countries (Brazil, France, Japan, Malta, South Korea, Poland, Portugal, Russia, Spain, the US, plus the SKAO members) have been involved in developing the SKA, including detailed design of the telescope. Australia, Canada, China, India, the Netherlands, and the US were among the first to sign a Memorandum of Understanding, in 1997, to discuss the possibility of realising the SKA project ('Square Kilometre Array SKA' n.d.).

While desert areas in Australia and South Africa will provide major locations for the project's radio telescope network, the SKA Organisation has recruited or seconded scientists, engineers and other technical personnel from around the world. SKA design and engineering work has relied on international consortia, which include experts from China and India. Given that Australia has world-class radio astronomy facilities and training programs, it has hosted or engaged with many experts involved with SKA. In addition, because astronomy and engineering are comparatively global disciplines, with established norms of communication (in English) and approach, many SKA astronomers and other scientists have international experience.

The Department of Industry and Science noted that any international or intergovernmental project involves a 'collaboration overhead': the compromises that tend to be required for such projects to proceed. The governments and science and technical communities involved may have some differing expectations about outcomes. These have to be navigated and compromises made. In general, collaboration on SKA has been smooth, although it is not known how collaborative arrangements have worked at the coalface level.

The SKA project has enabled several valuable scientific and technical collaborations between Australia and key Asian neighbours. For example, Chinese technology contributions to ASKAP (i.e. 3-axis antennas) and Australian technology contributions to the Chinese FAST telescope (receivers); and institutions in Australia, India and the US collaborating on the development of the low frequency Murchison Widefield Array pathfinder telescope. The latter collaboration includes at least one Indian diasporic scientist at a senior level—a dual citizen of India and Australia who, while currently based in India, has spent a considerable period of time in Australia.

The Department also noted that, generally, for Australia, the science and policy interactions with China and India have been 'straightforward and productive'. Language barriers are relatively minor with Chinese and Indian counterparts, as competency in English is normative. Cultural differences or variations in bureaucratic style or processes have been no more significant than with European partners, for example, and have offered no major impediment to collaboration.

Australia's involvement in the SKA project highlights, therefore, an instance where the benefits of a broad research collaboration that includes multilateral financing and the gaining of technical and scientific knowledge—hence a long-term investment in science diplomacy for a shared good both regionally and globally—compensate for any possible short-term challenges at building international relationships, including with neighbours in the region.

The occurrence of actual international research collaboration is usually measured through international co-authorship of research publications. This is at best a very partial measure, as international research collaboration can take on many different forms and does not necessarily have to result in co-authored journal articles. This is especially the case in the Humanities and Social Sciences, where sole authorship is much more common (including of sole-authored books). In these discipline areas the shape of research collaboration is often more often fluid and less measurable, such as the exchange of ideas in seminars or the development of edited collections. Measuring international collaboration patterns through co-authorship of journal articles is thus less adequate for these discipline areas (Lewis, Ross & Holden 2012). In this light, the following analysis, drawing mostly on bibliometric data, will be especially focused on the STEM disciplines.

Globally, international collaboration on scientific articles, as measured by shares of articles co-authored by institutional authors in different countries, has increased markedly since the late 1990s, rising from 16% in 1997 to 25% in 2012 (National Science Board 2014). This means that a quarter of articles worldwide are now the

product of international research collaboration. Using Scopus data, the Royal Society (2011) provided different estimates, suggesting a rise in internationally co-authored papers from 25% in 1996 to 35% in 2008. Countries vary widely in the proportion of internationally co-authored articles. In larger countries the share of co-authorship tends to be lower than in smaller countries, presumably because the larger research systems in larger countries provide more opportunities for collaborative research teams to work within their countries' borders, whereas smaller countries do not have the infrastructure or personnel to support such domestic collaboration.

The United States' collaboration rate was 35% in 2012, significantly lower than larger European countries such as Germany, France and the United Kingdom. International collaboration rates for the main Asian countries are even lower, reflecting the tendency for researchers in these countries to be more inwardly-focused. (Given the focus on English, collaborative publications in languages other than English also tend not to be captured in international co-authorship data.)

3.4.1 Intra-Asian collaboration

Figure 3.5 shows the evolution of international co-authorship as a ratio of overall publication output in science and engineering for the most important countries in the Asian region, plus the United States.

These data show that there has been a gradual rise in the share of internationally co-authored

publications in most countries between 1997 and 2012. Singapore, Australia and New Zealand show the fastest rise in collaboration rates, with the Southeast Asian city-state being the most collaborative: almost 60% of its publication output is the result of international co-authorship. This is in line with the strong support provided by the Singapore government to international collaboration.

By contrast, the share of international co-authored publications has remained more or less flat in the case of China in the fifteen years (27%). This means that although China's international collaboration volume has greatly increased in absolute terms, the rise in domestic papers has been even more dramatic, suggesting that China's rise as a dominant player in science and research is to a very large extent fuelled by growth in research capacity within China (see Table 3.2). India, South Korea, Japan and Taiwan saw some growth in share of internationally co-authored papers, but less so than the United States.

Overall then the main Asian countries tend to show less collaborative propensity than researchers in North America, Europe and Australasia. While in many European countries the international collaboration rate has reached more than 50% (in large part as a consequence of the European Union's policies promoting intra-European collaboration), in the Asian countries mentioned it is less than 30% (Zhou & Glänzel 2010; National Science Board 2014).

Figure 3.5: Scientific articles involving international co-authors
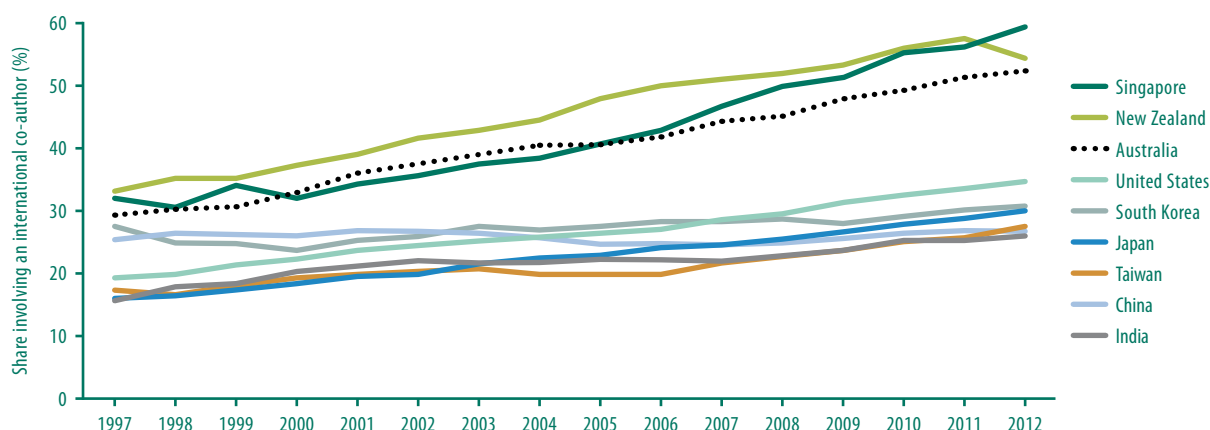
Note: Derived from National Science Board of the National Science Foundation *Science and Engineering Indicators* 2013.
Source: Barlow 2014.

Nevertheless, collaboration between Asian researchers has been steeply on the rise in recent times. An analysis of the evolution of cross-national co-authorship patterns in East Asia shows that in absolute numbers, bilateral collaborative papers have grown exponentially between the three largest Northeast Asian countries, especially since 1997: China and Japan, China and South Korea, and Japan and South Korea (Figure 3.6) (Li et al. 2012).

A similar exponential rise can be seen in co-authored papers between the three Northeast Asian countries and the ASEAN countries. This is especially the case for Japan and ASEAN, which again reflects the strong priority the Japanese have given to R&D investment and collaborative research with Southeast Asian nations. So far, Japan has been the preferred collaborative partner of ASEAN countries, although China and South Korea are playing a more active role in scientific collaboration with ASEAN countries since 1997. Li et al. (2012) argue that the 1997 financial crisis in Asia has propelled Northeast Asia and ASEAN to develop stronger regional integration through the ASEAN Plus Three process, which has flowed into an intensification of intra-regional research collaboration.

The most important international partner for all these countries however is the United States. While the US is a collaborator in 43% of the world's internationally co-authored papers, a significantly higher percentage, 47.5%, of Chinese international papers in 2012 was co-authored with a US collaborator. US collaboration with the South Korea and Taiwan is also intensive (54% and 52% respectively), but somewhat less intensive with Japan (37% of all Japanese internationally co-authored papers).

Table 3.4 provides an overview of the indices of international collaboration for a selection of Asian countries. When collaborative authorship between two countries is exactly proportional to their overall rates of international co-authorship, the index value is '1'. A higher index value means that a country pair has a stronger than expected tendency to collaborate, while a lower index value means the opposite. Overall, the indices show that bilateral collaborations between Asian countries are intense, while collaborations with European countries are below par. This signifies a strong tendency towards regionalisation in research collaboration patterns.

Above-par levels of Chinese collaboration can be found with Japan, Singapore, and Taiwan, as well as the US and Australia. Japan has strong, above par collaboration with China, India and especially South Korea and Taiwan, but relatively underdeveloped collaborative links with Singapore and Australia. India has strong collaborative relationships with Singapore, South Korea, Taiwan and New Zealand, but weak links with China and Australia. South Korea has above par collaborations with all other Asian countries, although its collaborations with China are in relative decline.

These data show that East Asian countries tend to collaborate much more with each other than expected, suggesting that there is an increasingly

Figure 3.6: Co-authorship in Northeast Asia and between China/Japan/South Korea and ASEAN
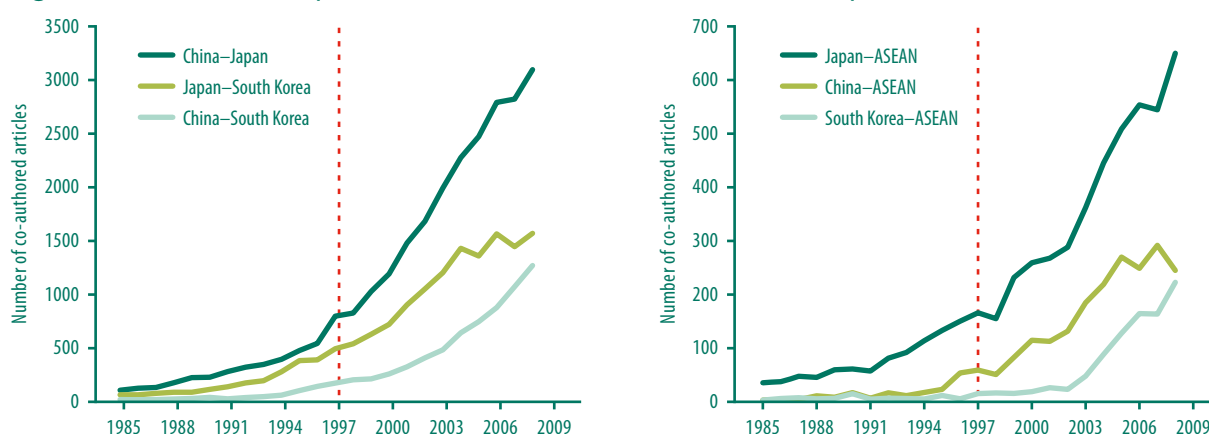
Source: Li et al. 2012, p.151.

Table 3.4: Indexes of internationally co-authored S&E articles by selected country pairs: 1997 and 2012

Country/economy and year	Canada	US	France	Germany	UK	New Zealand	China	India	Japan	Singapore	South Korea	Taiwan
China												
1997	0.8	0.79	0.39	0.57	0.6	0.64						
2012	0.74	1.1	0.41	0.48	0.56	0.59						
India												
1997	0.63	0.9	0.67	0.8	0.67	0.41	0.89					
2012	0.64	0.79	0.81	0.76	0.68	1.12	0.49					
Japan												
1997	0.61	1	0.38	0.54	0.52	0.6	1.61	0.78				
2012	0.67	0.86	0.69	0.72	0.62	0.54	1.23	1.06				
Singapore												
1997	0.53	0.72	0.09	0.12	0.78	1.67	4.82	1.31	0.64			
2012	0.45	0.74	0.36	0.31	0.67	1.06	2.22	1.3	0.77			
South Korea												
1997	0.37	1.38	0.36	0.35	0.3	0.6	1.83	1.55	2.2	0.4		
2012	0.54	1.25	0.44	0.49	0.47	0.9	0.99	2.42	1.93	1.08		
Taiwan												
1997	0.63	1.53	0.2	0.21	0.27	0.37	1.94	0.83	1.03	3.19	0.89	
2012	0.88	1.22	0.73	0.68	0.71	1.6	1.8	2.01	2.14	1.48	1.76	
Australia												
1997	0.8	0.81	0.4	0.5	1.04	4.33	0.92	0.52	0.74	2.22	0.39	0.47
2012	1	0.76	0.71	0.72	1.24	3.65	1.11	0.79	0.79	1.48	0.54	1.14

0–0.25	0.26–0.50	0.51–0.75	0.76–0.99	1	1.01–2	2.01–3	3.01–4	4.01–5

Note: Values above 1.0 indicate higher than expected collaboration, compared with overall rates of international co-authorship.

Article counts are from the set of journals covered by the Science Citation Index (SCI) and Social Sciences Citation Index (SSCI). Articles are classified by the year they entered the database, rather than the year of publication, and are assigned to a country/economy on the basis of the institutional address(es) listed in the article. Articles are credited on a whole-count basis (i.e., each collaborating country/economy is credited one count). Countries/economies with less than 1% of internationally coauthored articles in 2012 are omitted.

Source: Derived from National Science Foundation *Science and Engineering Indicators* 2014 (National Science Board 2014).

dense intra-regional network of research collaboration, into which the US is hooked in but not Europe. The increasing European integration, with the European Research Area stimulating intra-EU cooperation, may have diverted attention from extra-EU collaboration. We further explore Australia's position in relation to this intensifying regional collaborative network in the next section.

3.5 Australian research collaboration with Asia

Figure 3.3 shows that researchers in Australia are among the most frequent co-authors with an international partner, slightly less frequent than researchers in Singapore and New Zealand. About half of Australian scientific articles involves an international co-author. It would appear then that international research collaboration is strong among Australian researchers, compared with their counterparts in some other countries in the region. With whom then do they collaborate?

Using the same bibliometric data, Figure 3.7 shows the number of papers co-authored by Australian researchers with partners in key Asian nations as well as the US in 1997 and 2012.

Figure 3.7 shows that joint outputs between Australia and China have seen extraordinary growth, although the increase in joint output with the US has been even larger. By comparison, co-authored papers with Japan have grown much less significantly: it remains at almost the same level as Australian co-authorship with researchers in New Zealand, even though Japan has 13 times New Zealand's publication output. By the same token, India's scientific output is seven times larger and South Korea's is six times larger than New

Box 3.5: The Humanities, Arts and Social Sciences and international collaboration

Much international research collaboration in the Humanities, Arts and Social Sciences cannot be captured by using bibliometric data, which rely on co-authored journal articles as index of collaboration. This is because a significant proportion of publications in the HASS sector take the form of books and book chapters, which are generally not included in bibliometrics. Moreover, bibliometric data do not capture the full range of collaborative activity, including conferences, joint research projects, and co-supervisions.

The *Mapping the Humanities, Arts and Social Sciences in Australia* report (Turner & Brass 2014) drew on Australian Research Council data to provide an indication of patterns of international collaboration in this sector. Data from the Discovery and Linkage grant schemes indicate that for the 2002–2014 period about 30% of Discovery and Linkage projects with an international collaboration component were from HASS disciplines. The data also show that most international partner investigators in these projects were from Europe (56%) or North America (27%). Partner investigators from Asia made up only nearly 10% of all partner investigators, while 5% were from Oceanic countries (which presumably includes New Zealand) (Turner & Brass 2014, p 68). This suggests that when collaborating internationally, HASS researchers do not tend to look to researchers in Asia as partner investigators. This may change as the capacity and quality of Humanities and Social Science scholarship throughout the region increases.

At the same time, the HASS disciplines account for a majority of research output on Asia-related themes. Of all research outputs submitted to the 2012 Excellence of Research in Australia (ERA) audit which focused on 'Asia knowledge', almost two-thirds (67%) were in HASS disciplines, while one-third (33%) were in STEM disciplines (Turner & Brass 2014, p 66).

Thus, HASS disciplines are a major source of knowledge about Asia produced in Australia. An example is the work of the East Asian Bureau of Economic Research (EABER) at the Australian National University, which functions as a portal for policy-focused economic research on issues facing the economies of East Asia and comprises partner organisations in Japan, China, South Korea, Vietnam, Cambodia, Laos, Thailand, Malaysia, the Philippines, Indonesia and Australia. Headed by Professor Peter Drysdale, EABER was initially jointly funded by the Japanese Ministry of Finance and Australian Treasury following the Asian Financial Crisis in the late 1990s, to think through the consequences of the crisis on regional economic cooperation in Asia. EABER publishes the widely read *East Asia Forum* (EAF) and *East Asia Forum Quarterly* (EAFQ) (EABER 2014).

Figure 3.7: Partners on Australia's internationally co-authored papers
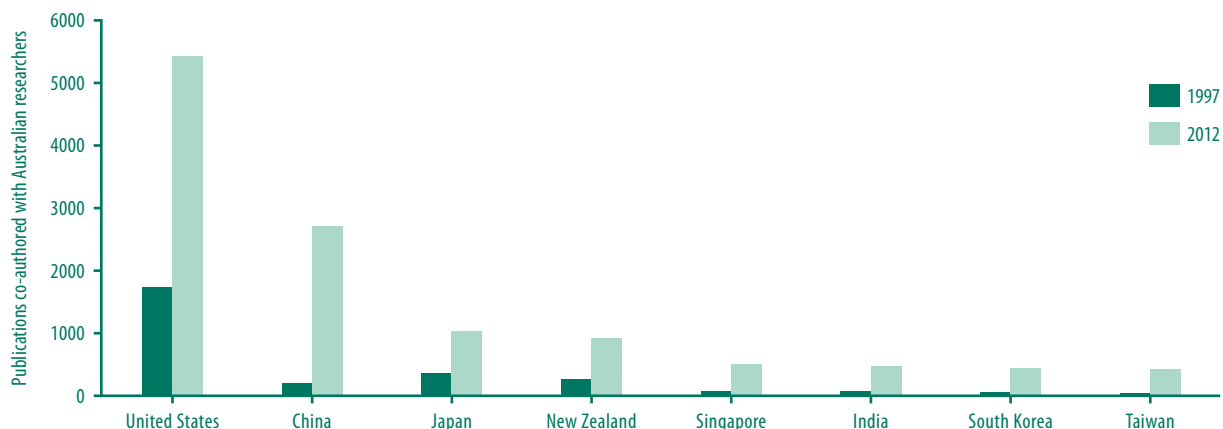
Note: Derived from National Science Board of the National Science Foundation Science and Engineering Indicators 2013.
Source: Barlow 2014.

Zealand's, but—using number of co-authored papers as measure—Australian researchers seem to collaborate less than half as often with Indians or South Koreans than with New Zealanders (Barlow 2014).

Australian STEM co-authorship with partners in Singapore, India, South Korea and Taiwan has certainly grown substantially during this period, but it has remained at relatively low volumes. The United States and other Western countries, particularly the United Kingdom, Germany, Canada, France, New Zealand and the Netherlands, still rank higher as international partners, in terms of collaborative publication volume, than any Asian country, except China (Office of the Chief Scientist 2012, pp.143–144).

Using the index of collaboration as the measure, we can confirm that Australia's collaboration with China, Taiwan and Singapore is above par, but it is below par in the case of India, Japan and South Korea. Australia's collaboration index with New Zealand is way above par.

Figure 3.8 visualises the data differently, and it includes volumes of co-authored papers with European countries. It suggests that in the 15 year period between 1997 and 2012, there have been no dramatic movements in the geography of Australia's international collaborations, with the exception of China.

Australian collaboration with India, South Korea and Taiwan (green dots clustered in the bottom left corner of the figure) remains at a low volume compared to that with Western European countries. By contrast, collaboration with New Zealand is intense, accounting for nearly 5% of Australia's internationally co-authored papers, even though this country accounts for less than 2% of the world's internationally co-authored papers (Barlow 2014, p.20). The data suggest that Australia's pattern of international collaboration is heavily tilted in particular towards other Western Anglophone countries.

We can conclude from the analysis so far that:

- there is an intensification of intra-regional research collaboration in the Asian region, especially in East Asia

- the pattern of Australian collaboration with Asian countries is uneven. It is increasingly strong with China, but has remained low with other large Asian countries, i.e. India, Japan and South Korea.

This means that Australian research is not as regionally engaged as it could be other than with China. While researchers in Asia increasingly collaborate with each other (although the United States remains the main collaborator for all countries), Australian researchers remain primarily focused on the US, the UK and Europe (as well as New Zealand).

3.5.1 Australian universities and international collaboration

Inter-university partnerships between Australia and Asia would be important incentives for Australian researchers to collaborate more with Asian colleagues. Since 1990 Universities Australia has periodically surveyed its member institutions on the number of formal agreements in place between Australian universities and overseas higher education institutions at any one time. Four types of agreements are included: student exchanges, study abroad arrangements, staff exchanges and academic/research collaboration. The survey does not capture the various forms of informal collaboration occurring daily throughout the world between universities and their counterparts (Universities Australia 2014). It is also

Figure 3.8: Papers co-authored with Australia (absolute numbers)
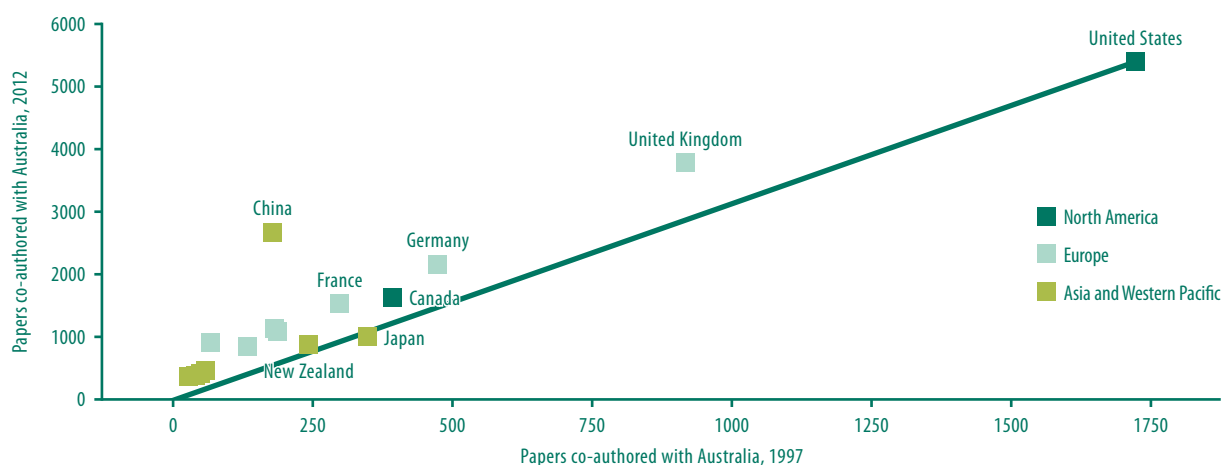
Note: Derived from National Science Board of the National Science Foundation *Science and Engineering Indicators* 2013. Papers are counted on a whole-count basis—i.e. any co-authorship with an Australian researcher counts as one paper regardless of the number of authors involved. Countries not marked are Netherlands, Italy, Spain, Switzerland, Singapore, India, South Korea, and Taiwan. The green line indicates the growth rate for Australia-US co-authorships.

Source: Barlow 2014.

not known to which extent formal agreements are matched by actual collaborative activity between institutions; this would require more in-depth research at the level of individual universities.

The 2014 survey found that there were 8515 formal agreements in place, almost double the number compared with 1990 and almost a 20% increase compared with 2012 figures. In the past decade the proportion of agreements that include provision for academic and research collaboration has remained steady, 68%, though their number has increased substantially, from 2054 in 2003 to 5559 in 2014.

Figure 3.9 shows the Top Ten countries for formal agreements between Australian and international universities for 2014. These countries account for 62% of total agreements and have effectively comprised the top ten for the past two decades,

although in 2014 India overtook Sweden to make the top ten for the first time. This figure demonstrates the massive increase in the number of agreements with China in recent years. The increase in agreements with India is also substantial, albeit from a low base. Agreements with Japan and Korea have also increased, but at a less substantial rate than with Western European countries such as France, Germany and the United Kingdom.

Five of the ten countries in the top ten are in Asia: China, Japan, South Korea, India and Indonesia. China leads the way, with a total of 1237 agreements in 2014, followed by Japan with 479 agreements, Korea with 309 agreements, India with 276 agreements and Indonesia with 254 agreements. Figure 3.10 shows the relative proportion of type of activity included within the agreements.

Figure 3.9: Top Ten source countries for international partnerships of Australian universities, 2003–2014
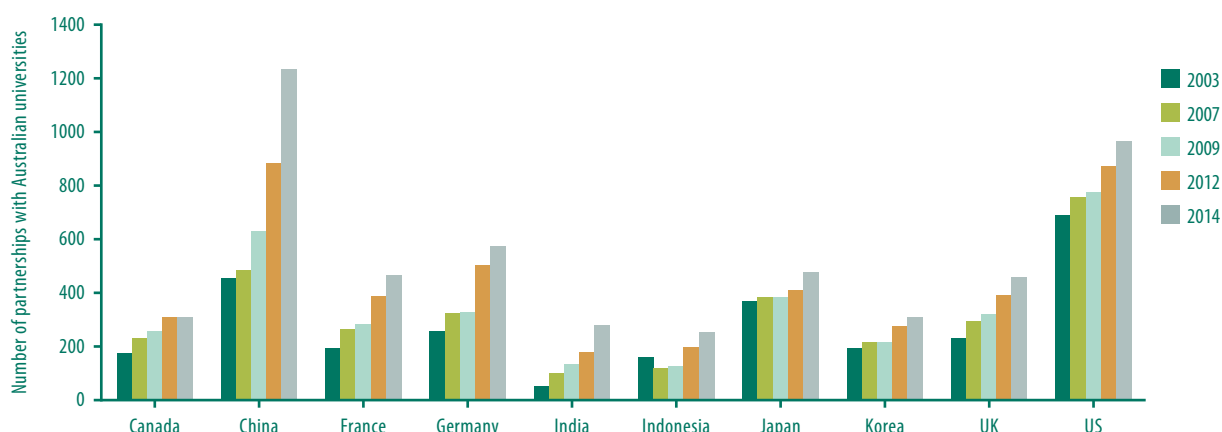
Source: Universities Australia 2014.

Figure 3.10: Top Five countries in Asia by type of activity included within agreements
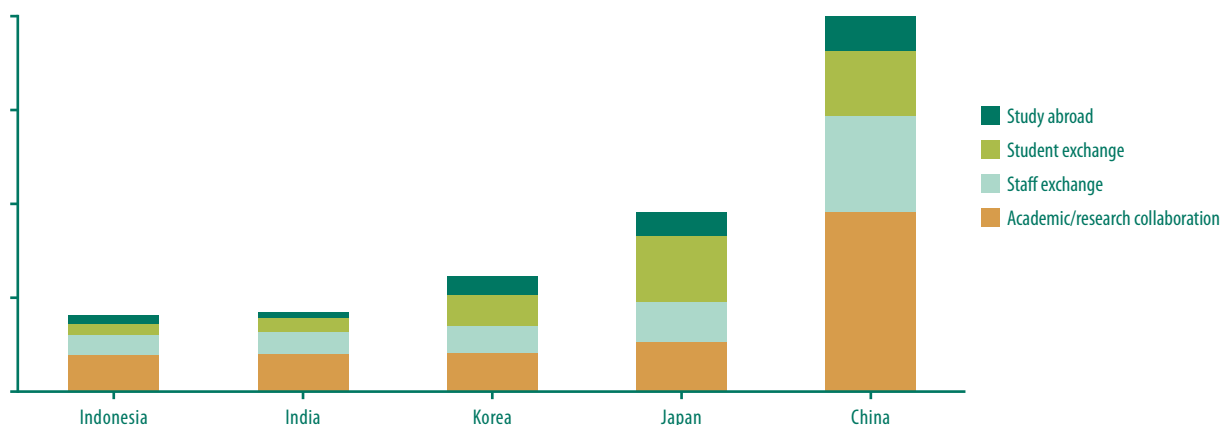
Note: Agreements may include one or all components of activity: this graph does not represent the total number of agreements.
Source: Universities Australia 2014.

These data suggest that almost half of activities covered by agreements with China involves academic and research collaboration. By contrast, academic and research collaboration makes up less than a quarter of activities covered by agreements with Japan and South Korea, with the majority of the activities comprising staff or student exchanges. This signals yet again that the extent of Australia's research collaboration with China is much more robust than with other Asian countries. The relatively low level of research collaboration with Japan and South Korea is especially concerning, given their importance as advanced industrial nations in Northeast Asia.

3.5.2 The Chinese diaspora effect

The exponential rise in Australia's collaboration with China is suggestive of the fact that there is something special going on with Australia's relationship with China. This is illuminated when we look at the broader trends in Chinese international co-authorships. According to National Science Board data, there has been a dramatic increase in co-authored papers between the US and China in the fifteen years between 1997 and 2012. Only three countries experienced faster growth rates in co-authored papers with China, albeit off a lower base: Australia, Singapore and Taiwan. While in 1997 Chinese researchers were three times more likely to co-publish with Japanese and twice as likely to co-publish with German researchers than with Australian researchers, by 2012 Chinese researchers were co-authoring a similar number of papers in all three countries (Barlow 2014).

How can we explain this differential pattern of growth? Why is it that Chinese collaboration with some countries (including Australia and the United States) has grown so much faster than with other countries? An important explanation can be found in what we can call the 'Chinese diaspora effect'. By this we mean that the exceptional growth in collaboration can be attributed to the contributions made by Chinese diasporic researchers in these countries.

There are anecdotal observations that migrant Chinese researchers have played a critical role in driving Australia's collaboration with China. Such observations can be backed by quantitative evidence, derived from research on co-authorships involving collaborations between researchers from China and other countries. Such research is usually conducted by examining the surnames of the international collaborators, on the basis that Chinese surnames are highly recognisable.

In a study of patterns of China-US collaboration in nanotechnology, Wang et al. found that most US co-authors are Chinese-American, who have received their BS in Chinese institutions and received their doctorate or had postdoctoral experience in US institutions (Wang et al. 2012). They tend to have a tenured position in the US, while still keeping in touch with Chinese peers. Many of them are engaged as guest or adjunct professors in Chinese institutions, which is the most significant cause to generate China-US scientific collaboration. Moreover, many of the Chinese authors also have experience in studying or working in the US, having received their PhDs, worked as postdoctoral fellows, or visiting scholars at US institutions. These findings suggest that there is a strong diaspora effect in China-US collaboration.

In another study, Wang et al. investigated the international co-authorship patterns of Chinese papers for a broader range of countries (Wang et al. 2013). Figure 3.11 shows the proportion of papers by international co-authors with and without Chinese lineage for nine countries: US, Japan, Germany, Canada, UK, Australia, South Korea, Singapore and France (size of pie chart indicates the total number of papers co-authored by China-based and non-China-based researchers).

These data are very interesting because they suggest significant differences in the diaspora effect in different countries. The fact that such a large number of Singaporean co-authors are of Chinese descent is not surprising, as Singapore has a majority population of Chinese descent. Singapore also has a large number of immigrant researchers from mainland China as a result of its large investment in research. Apart from Singapore, we can observe that Australia has the largest proportion of co-authored papers with

China in which the Australian co-authors are of Chinese descent: 66%. In the United States and Canada too, a large majority of co-authors are of Chinese descent: 65% and 61% respectively, while the proportion of co-authors of Chinese descent in the UK is somewhat smaller, 48%. By contrast, the Chinese diaspora effect is much less pronounced in European countries such as Germany and France (less than 30%), implying that the majority of co-authored papers is a collaboration between Chinese and German or French researchers who are not of Chinese descent. This is also the case with Japanese and, especially, South Korean co-authors. Only 9% of South Korean co-authors are of Chinese descent, suggesting that the huge majority of collaborations between China and South Korea is conducted by native researchers.

Several observations can be drawn from these comparative data. First, it would appear that Australian research collaboration with China is driven more by Chinese diasporic researchers than in other countries. This tendency is corroborated by an analysis by Anderson and Stafford (2014) of the pattern of research collaboration of one Australian university, the University of Adelaide, with China. Of the top twenty most productive

Adelaide researchers who co-published with Chinese researchers over the period of 2009–13, fifteen were originally from China. Of the five non-Chinese, two were ethnically Vietnamese, two British, and one Anglo-Australian (Anderson & Stafford 2014). Similarly, according to the survey with Chinese and Indian diasporic scholars conducted for this report (Freeman 2014) 59% of the Chinese respondents reported that they conduct joint research and co-author papers with colleagues in China.

In other words, the sharp rise of Australian research collaboration with China can be attributed to a very large extent to the activities of researchers of Chinese descent working in Australian research institutions. The flipside of this finding is that Australian researchers who are not of Chinese descent tend to collaborate less with researchers in China.

Whether one considers this a good or bad thing is a matter of perspective. In terms of intensity of research collaboration, it is clear that Australia benefits handsomely from its researchers of Chinese descent. Their work in Australian research institutions has contributed disproportionately to Australia's overall collaborative activity

Figure 3.11: The proportion of co-authors with Chinese descent
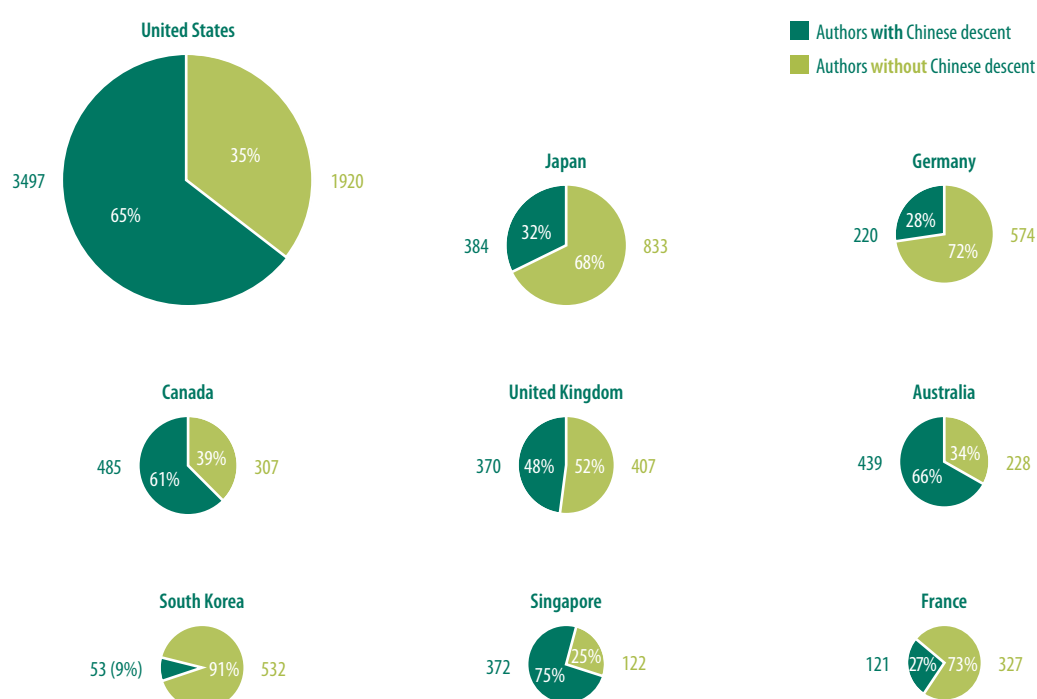
Source: Wang et al. 2013, p.892.

with China. In terms of a broader research engagement with China, however, Australia's high reliance on Chinese diasporic researchers suggests that enhancing research links with China among non-Chinese Australian researchers requires major policy attention. The large contribution of Chinese diasporic researchers inflates the extent of collaborative links, and masks the fact that Australian researchers who are not of Chinese background are not as strongly engaged with China as they could be.

3.6 The role of diasporas

3.6.1 Brain drain, brain gain and brain circulation

Australia's research system is strongly dependent on an immigrant workforce. 2006 census figures show that the proportion of all workers who were born overseas was 27.3%, but the proportion for all researchers was 38.1% (Hugo 2014). According to the GlobSci survey, which surveyed more than 17,000 research scientists in 16 countries about their mobility patterns, developed countries have the highest proportion of foreign scientists, and Australia has the third largest proportion (45%), after Switzerland (57%) and Canada (47%) (Van Noorden 2012).

Census data show that Chinese and Indians are an increasingly significant part of the Australian researcher population. In 2006, almost 40% of overseas-born researchers in Australia came from Asia, many of them Chinese and Indian. Moreover, between 2001 and 2006, the number of researchers born in Asia increased by 29.5%. Over the 1993–2010 period the number of researchers moving from China to Australia as permanent settlers (7266) was almost as large as those coming from the United Kingdom (7606), with which Australia has a long-standing historical connection. The number of Indians is somewhat lower but still significant, 5588 (Hugo 2014). There is thus a clear shift in the ethnic make-up of the Australian researcher workforce, towards a greater presence of Asians. In this regard it is fair to say that Australia benefits from a substantial 'brain gain' from Asia, which—so the received

wisdom goes—equates with a 'brain drain' for the Asian countries concerned.

However, current thinking about international researcher mobility has moved on from seeing brain drain and brain gain as a zero sum game, towards a more dynamic and nuanced understanding of 'brain circulation', in which skilled migrants are seen as possessing the potential to provide benefits to their developing countries of origin, either by eventual physical return or by contributing from a distance through diaspora linkages (Meyer 2001; Saxenian 2005). From this perspective, the gains from the knowledge and networks accumulated by these migrants flow to both the host and the home countries.

The issue of how to reverse the outflow of human talent (that is, brain drain) has been an important policy dilemma for many developing countries for decades. Many countries introduced schemes to stimulate a 'reverse brain drain' by tempting their educated diasporas to return home. Taiwan and South Korea for example underwent a reverse flow in the 1980s and 1990s after tens of thousands had poured out of these countries for their graduate training since the 1960s, primarily in the United States (Yoon 1992; Tzeng 2006). An important factor in this flow of return has been the political and economic liberalisation of these countries.

China has also worked hard to lure back top scientists and researchers from overseas. The results of such policies have been mixed. Between 1978 and 2007 more than 1.21 million Chinese went abroad for study and research, of whom only about a quarter have returned. Many first-rate overseas academics have failed to return, despite aggressive recruitment drives such as the Thousand Talents Program, offering full-time positions to overseas Chinese 'global experts' with grants of ¥3 million, large salaries and generous lab funding (Zweig 2006; Cao 2008).

An alternative strategy, the 'diaspora option', has emerged more recently. Here, the brain drain is reconceptualised and the migration of researchers is seen less as a permanent loss to the home country, and more as an opportunity to effect 'brain circulation', where the knowledge

and networks accumulated by researchers overseas circulates back to the home country, even if they themselves do not return (Meyer & Wattiaux 2008)(Zweig, Fung & Han 2008). The diaspora option is an attempt 'to devise models of including the [highly qualified] expatriates in the national development schemes without necessarily bringing them back permanently to their country of origin' (Nikolic, Mraovic & Cosic 2010, p.9).

The Chinese government now strongly supports the diaspora option whereby Chinese expatriates are encouraged to contribute to their country of origin from abroad, e.g. through investment and scientific development. In this regard, Chinese government policy has shifted from *hui guo fuwu* (return and serve the motherland) to *wei guo fuwu* (serve the motherland). Under this policy, Chinese scientists and researchers who remained overseas were encouraged to engage in seven types of activities:

- Utilise the advantages of their professional bodies.

- Hold concurrent positions in China and overseas.

- Engage in cooperative research in China and abroad.

- Return to China to teach and conduct academic and technical exchanges.

- Set up enterprises in China.

- Conduct inspections and consultations.

- Engage in intermediary services, such as run conferences, import technology or foreign funds, or help Chinese firms find export markets. (Zweig, Fung & Han 2008)

Many overseas Chinese scholars have responded to this call to 'serve China'. According to one survey with Chinese researchers in North America, 'promoting the quality of research in China' and 'making China stronger' were the most important reasons to collaborate with researchers in China (Zweig, Fung & Han 2008).

The Indian government also recognises the important contribution of the diaspora to India's future development. It has established a Ministry of Overseas Indian Affairs, and reoriented its policies towards 'brain circulation'. The principal objective of the Indian government has not been to encourage a repatriation of overseas citizens, but to better manage and channel the considerable resources they send by remittance (Giordano & Terranova 2012). Nevertheless, increasing numbers of US-trained Indian professionals have returned to their home country, contributing to the growth high-tech industries in Bangalore and Hyderabad and solidifying transnational linkages between India and the United States (Chacko 2007).

Research diasporas are thus now seen as providing brain gain for both the countries in which they reside (such as Australia) and the country of origin, leading one commentator to observe that 'high skill immigration makes everyone better off' (Saxenian 2002).

3.6.2 International mobility and network building

Diaspora knowledge networks are a particular form of broader distributed networks created by the international mobility of researchers. Turpin and others have found that while patterns of mobility vary according to country of origin and fields of study, location and experiences of research training and post-doctoral work tend to be crucial in the development of international networks and are key drivers for future career networking and collaboration (Turpin et al. 2008). Where researchers receive their training therefore matters. Moreover, post-doctoral positions, in particular, appear to be strongly correlated to the development of durable collaborative knowledge production relationships.

In this regard, the US is still the dominant power, as it continues to attract the lion's share of international research students. Since 2006 almost half of students receiving doctoral degrees in the natural sciences and engineering from US universities are temporary residents, and the China-US flow is by far the most important. China's share of PhD degrees awarded by US institutions amounted to almost a third of all PhDs granted to foreigners in 2007, while India's share was 12% and South Korea's was 10% (Xie & Killewald 2012; Veugelers 2013).

For the time being, it is likely that many of these graduates will remain in the US (if they can find suitable employment), or possibly move to other developed countries including Australia. As the development of China and India as research powerhouses continues apace, however, we might ask the question whether the reliance on immigrant researchers in developed countries—including Australia—might not make their research systems vulnerable to possible future declines in their capacity to attract and keep diasporic researchers in the country. Larger numbers may opt to return to their home countries where opportunities are proliferating.

Already some leading research organisations in Beijing and Shanghai are formed for around 70% by researchers with research experience in North America, Western Europe, Japan or Australia, and these researchers have been important drivers in the increase of productivity and quality of the Chinese research effort (Jonkers & Tijssen 2008).

Immigration and the global competition for researchers

In the United States, there has been some anxiety about a possible decline of American science as a result of greater global competition, especially from Asia. Over the years the US research workforce consists increasingly of immigrants. Today more than 25% of practising US scientists are immigrants, up from 7% in 1960. The rising share of immigrants among practising scientists and engineers indicates that US reliance on foreign-born and foreign-trained scientists, a very significant number of whom are Asian, has dramatically increased. For example, more than a third of US Nobel Laureates have been immigrants, and in Silicon Valley more than half of new tech start-up companies were founded by foreign-born owners. Moreover, the US basic research enterprise depends heavily on the work of postdocs, of whom 49% are foreign-born on temporary visas and, very often, Chinese (National Science Board 2014).

In this light, the concern expressed is not so much whether US research is too dependent on immigration, but whether it can continue to attract enough international talent in future. As the Chinese research system develops, it will become a more attractive destination for return migrants and others, as is the case for other rapidly rising countries in the region such as Singapore. As one author observes, 'China's maturing research institutions are a net benefit for the world, but they will eventually make it more difficult for US labs to compete for talented Chinese postdocs' (White 2014).

Australia's research training system is also highly dependent on international students, especially in STEM disciplines. In 2013, 30% of all postgraduate researchers at Australian universities were international students. However, the percentage is much higher in Engineering (51.7%), Information Technology (49.8%), Agriculture, Environmental and Related Studies (43%) and Natural and Physical Sciences (35.8%). All other broad discipline areas (including the Humanities and Social Sciences) accounted for only 20.9% of international postgraduate research students. Students from China were the largest cohort (25.4%) for postgraduate research enrolments in STEM courses in 2013. The next largest cohorts were from Iran (9.2%), Malaysia (6.8%) and India (5.9%) (Department of Education 2014c).

Relatively far fewer research students from India have flocked to Australia, compared with the United States. The percentage of South Koreans is also very small. This may account for the relatively low level of international collaboration between Australia and these two important Asian countries (Barlow 2014). By contrast, these countries have sent many research students to the US, which would have resulted in the creation of intensive research networks linking these countries.

Intensifying intra-Asian student mobility

For the time being the flow of research students from Asia, especially China, into Western countries such as the US and Australia does not yet seem to be abating (Veugelers 2013). Asia is still the largest exporter of internationally mobile students globally. But shifts are underway in the geography of mobility of Asian students. While outbound Asian students have tended to go to the West for their higher education, in the past decade many Asian countries themselves, such as

China, Singapore and Malaysia, have introduced a considerable range of policies to internationalise their higher education sectors and become educational providers themselves (Chan 2012; UNESCO 2013). Thus, the range of potential destinations for international students in Asia is no longer restricted to the traditional Western countries.

In 2012, China was already the third largest host destination for international students, taking in 8% of all globally mobile students worldwide, after the United States (19%) and the United Kingdom (11%) but before France (7%), Germany (6%) and Australia (6%). This is rapid growth since 2001, when China was not even on the radar as an international student destination (IIE Center for Academic Mobility Research 2013). Most of the international students in China come from other parts of Asia, particularly South Korea, Japan, Thailand and Vietnam (although a significant number also come from the United States and Russia). China is thus rapidly becoming a major regional hub for international students. Here again, we can see the emergence of China as the dominant player in the region, which may—over time—transform the geography of knowledge networks within the region.

This may have important implications for Australia, which has been the major destination country for Asian students within the region to date. As the Australian Academy of Science observes: 'Many eminent scientists working in Asia…were trained here and are familiar with Australia's research capacities. However, given the boom in tertiary education and research in the past decade in Asia, and ongoing investment, it is unlikely that their upcoming researchers will have such familiarity with Australia as they do today' (Australian Academy of Science 2012, p.2).

The lesson is that to continue to attract talented students from Asia, Australia must be increasingly diligent in maintaining quality assurance in its education programs. It is a highly competitive market and will become increasingly so as domestic institutions in Asia improve their capacity to offer high quality courses in English. Investment in alumni associations by Australian universities would also be useful. They not only help future recruitment of students but also provide ongoing business, social, cultural and academic links. DFAT's Public Diplomacy branch has already stepped up its alumni engagement.

Australian student mobility

Another risk is that intensifying student and researcher mobility within Asia may leave Australia out of the loop if Australians do not step up their participation in these new mobility trends. In this regard, it is relevant to note that the number of outgoing Australian students is still relatively small. According to a comparative study of 16 countries, Australian parents are least likely to consider sending their child abroad for a better university education: only 41% do so, compared with 65% of parents in France, 58% in the US, 51% in Canada and 50% in the UK (HSBC 2014).

More importantly, Australian students who are internationally mobile do not tend to go to Asia to study: Ministry of Education of China data indicate that Australia is not even within the top 20 countries of inbound students in China in 2009 (UNESCO 2013). Most study-abroad Australians still tend to go to Anglophone and European countries. The top five destinations for students from Australia enrolled in overseas universities in 2010 according to UNESCO data were the United States, New Zealand, United Kingdom, Germany and France ('Project Atlas – Australia' n.d.). This may be slowly changing.

For Australians studying at Australian universities who had an international experience during their degree program (e.g. through student exchanges and internships), Asia is a more popular destination: in 2012 China was the second most popular destination country, behind the US and ahead of the UK. About a third of all visits were to an Asian country. However, while visits to the Americas and Europe tended to be long experiences, 86% of all Australian international study experiences to Asia were shorter than a semester (Olsen 2013), suggesting a less intense immersion in the countries of the region.

The government's New Colombo Plan, introduced in 2014, is an important initiative designed to lift the number of Australian undergraduates to study in the Asian region. Given the importance of postgraduate and postdoctoral research

training to sow the seeds of future international research networks, incentives for Australian research students and early career researchers to spend time at Asian universities and work alongside their Asian counterparts should also be considered a priority.

3.6.3 Diasporas and international engagement

The role of diaspora knowledge networks in nurturing international engagement in research collaboration is crucial. In the survey with Chinese and Indian diasporic scholars conducted for this report (Freeman 2014), 67% of Chinese respondents said that they collaborate with colleagues in China, while 60% of Indian respondents said they collaborate with colleagues in India. Interestingly, 26% of Indian respondents collaborate with colleagues in China, while only 11% of Chinese respondents collaborate with colleagues in India. This is an indication of the stronger pull of China as a site of research collaboration because of its large and growing investment in research. Collaboration can take on many forms: from attending conferences and visiting colleagues in China or India to co-authoring edited books and facilitating Australian colleagues to visit China or India. Existing relations are fundamentally important to international collaborations, with 80% of Chinese respondents and 77% of Indian respondents nominating such existing relationships (e.g. through postgraduate links, former or current place of work, or personal or family connections) as the starting point for the collaboration.

Obstacles to collaboration can be institutional or cultural. Chinese respondents primarily mentioned institutional obstacles, especially related to inadequate resources or capabilities at Australian institutions (51%) or inadequate support from Australian government (42%) (Table 3.5). On the other hand, the Indian respondents were much more likely to see 'bureaucratic red tape' in India as a problem (51%).

On the Chinese side, only a small minority of respondents referred to inadequate support from the Chinese government as a problem (12%), while 37% of Indian respondents reported inadequate support from the Indian government as a barrier. It would seem then that there are more institutional barriers to collaboration between India and Australia than between China and Australia. Moreover, while the problem in the Indian case appears to be more on the Indian side, in the Chinese case it is more on the Australian side. This is an indication of the relative success of the Chinese government's proactive

Table 3.5: Obstacles to collaboration, Chinese and Indian respondents

Answers	Response: China	Response: India
Inadequate resources or capabilities at Australian institutions	51%	36%
Inadequate support from Australian government	42%	38%
Differing research/workplace cultures	29%	40%
Bureaucratic red-tape in China/India	27%	51%
Lack of interest from Australian institutions	26%	41%
Bureaucratic red-tape in Australia	25%	23%
Differing expectations of research products	24%	19%
Differing community expectations and cultures	23%	22%
Inadequate familiarity with languages	15%	8%
Inadequate resources or capabilities at Chinese/Indian institutions	13%	30%
Inadequate support from Chinese/Indian government	12%	37%
Lack of interest from Chinese/Indian institutions	9%	21%
Other	5%	6%

Source: Freeman 2014.

strategies to exploit the diaspora option, which may have paved the way for smoother collaborative arrangements.

There are however also cultural barriers to collaboration. Quite a few respondents reported cultural differences in various forms as key obstacles to collaboration (differing research/workplace cultures; differing expectations of research products; differing community expectations and cultures). Linguistic barriers were mentioned by fewer respondents: 15% of Chinese respondents and only 8% of Indian respondents, presumably because these respondents speak the required languages. Still, the need to overcome cultural differences to enhance collaboration is an important issue mentioned by many of these respondents.

The role of diasporic scholars in bridging these cultural divides is significant. They are more inclined to work together with their counterparts in their home countries because they tend to have the cultural and linguistic capital to do so. The vast majority of Chinese respondents (79%) and Indian respondents (85%) agreed that their cultural background made it easier to work with colleagues in China or India. Similarly, a majority of Chinese (69%) and Indian (65%) respondents agreed that their linguistic skills are an important asset in establishing connections with colleagues in China or India. This clearly indicates that the capabilities associated with co-ethnicity are strong facilitators for international collaboration, and it is something that policy makers might take more note of.

Diasporic researchers are clearly aware that they can play an important role in strengthening relations between their country of residence and the home country. A vast majority of Chinese (83%) and Indian (84%) respondents agreed that their international collaboration with scholars in China/India strengthens Australia's relationship with China/India. Moreover, an overwhelming majority of Chinese (85%) and Indian (88%) respondents agreed with the statement that 'Australian research institutions should consult more with Chinese/Indian diaspora scholars if they wish to develop research collaborations with China/India'.

This is a clear indication that many of these diasporic researchers would be prepared to consider taking on science diplomacy roles to strengthen research relationships between Australia and their respective home countries, if given the opportunity to do so. In fact, almost half of Chinese respondents said they facilitate collaboration between Australian researchers and researchers in China, while more than a third of the Indian respondents did so between Australian and Indian researchers. Used appropriately, the social, cultural and linguistic capital that these diasporic researchers carry with them could be of great benefit to Australian research institutions in bridging cultural and linguistic divides. Such intercultural capabilities are of particular relevance in assisting (and educating) locally born Australian researchers, given their tendency to be monoglot (see Chapter 2).

3.7 Research collaboration and intercultural capabilities

There is no quick solution to the challenge of developing collaborative research networks: it takes time, dedication and patience. Anderson and Stafford (2014) found that productive research collaboration with China required building long-term relationships through repeated interactions, including spending significant time with Chinese partners, both in China and Australia. In this regard, the most common official approach to international engagement such as trade missions or research delegations, which are typically of short duration and do not enable in-depth mutual familiarisation, are unlikely to produce any concrete benefit without multiple return visits.

Linguistic and intercultural skills are also important. Although English is the dominant language for scholarly and scientific communications, effective research collaboration requires more than just a formal lingua franca. Montgomery argues that a 'global tongue will not erase all differences in culture':

> The daily operations of research, from the role of the individual to the structure of organizations, reflect the society in which they occur. When it comes to the actual work of collaboration, therefore, mismatches of practice often happen. A global tongue can make these situations both better and worse, since it can disguise through seeming agreement a disconnect in expected behavior. This has often been observed in the case of East Asian researchers, whose cultural ways of expressing doubt, agreement, and criticism are often quite indirect and can be easily misinterpreted when translated directly into English. Scientists familiar with Chinese or Japanese culture are able to prevent these types of situations and help collaborative work proceed more smoothly'. (Montgomery 2013, pp.185–186)

In a broader sense, Lewis points out that academic research networks are not only important for achieving intrinsic research outcomes (e.g. co-authored publications or joint grants), but also serve expressive interpersonal purposes (friendship, support, trust) (Lewis 2013). These expressive dimensions of knowledge networks should not be ignored in the development of effective research collaboration incentives, especially where large cultural differences exist. Indeed, this is one reason why diaspora networks tend to be so strong. It is well known that cultural proximity (as well as physical proximity) is a great facilitator of collaboration. The greatly above-par collaborative relationship between Australia and New Zealand (as well as the United Kingdom) can be explained in this way. Culturally proximate relationships are comfortable. But international research collaboration increasingly requires researchers to get out of their comfort zones, in disciplinary and in cultural terms. Intercultural capabilities are therefore of increasing relevance in the professional development of the research workforce.

Resources are required for researchers to develop these capabilities. This may entail funding schemes for researchers from different countries to get to know each other and develop common perspectives, without the need for immediate outcomes. An example was the Australian government's International Science Linkages (ISL) program, which funded international staff exchanges and workshops to promote ideas exchange and relationship building, as well as collaborative research projects with international partners. Unfortunately, the ISL was terminated in 2011 and has to date not been replaced by a new scheme (International Science Linkages Evaluation Team 2011).

Smart engagement with Asia through international research collaboration programs needs to focus on building enduring relationships. It requires finding the right partners and investment in making the partnership work, including at the people-to-people level. This takes time, effort and long-term commitment. Diasporic researchers can be given greater leadership roles in this regard.

3.8 Key findings

3.1 **R&D expenditure and research outputs are increasing rapidly across Asia.**

The Asia Pacific region has seen a steeper rise in R&D expenditure and scientific publication outputs than anywhere else in the world. As of 2011 the region accounted for 28% of global output, close to US output at 30%. China is fast becoming the world's largest producer of research output and is expected to overtake the United States before the end of the current decade. In 2011, its share of total regional output in science and engineering papers was 38%. Although Japan still has a strong R&D establishment, its share of outputs has been in long-term decline (20%, down from 44% in 2001). South Korea (11%) and India (10%) are also rapidly growing research powers in the region: both have overtaken Australia (9%) in terms of share of outputs. Indonesia, on the other hand, still has very low R&D intensity (only 0.1% share of total regional output).

3.2 **China is emerging as the dominant research power in Asia.**

China's rise in research, especially in science and technology fields, is because of a number of factors: a large population and human capital base, a large diaspora of Chinese-origin researchers, a culture of academic meritocracy, and a centralised government willing to invest in research. Although the United States is still the most important global research nation, China is now the referent country in the region. As Chinese collaboration networks increasingly dominate the region, it provides incentive for all other nations to increase their own regional engagement in research. China is also becoming an important destination country for international students, especially from other Asian countries. In 2012 China took in 8% of all globally mobile students worldwide, after the US (19%) and the UK (11%) but before France (7%), Germany (6%) and Australia (6%).

3.3 **Intra-regional research collaboration and student mobility are on the rise across the Asia-Pacific region and may, over time,** transform the geography of international knowledge networks.

Although the main Asian countries have shown less international research collaboration than researchers in North America, Europe and Australasia, bilateral international collaborations between Asian researchers have risen steeply, especially since 1997. This suggests that an increasingly dense intra-regional network of research collaborations is emerging. Similarly, while outbound Asian students have tended to go to the West for their higher education, student mobility within the region is on the increase as some Asian countries themselves have become destination countries for international students. Intensifying student and researcher mobility within Asia may leave Australia out of the loop if Australian students and researchers do not step up their participation in these mobility trends. Most study-abroad Australians still tend to go to Western countries, with the top five destinations being the US, New Zealand, the UK, Germany and France as of 2010. Incentives for Australians to study in Asia, such as the New Colombo Plan, should be a policy priority.

3.4 **Proactive science diplomacy in the Asia-Pacific region, focusing on enhancing cooperation to address shared, transboundary challenges is needed.**

There is significant scope within the region to improve more strategic collaborative research to address the many common challenges facing different parts of the region. An important focus for regional science diplomacy would be work towards the development of effective institutional frameworks for multilateral collaborative research to promote regional public goods, which has the support of the most important countries in the region. The participation of China, newly emerging as the most powerful research nation in the region, is crucial in this regard. To date, the region lacks such region-wide multilateral frameworks, and skilful and persistent diplomatic legwork would be required to bring them into being. The Chief Scientist's proposal for an Asia Research Zone

resonates with some regional cooperative efforts that are already underway, such as those developed within ASEAN and by Japan. It may be possible to build on these initiatives.

3.5 Australian research collaboration with China is well developed. However, Australia's research relationship with other Asian countries is relatively weak.

Bilateral collaborations remain important. Australian research engagement with China exceeds that with other countries in the region by a wide margin. Although Australia has substantial links with Japan and India, overall Australian researchers have weak connections with their counterparts in the region, compared both with the level of China engagement and the level of interconnections among Asian countries themselves, which has intensified significantly in the past decade. In a time when intra-regional connectivity is strengthening as a result of rising student and researcher mobility, there is a danger that Australia might miss out on newly developing regional research networks if Australian researchers do not manage to strengthen and deepen their collaborative links with researchers across the region.

3.6 Australian research collaboration with China has developed mostly through the diaspora.

Chinese diaspora researchers play a disproportionately large role in Australia's collaborative effort with China. Of all scientific publications co-authored by researchers in China and Australia, a large majority of the Australia-based authors, 66%, were of Chinese descent. This suggests that Australian researchers who are not of Chinese background do not collaborate with China-based colleagues as much as they could. There is considerable unmet potential for extending diaspora research networks to other Australian and regional researchers by recognising the leadership roles Australia-based diaspora researchers can play in bridging national differences and nurturing collaborative networks.

3.7 There are important obstacles to increased research collaboration.

Survey data show that, according to Chinese and Indian researchers in Australia, there are different obstacles to collaborating with China and India. For collaboration with China, the main two obstacles mentioned were (1) Inadequate resources or capabilities at Australian universities (according to 51% of respondents) and (2) Inadequate support from the Australian government (42%). For collaboration with India, the main obstacles were (1) Bureaucratic red tape in India (51%) and (2) Lack of interest from Australian institutions (41%). Addressing such obstacles requires targeted policy measures specific for each country.

3.8 Smart research engagement with Asia requires paying greater attention to the people-to-people dimension of research collaboration.

Although institutional and resourcing barriers will be important reasons for the weak links of Australian researchers with their Asian peers, a lack of social connections and of intercultural capabilities play a crucial role in this relatively poor performance. Chinese and Indian diaspora researchers strongly argue that their linguistic skills and familiarity with their cultural heritage are of great benefit in their collaborative activities with researchers in these countries. For many of them, existing relationships (e.g. through postgraduate studies, former workplace relations or family or personal connections) have been fundamental for initiating collaboration. This suggests that the social and cultural dimensions of international research collaboration require more attention in assisting Australian researchers who do not yet have the links to engage with Asia. International research collaboration is likely to be productive only through long-term commitment, multiple repeat encounters and spending significant amounts of time together, facilitating mutual familiarisation and trust. Short-term missions and delegations are unlikely to generate the results desired.

4

Cultural relations and smart engagement

4.1 Introduction

The scale of cultural contact between peoples across the Asia-Pacific region has increased massively since the beginning of the 21st century. It has been fuelled by rapid economic development and the associated growth of new middle classes, the rise of international travel and tourism and the growth of communication technologies (including social media). Globalisation is not just an economic phenomenon; it also has an important cultural dimension, exposing different people and cultures to each other on an unprecedented scale.

As a consequence, culture and international relations are now strongly interdependent, where culture can play both a positive and a negative role (Holden 2013). A country's cultural credentials are very important for its international reputation and standing, with the implication that shaping international cultural relations to serve the national interest is now an increasingly important policy challenge. This is the field of cultural diplomacy.

Cultural diplomacy is 'the deployment of a state's culture in support of its foreign policy goals or diplomacy' (Mark 2009, p.1). In policy terms, cultural diplomacy is usually a central part of broader public diplomacy frameworks within a foreign affairs department. Australia's Department of Foreign Affairs and Trade (DFAT) has a public diplomacy strategy, whose mission is 'to strengthen Australia's influence, reputation and relationships internationally by promoting a clear and confident vision for Australia's international policy agenda that reflects our core national interests and improves domestic understanding of DFAT's role' (Department of Foreign Affairs and Trade 2014). The 2007 Senate Committee on Public Diplomacy describes public diplomacy as 'work or activities undertaken to understand, inform and engage individuals and organisations in other countries in order to shape their perceptions in ways that will promote Australia and Australia's policy goals internationally' (Senate Standing Committee on Foreign Affairs, Defence and Trade 2007, p.28). When 'culture' is used to achieve this objective, we can speak of cultural diplomacy.

A 2005 report of the US Department of State describes cultural diplomacy as 'the linchpin of public diplomacy' (Advisory Committee on Cultural Diplomacy 2005). It states that 'it is in cultural activities that a nation's idea of itself is best represented'. Cultural diplomacy was proposed as an important way of reversing the erosion

of trust and credibility within the international community suffered by the United States in the wake of the unpopular War on Terror, and as a tool to enhance national security.

In this report we deploy a broad definition of 'culture' and 'cultural diplomacy'. It is not confined to 'the arts' but includes educational exchanges, language teaching, museum exhibitions, international broadcasting and a wide variety of other activities, which are designed for Australia to engage with international publics. In this regard cultural and public diplomacy can often be used interchangeably. Or to put it differently, public diplomacy almost always has a 'cultural' dimension. The general purpose of this activity is to improve Australia's international cultural relations.

Australia's cultural and public diplomacy effort has focused strongly on the countries of the Asian region in the past two decades. At the same time, there has been an exponential rise in investment in national cultural diplomacy strategies in all countries in the region. The rise of Asia has also meant a rise of cultural diplomacy in Asia, with significant implications for international cultural relations in the region.

This chapter surveys the broad reach of cultural relations and cultural diplomacy in Asia and assesses the ways in which Australia can pursue smart engagement with Asia through culture. The chapter:

- sketches the current state of cultural relations between Australia and Asia-Pacific countries as one of cultural distance

- summarises the national cultural diplomacy and soft power strategies in key regional players: China, India, Japan, South Korea, Indonesia, Singapore and Vietnam

- examines Australia's cultural diplomacy programs and activities, as conducted by DFAT and by other Australian government agencies

- gives an overview of regional cultural relations initiatives by independent cultural sector and civil society players, including the cultural activities of Asian and Pacific diasporas in Australia linking them to their home countries.

The chapter argues that smart engagement with Asia should focus not just on increasing Australia's soft power, but, in more reciprocal fashion, on building long-term, sustained cultural relationships. Rather than one-way projection, smart engagement emphasises mutuality and collaboration.

4.1.1 Cultural relations, public diplomacy and soft power

A popular term to describe the objective of cultural diplomacy is 'soft power', defined by Joseph Nye as the ability to influence others to obtain the outcomes one wants through attraction rather than coercion or payment (hard power) (Nye 2004). It is thought that soft power can enhance a country's capacity to assert international influence, and soft power can be attained by presenting an attractive image of the national culture to foreign publics.

The quest for soft power through cultural diplomacy is not new. For example, it was a central part of the United States' strategy to win the hearts and minds of international audiences during the Cold War, e.g. jazz broadcasts in the Union of Soviet Socialist Republics (USSR) (Schneider 2006). However, in the globalised and multipolar world of the 21st century governments around the world have shown increased interest in maximising their soft power through cultural and public diplomacy initiatives.

In the UK, the urgent need for an enhanced focus on soft power was emphasised by the House of Lords Select Committee on Soft Power and the UK's Influence in its recent report Persuasion and Power in the Modern World (Select Committee on Soft Power and the UK's Influence 2014). The increased significance of competition for soft power in today's world, and the role of culture therein, is clearly spelt out in the British Council report Influence and Attraction: Culture and the Race for Soft Power in the 21st Century (Holden 2013). The appetite for investing in soft power has been especially strong in the newly industrialised countries, not least those in the Asian region.

In the struggle for soft power cultural diplomacy has traditionally focused on the outward

projection of a country's cultural assets, underpinned by the following strategic aims, in increasing levels of engagement (Holden 2013, p.22):

- increasing familiarity (making people think about your country)

- increasing appreciation (creative positive impressions of your country)

- engaging people (encouraging people to see your country as an attractive destination, e.g. for tourism or study)

- influencing behaviour (getting companies to invest, encouraging support for your positions, political alliance building).

Mark argues that cultural diplomacy should be 'a managed, considered and strategic presentation of national image' (Mark 2009, p.22). The currently popular focus on 'nation-branding' is a case in point (Dinnie 2008). However, in the age of the Internet and mass international travel the flow of information and images can no longer be controlled by governments. Many other actors play a part in the shaping of international cultural relations, including independent cultural, media and educational institutions, cultural NGOs (including diaspora organisations), businesses, private foundations and philanthropists, and individuals (e.g. artists, sportspeople). Moreover, today international publics are more active than ever before in seeking out their own information and in transnational peer-to-peer communications (e.g. through social media).

In this context, analysts argue that cultural diplomacy needs to focus less on simple, one-way 'projection' and more on mutuality, cultural exchange and cross-cultural understanding (Holden 2013). According to Nye, 'effective public diplomacy is a two-way street that involves listening as well as talking' (Nye 2008, p.103). The lesson for governments is that if they want to pursue smart engagement they should refrain from the too directive broadcasting of one's national qualities: 'Public diplomacy that degenerates into propaganda not only fails to convince, but it can undercut soft power' (Nye 2008, p.108).

4.1.2 Cooperative cultural diplomacy, relationship building and trust

An authoritative definition by American political scientist Milton Cummings sees cultural diplomacy as 'the exchange of ideas, information, art, and other aspects of culture among nations and their peoples in order to foster mutual understanding' (Cummings 2003). This definition points to the importance on dialogue, networks, collaboration and relationship-building now placed on cultural diplomacy by leading scholars in the field (Melissen 2011; Fitzpatrick 2011; Zaharna, Arsenault & Fisher 2013). The focus is less on one-way influence than on establishing lasting, long-term mutual engagement as a way of advancing the national interest. In this development, the role of culture and people-to-people connections is enhanced (Zaharna 2012).

A central objective in this new, relational or collaborative cultural diplomacy is the building of trust. In April 2014, the U.S.-China Bi-National Commission on Enhanced Relations and Trust Building released a report *Building U.S.-China Trust Through Next Generation People, Platforms, and Programs*. The report advocates more financial support for and focus on 'bottom-up' people-to-people engagement between the two countries by embracing new technological and organisational platforms for US-China exchange and collaboration, especially among young people, who tend to have more positive views of each other than older Americans and Chinese (U.S.-China Bi-National Commission & on Trust-Building and Enhancing Relations 2014).

A number of British Council reports have highlighted the economic benefits to be gained from greater trust established by cultural relations activity. In *Trust Pays. How international cultural relationships build trust in the UK and underpin the success of the UK economy* (British Council 2012) and *Culture Means Business. How international cultural relationships contribute to increased trade and competitiveness for the UK* (Culligan 2013) survey findings with young people in six countries around the world suggest that those who have participated in cultural activities with the UK are significantly more likely to be

interested in working with, and doing business with, the UK than those who have not.

Although there is currently no effective model to measure the economic benefits of trust, such findings suggest that enhancing cultural relations on the ground—across civil society—is smart engagement: the trust they generate is beneficial not just for its own sake, but also as a facilitator for trade, business and other links. Relatedly, generating trusting relationships requires long-term commitment and active investment. As Nye points out, 'Developing long-term relationships is not always profitable in the short-term, and thus leaving it simply to the market may lead to underinvestment' (Nye 2008, p.105).

4.2 Australia's cultural relations with Asian countries

Historically, Australia's cultural relationship with the countries of Asia has not been close because of major differences in history, politics and culture. Modern Australia's origins as a British settler colony have always set it apart from the countries to its north. The last few decades have seen a significant process of rapprochement because of increasing economic interdependence with Asia, along with the influx into Australia of substantial numbers of migrants, refugees and students from the region. Trade, business and other transactional interactions have increased massively. Nevertheless, the relationship between Australia and Asia is still coloured strongly by a sense of cultural distance and lack of connection—from both sides. Isar (2014) observes that this relationship is characterised by a high level of mutual ignorance.

4.2.1 Cultural distance

The case of Indonesia illustrates most Australians' cultural disconnect from this country. It is Australia's closest neighbour. Yet ordinary citizens in both countries know little about each other's countries and mutual perceptions are ambivalent, as indicated by polling data. A detailed survey carried out for DFAT in 2013 found that only 70% of Australians knew that Bali was part of Indonesia, while less than half know Indonesia is a democracy (Newspoll 2013). Asked to name the first three things that come to mind when thinking about Indonesia, the most common response, mentioned by about one-third, was 'holiday destination' or similar. Other relatively common responses included 'Muslim/Islamic country', 'boat people', 'bombs and terrorism' and 'drugs and drugs trafficking'.

The cultural distance between Asian countries and Australia can also be gauged by the feelings thermometer established by the annual Lowy Institute polls on Australia and the world. Respondents are asked to rate their feelings towards a list of countries with one hundred meaning a very warm, favourable feeling; zero meaning a very cold, unfavourable feeling; and fifty meaning not particularly warm or cold.

Table 4.1 shows the rate of feelings of Australians towards a range of Anglophone, European and Asian countries for the period from 2006 to 2014. Of all the countries, Australian feelings toward New Zealand have consistently been warmest, followed by Canada and Britain. Feelings towards the United States warmed significantly after the election of President Barack Obama in 2008. Of all the Asian countries Japan and Singapore, the two most Westernised countries, rated the warmest, but still slightly less warm than Germany and France. All other Asian countries, however, have rarely rated higher than 60 degrees, indicating persistently lukewarm feelings towards all these countries despite some year-to-year fluctuations. Feelings towards Indonesia in particular have remained consistently low throughout the eight year period. Interestingly, feelings towards the two Pacific countries included in the list are warmer. Despite strained official relations between Australia and Fiji after a military coup in 2006, Australians may have a relatively positive disposition towards Fiji because of its tropical island tourism credentials.

These data suggest that, compared with its Anglo cousins, with whom Australia has a natural sense of familial attachment, it still does not have a close affinity with its Asian neighbours. As British journalist Nick Bryant observes, 'Australia's

regional alliances are marriages of convenience rather than true romances' (Bryant 2014, p.236). The lack of common heritage and history is a barrier for close cultural relations. Only long-term investment in proactive cultural engagement may alleviate this profound sense of distance.

4.2.2 Australia's soft power deficit

If Australian ideas about Indonesia are fossilised around simplistic stereotypes, Indonesian knowledge and attitudes regarding Australia are also poor. A 2011 Lowy Institute poll found that only 14% of Indonesians knew that Australia was Indonesia's largest aid partner. While a large majority of Indonesians considered Australia 'a good place to study' (89%) or 'a good place to visit' (83%), 55% agreed with the statement that Australia is 'a country suspicious of Indonesia' (Hanson 2012).

A similar poll conducted with respondents in China in 2009 produced similar statistics. While 84% considered Australia 'a good place to visit' and 78% 'a good place to study', a less large majority (64%) considered Australia 'a reliable supplier of natural resources', consonant with Australia's China-driven mining boom in the 2000s. However, 48% of Chinese respondents thought that Australia is 'a country suspicious of China' (Hanson & Shearer 2009). Interestingly,

those who had travelled outside China were more likely to agree with this statement than those who had not: 63% compared with 46%.

Public opinion poll data such as these are hard to interpret without more rounded contextualised understanding, but these figures suggest that in these two Asian countries there is a significant sense of disconnect with Australia together with a more superficial, instrumental appreciation (for educational advancement, tourism or business). Chey refers to an informal poll conducted in China, which found that impressions of Australia, while generally positive, were extremely sketchy and focused on koalas and kangaroos (Chey 2010, p.18). As Isar observes, based on his more qualitative study, 'apart from some exceptions, relations [between Australia and Asian countries] are comparatively thin, often instrumental and informed by a whole range of casual stereotypes that have been expressed by so many informants, mainly on the Asian side' (Isar 2014, p.43).

Secretary of the Department of Foreign Affairs and Trade, Peter Varghese, has made the blunt observation that within the region, Australia is suffering from a soft power deficit (Varghese 2013). He blames this deficit on the persistence of outdated perceptions of Australia across the region, in particular, in relation to race relations. Drawing on his personal experience with the

Table 4.1: Australians' feelings towards other countries

Country	2006	2007	2008	2009	2010	2011	2012	2013	2014
Great Britain	74	75	77			79		77	
New Zealand		81		83	84	85	85		84
Canada				80	82				81
United States	62	60	64	67	68	70	71	70	71
Germany				68				70	
France				69		70			71
Singapore	65	64	65		69			67	
China	61	56	56	53	54	53	59	54	60
Japan	64	63	64	66	64	67	70	65	67
India	62	55	57	56	55	56	58	55	57
South Korea	56		50	53		57	61		59
Indonesia	50	47	50	49	54	51	54	53	52
Thailand				59		63			
Vietnam		60			61			61	
Malaysia	58	58			60		60	58	
Papua New Guinea	63	57	60		62		64	60	59
Fiji			67		68	70	71	70	71

Note: Scale of 0 to 100; empty cells = no data for this year.
Source: The Lowy Institute Poll 2006–2014 (The Lowy Institute n.d.).

crisis surrounding the attack on Indian students in Melbourne in 2009, when he was the Australian High Commissioner in India, he recognises that the image of the White Australia Policy—and that Australia is a racist country—is still pervasive in India. A Lowy Institute poll among Indians conducted in 2012 confirms this: 61% of those surveyed agreed with the statement that the crimes against Indian students in Australia were caused by racism (Medcalf 2013). Moreover, a significant minority of Indians (38%) still believed that race is an important factor in Australian government decisions on selecting migrants, even though this has not been Australian official policy since the early 1970s. As Varghese (2013) puts it: 'forty years on, we still have to explain that Australia is a multicultural, multiracial society'. This suggests that Australian image projection efforts have not been very effective.

Isar (2014) has also found that the idea of Australia as a 'white nation' is a common perception in the region. For example, Korean informants report that Koreans in general have little knowledge or interest in Australians as a distinctive people. This probably goes both ways. There has been little historical connection, and Australia is a very distant culture from a Korean point of view.

The problem of mutual ignorance and restrictive stereotypes supports the urgency of working towards changing fundamental cultural perceptions. The DFAT survey on Australian attitudes to Indonesia indicates that there is an overall correlation between poor knowledge and negative perceptions, in other words: 'the more people know the more likely they are to be positive about Indonesia' (Newspoll 2013). Similarly, Varghese (2013) argues that Australia must overcome its soft power deficit by updating 'perceptions of our country in the region, and the way Australians see our place in the world'.

Cultural diplomacy, and public diplomacy more generally, is an important tool to influence international attitudes and perceptions. However, it cannot be a quick fix because, as Varghese recognises, 'the work of public diplomacy is inevitably slow and incremental'. Moreover, it is important to be cognisant of the rapidly developing cultural diplomacy landscape in the region.

4.3 Cultural diplomacy and soft power in the Asian region

While cultural diplomacy programs and activities in Western nations have generally been contracting (Holden 2013), interest in extending international influence through cultural means has been growing rapidly in Asia since the late 1990s. Hall and Smith observe that there are two arms races happening in Asia today: one for military capabilities and another for the weapons of soft power (Hall & Smith 2013).

4.3.1 China

China has a rapidly expanding cultural diplomacy program, having made major investments in recent years in seeking to demonstrate its 'peaceful rise' (*heping jueqi*) through cultural means. China is reported to spend almost US$9 billion per year on public diplomacy and other soft power initiatives (Hall & Smith 2013, p.3). In the process China has paradoxically fuelled soft power competition in the Asia-Pacific. China has sought to supplement its economic growth by asserting its cultural standing on a global scale. In 2007, President Hu Jintao announced at the Communist Party Congress that culture—understood as the cultural/creative industries—was of strategic importance for the image of China and notably for its economic development; this prompted a shift in focus from cultural exchange to cultural trade (Isar 2014). China's cultural and creative industries (CCIs) accounted for 3.48% of China's GDP in 2012 and are growing rapidly, expected to reach 5% by 2016 (Tan 2013).

China's extensive public diplomacy program includes Confucius Institutes to promote Chinese language and culture, a 'Media Going Global' strategy, educational exchanges, and programs of cultural festivals and performances showcasing Chinese culture in cities around the world. The first Confucius Institute opened in Seoul in 2004. A recent report put the number of Confucius Institutes at 440 in some 115 countries globally (Zaharna 2014), well ahead of the Institut Français with 229 cultural offices (Holden 2013, p.24). Many of the Confucius Institutes are

collaboratively funded as joint ventures, often through partnerships between a local and a Chinese university.

'Media Going Global' is the government's overseas media policy. In 2009 it injected around US$6 billion into the policy, testifying to China's determination to shift public diplomacy activities to a 'higher gear' (d'Hooghe 2008; Hu & Ji 2012). Three state-owned media groups, Chinese Central Television, Xinhua News Agency and the People's Daily were funded to strengthen their global reach to address the perceived negative bias in Western media coverage about China and provide a Chinese perspective on world events (Zhang 2010).

At the central government level, the Ministries of Culture, Foreign Affairs, Education and Commerce deal with international cultural relations. Regional and local governments are also entitled to engage in cultural cooperation with foreign authorities and cultural institutions. They have taken an active role in setting up culture-orientated development strategies and developed their own policies for cultural cooperation with foreign countries. China´s priority countries for culture in external relations correspond to its foreign policy strategies (both political and economic). Its first priority is the US and its second is the European Union. Japan comes a somewhat distant third. China has also begun to show more interest in its other Asian neighbours, as well as countries on the African continent.

With a diaspora population of more than fifty million (with around thirty million in Southeast Asia) (Tan 2013), the Chinese government seeks to involve its diasporas in representing Chinese interests. The government seeks to connect with Chinese diaspora groups through various forms of commercial, cultural and political engagements. The Federation of Returned Chinese and the Overseas Chinese Affairs Office—both under the State Council—seek to connect with Chinese living in other countries. This diaspora engagement is largely instrumental, seeking to enlist overseas Chinese to represent China's national interests (Li 2012).

Wang lists a number of typical errors in the Chinese conception of China's international image, which limit its pursuit of soft power (Wang 2008). These include the following:

- China assumes that if the nation is strong and big enough, others will respect it. This flies in the face of the paradox that small countries such as Switzerland or the Nordic countries have excellent national images, while the United States is viewed negatively in many countries of the world.

- The Chinese assume that China should be respected for its long history and splendid civilisation, but forget that historical significance does not automatically translate into contemporary influence.

- China has focused on international economic expansion while neglecting the cultivation of civil society abroad through cultural exchange.

Wesley has observed that 'China seems unsure about how to wield its gravitational power for positive ends. It often leads to considerable frustration that, amidst all of the attention and acknowledgement, China is treated suspiciously and often denied what it asks for' (Wesley 2011, p.191).

There are signs that, under President Xi Jinping, China will play a more proactive role in shaping its international environment by building regional institutions and consolidating friendly relations with neighbouring countries, establishing what Xi calls 'big country diplomacy with Chinese characteristics' (Shi & Tweed 2014).

4.3.2 India

India has a long established tradition of cultural relations activity. In 1950, shortly after independence, the Indian Council for Cultural Relations (ICCR) was set up by Prime Minister Jawaharlal Nehru. Its stated mission is to:

'actively participate in the formulation and implementation of policies and programmes pertaining to India's external cultural relations; to foster and strengthen cultural relations and mutual understanding between India and other

countries; to promote cultural exchanges with other countries and people; and to develop relations with national and international organizations in the field of culture'. (Indian Council for Cultural Relations n.d.)

Indian cultural relations from its beginnings attached importance to principles of pluralism and cultural diversity. International cultural relations have been pursued largely as an end in itself, rather than being guided by instrumental considerations, which are seen as secondary. The terms mainly used in the country are 'international cultural relations' and 'cultural exchange'; in recent years, however, the notions of 'public diplomacy' and 'cultural diplomacy' have begun to be deployed as well. The language of 'soft power' is now used by the Indian government, largely in reaction to China and other Asian powers raising the stakes in cultural and public diplomacy activities. The Ministry of External Affairs (MEA) initiated a Public Diplomacy Division in 2006 (Hall 2012).

Although the Indian government formally gives priority to relations with neighbouring countries in South, Central and East Asia in the context of its 'Look East Policy', the legacies of history, as well as prevailing societal preferences, have lent prominence to cultural relations with Europe. The ICCR supports Indian Cultural Centres in foreign countries. There are 35 at present: some are placed in areas with substantial Indian diaspora populations to provide linguistic and cultural support (including Fiji, Jakarta and Bali); others are located in metropolitan centres such as London, Berlin and Moscow, and provide a more 'intellectual' focus to understanding India. A further fifteen centres are planned, 'in order to expand its reach and promote India's "soft power" abroad' (Indian Council for Cultural Relations n.d.). There are no plans to establish a Centre in Australia, perhaps reflecting a low strategic importance for India.

The Ministry of Overseas Indian Affairs (MOIA) is a dedicated agency reaching out to Indians in the diaspora. The Overseas Citizenship of India scheme offers people of Indian origin an entry visa card, while the "Know India Program" provides orientation programs in Indian universities (Hall 2012).

Indian cultural operators have benefited little from the country's rising affluence; economic growth has not resulted in increased funding for international artistic or educational exchanges. Nevertheless, Indian artists and cultural workers are confident that they can relate to the West with far less inequality of position than was the case previously. This also leads them to seek partnerships elsewhere, notably in the neighbouring countries of Asia. In other words, there is a growing South-South axis of cultural relations, bolstered by India's place in the world's emerging multi-polarity (Isar 2012).

4.3.3 Japan

Japan's cultural diplomacy has been shaped by its changing relationships to the rest of Asia, including its imperial expansion, its defeat in World War II and its attempts to make peace with Asian neighbours when many historical conflicts have not been resolved. Japan's economic success and even expansionism from the 1960s onwards also created new international challenges for Japan. Cultural diplomacy during this stage was focused primarily on Western countries and Southeast Asia, and the showcasing of Japan's unique traditional culture (Zen, theatre performances) was used as a 'lubricant' to create favourable conditions for Japanese companies overseas (Zykas 2013).

In the 21st century there has been a shift towards the use of culture as a more general generator of soft power, directed towards much wider audiences and aimed at increasing the country's attractiveness per se. Today the country's geographical priorities for cultural diplomacy are said to be: China, South Korea, the ASEAN states, US, Europe, India and South Asia, and Australasia. However, it is increasingly evident that particular attention is being given to the Asia-Pacific region.

Many agencies have responsibilities for international cultural relations. The Japan Foundation, founded in 1972 as part of the Ministry of Foreign Affairs (MOFA), was structurally reformed in 2004 and given an enhanced public diplomacy role to raise Japan's international image and soft power (Nakamura 2013). It has 22 offices in 21 countries (including

one in Sydney) promoting understanding of Japanese culture and values through four sectors: visual arts, performing arts, films and publications, and culture and society. In the 2013/2014 fiscal year the Japan Foundation's budget was JPY 15.1 billion (A$148 million) (Fisher 2014a).

The Agency for Cultural Affairs provides support for the Japanese cultural sector. It operates international programs through its Office of International Cultural Exchange, such as artist residencies, exhibitions and film festivals, and international cooperation in heritage conservation. However, cultural exchange is more focused on promoting opportunities for Japanese artists and companies than on reciprocity or collaboration (Isar 2014).

Much of the government's interest and financial resources have focused upon a major long-term branding initiative, 'Cool Japan', to express the country's soft power and to increase the international export of Japanese cultural goods. The Ministry of Economy, Trade and Industry (METI) has identified the creative and cultural industries as a strategic sector for stimulating economic growth. Cool Japan capitalises on the global popularity of Japanese pop culture, especially in East Asia, such as manga and anime, as well as food and fashion. For example, Japan appointed the anime character Doraemon as the nation's cultural ambassador and state-sponsored manga competitions are now held annually (Hall & Smith 2013).

Using popular culture as a cultural diplomacy tool is a clever strategy to address younger international audiences, 'nourishing them from childhood to become fans of Japan' (Zykas 2013, p.139). However, it is a mistake to expect that Japan's use of popular culture as a soft power resource will lead to unreserved support for Japan on other countries, as long as it does not address the unresolved tensions related to the historical legacy of Japan's aggressive conduct during World War II, especially in East Asia (Nakamura 2013).

4.3.4 South Korea

South Korea's economic emergence in the shadow of Japan and China has conditioned its desire to present a distinctive image to the outside world. While Korea began to take off industrially from the 1970s, its transition to civilian government took place only in the 1990s. Korea's cultural diplomacy effort was driven by the concern that the country did not have an international image to match its economic power. This has changed to some extent with the success of hallyu, the 'Korean wave' of popular culture forms, such as television, pop music, fashion, animation etc. Hallyu helped to create a broader market awareness of Korean products: whereas Samsung and LG products had once been mistaken for Japanese products, they are now recognised as distinctively Korean (Isar 2014).

South Korea's cultural diplomacy involves a plethora of government agencies whose work seems to have considerable overlap. The Ministry of Culture, Sport and Tourism (MCST), working with the Korean Cultural Information Service (KOCIS) supports Korean culture internationally operating 25 Korean Cultural Centres and over 90 Sejong Hakdang Institutes that offer Korean language instruction, mainly in the United States and Europe. MCST's budget for cultural exchange activities is considerable, some 273 billion Korean won (A$286 million).

The Ministry of Foreign Affairs undertakes public and cultural diplomacy initiatives, largely through the Korea Foundation that organises academic and cultural exchange programs. Its priorities are pursuing the greater recognition of South Korea through both traditional and contemporary culture. The Korea Foundation supports 27 Korean museums in ten countries, and has a Global Museum Internship program for Korean students and curators to gain experience internationally in important museums (mostly in the US). Annually, the Foundation organises a Korean Festival to introduce overseas audiences to Korean culture (in four Brazilian cities in 2012, and in 2013 in six ASEAN countries).

The Korea Arts Management Service is supported by the MCST, and provides assistance to Korean arts organisations and practitioners to become

more competitive and more organisationally effective. KAM's Connections program develops international partnerships with festivals, venues and collaborative opportunities (Fisher 2014b). The Korean Creative Content Agency (KOCCA) is an agency affiliated to MCST that provides support to cultural industries particularly in the development of digital and media content (Korean Creative Content Agency n.d.).

Korea's metropolitan and provincial cities are also involved in Korea's drive to activate international cultural links. The city of Gwangju is being promoted by MCST as a 'hub city of Asian Culture'. Seoul, in its quest to become a global city was designated the UNESCO City of Design in 2010. Incheon has been named the 2015 World Book capital by UNESCO, while Busan, location of a renowned International Film Festival, describes itself as a City of Film (Fisher 2014b, p.11).

South Korea is very open to international engagements, with Memoranda of Understanding on cultural cooperation with more than one hundred countries. Its focus, however, is mainly on the US and Western Europe. In common with China, South Korea has a delicate relationship with Japan because of the legacy of a painful colonial history. Yet, the considerable success in Japan of Korean TV dramas, film and pop music has helped bridge the gulf in understanding between the two countries, especially among younger generations.

4.3.5 Indonesia

Indonesian governments have long capitalised on the country's extraordinary cultural assets. For instance, the UNESCO-initiated International Campaign to Safeguard Borobudur in the 1970s was a lever for the Suharto government to gain access to potential donor countries (Isar 2014). A notable cultural diplomacy project was the huge "Festival of Indonesia" in 1991, consisting of hundreds of events in fifty US cities. The intention was to project the image of Indonesia as 'a highly civilized nation where the artistic spirit is constantly awake'. Such cultural diplomacy activities have much in common with tourism marketing, both of which routinely feature visual arts derived from the Indo-Javanese period and dance from Bali and other regional cultures (Picard 1996).

Until recently there has been little systematically practised and broad-based cultural and public diplomacy. The Ministry of Culture and Tourism develops policies relating to the culture and tourism sector. Its mission is concerned with "the conservation and development of Indonesia, promote tourism and to establish an ethic of transparency in the government and its policies" (Asia-Europe Foundation n.d.). Indonesia's recently developed public diplomacy program has focused on presenting Indonesian dance, music, and art in the Islamic world. In 2013, the Indonesian Ministry of Culture and Education partnered with the Islamic Republic of Iran to host the "Indonesia Cultural Festival: 1000 years of Indonesia-Iran cultural relations" (Levin 2014). The new president, Joko Widodo, has stressed a 'religious and cultural' approach to curtailing the influence of Islamist terrorism in Indonesia (Kuo 2014).

Indonesia is projected to be the eighth biggest economy in the world by 2030 and it is recognised that its image abroad and soft power have lagged behind this growing international clout. To address this Indonesia announced it would open ten Indonesian cultural centres (rumah budaya Indonesia), beginning with the Netherlands and Japan but also in the United States, Germany, France, Turkey, Timor Leste, Singapore, Myanmar and Australia (Davis 2014).

4.3.6 Singapore

Singapore has probably the most developed cultural policy in Asia. Cultural policy is closely integrated with economic planning, education policy and infrastructure development. In Singapore cultural policy is cultural diplomacy in a sense, because of Singapore's long-term orientation to global success. The mission of the Ministry of Information, Communication and the Arts is 'to develop Singapore as a global city for information, communication and the arts, so as to build a creative economy, gracious community and connected society with a Singaporean identity rooted in our multicultural heritage' (Isar 2014). A 2012 review of its policies expresses Singapore's need to 'capitalise on Asia's growing presence in the global economy and consciousness' and to position Singapore strategically as both 'the crossroads within Asia'

and 'the crossroads between Asia and the rest of the world.'

A raft of policies was developed from 1985 to support innovation generally and the creative industries in particular. These focused on:

1. *policies for knowledge and skills development*: reshaping educational programs to stimulate 'horizontal skills such as creativity, initiative and self-confidence, and the creation of many specific formal programs in arts, design and media'

2. *policies for the creation of infrastructure and institutions*: centres and institutions focused on arts, arts market development, heritage, design, media and intellectual property

3. *policies to engage stakeholders and promote a creative culture*: creation of platforms and opportunities to enter networks and collaborations, and support for cultural diffusion of ideas. (Gwee 2009)

Promoting its cultural assets is the chief emphasis of Singapore's cultural diplomacy (Wong 2014). Other policy 'visions' for Singapore project its desired place in the world. For instance the Renaissance City agenda, first launched in 1989, has sought to plot pathways for Singapore's cultural development linked to a vision of Singapore as a key point in a network of global cities. While Renaissance City 2.0 (2002) envisaged Singapore as 'a key city in the Asian renaissance' (Yue 2006), Renaissance City 3 (2008) charts 'a new chapter of growth in Singapore's cultural development' and looks forward to its becoming a 'Distinctive Global City of Culture and the Arts' by 2015. This report situates Singapore's Cultural and Entertainment District within a network of cultural hubs such as Beijing's 798 Art District, Broadway in New York, Cultural City Seoul and Hong Kong's West Kowloon Cultural Precinct (Ministry of Information, Communication and the Arts 2008).

Many international programs in the cultural sector seek to bring creative people to Singapore, which is in line with its objective to be a 'magnet for talent.' Local artists are also able to travel overseas through generous grants programs. Since 2005, Singapore Season has showcased Singapore art, music, fashion, food and lifestyle in cities such as London, Shanghai and Washington. Singapore Day is an opportunity for Singaporeans living overseas to reconnect culturally: these events have been held in New York, Melbourne, London and Shanghai.

4.3.7 Vietnam

The Vietnamese government has a distinctive conception of culture that underpins its cultural diplomacy approach. This includes culture as the 'spiritual foundation of society' serving 'the objective and momentum of socio-economic development'. The nation's culture is an ongoing project that is 'deeply imbued with national identity', and is 'the entire people's cause, under the leadership of the Party, in which the intelligentsia plays an important role' (Asia-Europe Foundation n.d.).

Formal cultural diplomacy is a relatively new undertaking, first raised at the eleventh National Party Congress after which a cultural diplomacy strategy to 2020 was approved (Government of the Socialist Republic of Viet Nam 2011). The international focus is on strengthening relationships with neighbouring countries, including ASEAN members, and the Asia-Pacific more generally. Cultural diplomacy is linked to soft power outcomes. Importantly, it is seen as a means to assist Vietnam's gradual emergence into the international environment: "Cultural Diplomacy has helped Vietnam to develop in a sustainable manner during the process of international integration."

Cultural diplomacy programs are coordinated through the Ministry of Foreign Affairs. Agencies involved in implementation include the Ministries of Culture, Sports and Tourism, Education and Training, and Information and Communications. Some of the objectives of international cooperation are:

• To introduce Vietnamese culture, country and people to the world.

• To exchange and disseminate products of art and literature.

- To cooperate with other countries.

- 'To create favourable conditions for the Vietnamese populace based overseas to receive cultural information and products from Vietnam; to raise their patriotism, to encourage them to follow Vietnamese tradition and identities, and to promote their talent in order to contribute to nation-building efforts'. (Bui 2013)

There is little information on the implementation of diaspora diplomacy elements. The cultural diplomacy strategy mentions the trialling of Vietnamese language learning programs in Laos, Cambodia, Russia, the Czech Republic, the US and Canada, and assigns a role for the Ministry of Information and Communications in "planning the network of overseas Vietnamese news and press agencies" (Government of the Socialist Republic of Viet Nam 2011).

4.3.8 Summary: regional struggles for soft power

There has been a rapid increase in cultural and public diplomacy activity across the Asian region in the past decade, with all countries surveyed increasing investment in international cultural strategies to improve their national image and standing. The notion of 'soft power' has recently become influential across the region. Nations such as China and South Korea are investing heavily to increase global cultural recognition and hoping to convert it into strategic influence in other areas. This has fuelled competition between nations to expand their public diplomacy programs to enhance their soft power. Such policies often mask particular historical rivalries (Hall & Smith 2013).

The other key policy impulse is creative industry promotion to boost economic growth by securing access to the growing cultural markets in the region. Cultural diplomacy is thus pursued to serve the objectives of both economic policy (cultural trade) and foreign policy (soft power).

Overall, an emphasis on outward cultural projection and cultural export predominates in all these countries, with much less attention being given to reciprocal cultural exchange. This paradoxically can limit the soft power effects of cultural and public diplomacy.

For example, several poll data suggest that international public opinion of China has not significantly improved despite its massive investment in cultural and public diplomacy (Hall & Smith 2013). A poll taken in Asia after the Beijing Olympics in 2008, presumably a soft-power triumph, found that China's charm offensive had been ineffective. Opinions of China's influence have remained predominantly negative not only in the United States and Europe, but also in India, Japan and South Korea (Nye 2012). Nye (2012) argues that China is weak on soft power because the style of its public diplomacy relies on the high-profile grand gesture and does not allow the active participation of civil society.

Similarly, while the Korean government has strongly relied on the popularity of Korean Wave popular culture to increase its international cultural standing, anti-Korean Wave movements have sprung up in Japan, Taiwan, China, Singapore and other Asian countries, criticising the cultural invasion of Korean pop culture as a new form of cultural imperialism (Nye & Kim 2013). As noted, Japan's 'history problem' is also a persistent barrier for its soft power efforts.

Hall and Smith (2013) argue that the intensifying struggle for soft power in Asia is not only ineffectual, but may lead to the deepening of distrust and the hardening of international hostilities in the region. Rather than alleviating national differences, it may accentuate them and even intensify the competition for hard power.

This is a cautionary note, which poses important challenges to the cultural and public diplomacy strategies deployed in these countries, and their impact on regional prosperity and security. One conclusion is that the race for soft power, when conceived exclusively or predominantly as a competition for national cultural ascendancy, is not particularly helpful in improving the cultural relations between countries.

Smart engagement requires more reciprocal approaches to cultural diplomacy to counterbalance the overwhelmingly nationalistic objectives of most soft power schemes in the

region. As Joseph Nye argues, 'cooperative public diplomacy can … help take the edge off suspicions of narrow national motives' (Nye 2008, p.107).

4.4 Australian cultural diplomacy

Cultural diplomacy has played a significant role in opening up and normalising Australian relations with Asian nations over the past forty years. In 2014/2015 DFAT's budget for public/cultural diplomacy is a modest $4,925,700.

In 2007, a Senate Inquiry on Public Diplomacy noted that Australia is in intense competition with other countries also seeking to be heard, and that Australia's public diplomacy efforts risk being overshadowed in the highly contested international space without improvements in its activities in this field (Senate Standing Committee on Foreign Affairs, Defence and Trade 2007). The Senate Committee made twenty recommendations to improve the profile and effectiveness of Australia's public diplomacy, but these have, on the whole, not been followed up by government action or adequate resource allocation (Byrne 2009). A more recent Lowy Institute report has commented that 'government commitment to Australia's public diplomacy remains virtually non-existent' (Oliver & Shearer 2011).

The Senate Committee noted that Australia's public diplomacy is spread across a large canvas with many contributors, including various government departments and agencies, cultural and educational institutions, and many private organisations. This dispersal has led to the criticism that Australia's public diplomacy effort lacks conceptual focus, is poorly integrated with the mainstream policy process, and suffers from poor coordination, often taking the form of a disconnected series of activities (cultural events, trade expos, etc.) (Blue Ribbon Panel 2009).

The Federal Government has propelled the integration of DFAT with AusAID and the restructuring of the Public Diplomacy and Communications Division. It has also pressed a shift to a more integrated public diplomacy approach focused around economic diplomacy, accompanied by an effort to leverage cultural, educational and development programs, bringing them more in line with national strategic objectives.

However, DFAT still performs Australia's core cultural diplomacy function. Until 2014, it hosted the Australia International Cultural Council (AICC) and nine bilateral Foundations, Councils and Institutes (FCIs). A close look at the activities supported by these bodies is provided in Section 4.4.1, to develop a more fine-grained analysis of the cultural diplomacy approaches adopted in these activities.

Many other government agencies also undertake activities related to Australia's engagement with Asia, which can be described as part of Australia cultural diplomacy. Section 4.4.2 provides an overview of the cultural diplomacy strategies pursued by a number of these agencies. This will highlight how organisations operating in different sectors develop quite distinct approaches to regional engagement, based on industry-specific imperatives and objectives. This diversity of approaches and objectives poses a challenge for developing a more integrated public diplomacy strategy.

4.4.1 The Australia International Cultural Council (AICC) and bilateral Foundations, Councils and Institutes (FCIs)

The AICC was established as Australia's key cultural diplomacy body in 1998. Its cultural diplomacy role was defined in a projectionist way: it is 'to engage overseas audiences through the delivery of high-quality and innovative arts and cultural promotions to increase their understanding of Australia's contemporary identity, values, interests and policies'. Until its abolition in late 2014, the AICC oversaw a number of cultural diplomacy programs including the Country Focus program, aimed at strengthening ties in target countries, and the AICC Grants program that supports arts or cultural activities promoting Australia in DFAT priority regions (Department of Foreign Affairs and Trade n.d.). These programs will now be delivered internally by the DFAT Public Diplomacy branch.

Box 4.1: Aboriginal and Torres Strait Islander cultural diplomacy

The Department of Foreign Affairs and Trade (DFAT) has a long-established Aboriginal and Torres Strait Islander Program (ATSIP) whose principal aim is to showcase Aboriginal and Torres Strait Islander culture to international audiences and, in the process, enhance the understanding of Indigenous cultures (Department of Foreign Affairs and Trade n.d.). With a modest budget (under $200,000 per annum) ATSIP organises exhibitions and performance tours. As a DFAT informant expressed it: "Indigenous people and culture are important to Australian Identity, and therefore it is crucial for public diplomacy to create positive understandings of Indigenous culture."

Aboriginal and Torres Strait Islander (ATSI) artists have provided a significant contribution to the content of Australian cultural diplomacy programs, particularly in showcasing contexts such as country focus programs. The OzFest India program (2012–2013) included Aboriginal musicians Gurrumul Yunupingu and Mark Atkins, and the Saltbush Children's Theatre (Oz Fest n.d.). Visual arts content included four exhibitions involving ATSI artists. A tour by the Australian Indigenous Cricket Team was an exercise in sports diplomacy guaranteed to attract attention in cricket-obsessed India. Besides playing matches at Mumbai and Pune, the team took part in cricket clinics as part of the Australian Sports Outreach Program, and in cultural engagements raising awareness of Indigenous history and culture.

In Asia, there is strong fascination with Australian Indigenous art and culture. This interest is particularly well-developed in Japan: a major retrospective exhibition of the work of Emily Kame Kngwarreye took place at the National Art Museum in Osaka in 2008 (McDonald 2008), attracting a record number of visitors for an Australian exhibition in Japan.

Nevertheless, there are tensions in utilising ATSI artists to fulfil Australian public diplomacy objectives when difficult issues of Indigenous disadvantage are well known. Simply 'leveraging' the international success of ATSI artists may risk being tokenistic, or expose contradictions between this success and the difficult social and economic circumstances that confront Aboriginal and Torres Strait Islander people. ATSIP appears to be aware of the required balance. As a DFAT spokesperson said, 'We don't hide problems, but we emphasise positive achievements.'

ATSI culture is often presented in isolation from the intercultural contexts that are vital to it. Australian cultural diplomacy would benefit from moving beyond 'stand-alone' showcasing to cultural forms in which Indigenous elements co-exist or fuse with other traditions (Isar 2014). This is an appropriate strategy given DFAT's strategic focus on presenting Australia as a pluralistic, multicultural and democratic country with strong interests in 'deep integration' with the Asia-Pacific region. There are good precedents for intercultural collaborations with Indigenous Australians that have attracted interest in Asia. Ozfest India included a presentation on cultural heritage conservation discussing Ngurra Kuju Walyja – Canning Stock Route Project, which documented the artefacts and cultural meanings of the iconic stock route from both Indigenous and non-Indigenous perspectives. *Trepang: China and the Story of Macassan–Aboriginal Trade* was an exhibition exploring cultural and trade links between Aboriginal Australia, Macassans and China (Imagine Australia n.d.). It attracted 330,000 visitors when shown in Beijing in 2010–2011, and some 77,000 visitors at its Melbourne showing.

The Country Focus programs aim to 'strengthen and deepen ties with the countries through integrated arts and cultural events and activities' (Department of Foreign Affairs and Trade n.d.). The first AICC Country Focus program was in 2001, focusing on the United States. Programs tend to be largely 'showcasing' exhibitions and performances in visual and performance arts. However, there can be considerable diversity. For instance the Oz India program in 2012, in the wake of the student crisis, included business, science and education and public affairs engagements such as the Australia-India Roundtable, along with a diverse arts and sports program (Department of Foreign Affairs and Trade 2012). Recent country focus programs

were organised in Vietnam (2013) and Indonesia (2014), with Turkey and Brazil being planned as the focus countries in 2015 and 2016. Apart from the AICC, DFAT hosts a group of cultural diplomacy institutions that predate it. The 'bilateral foundation model' was developed over time to build cultural and people- to people relations with (mainly) Asian countries at a time when few formal links existed. The first of these bodies was the Australia-Japan Foundation in 1976. DFAT now hosts nine Foundations, Councils and Institutes (FCIs), seven of which are focused on Asian countries (China, India, Indonesia, Japan, South Korea, Malaysia and Thailand). In December 2014 the Malaysia and Thailand FCIs were merged to form an Australia-ASEAN Institute. Each FCI

manages country-specific projects selected from applicants who may be arts organisations, educational, business or science bodies, or individuals. These projects are funded through the International Relations Grants Program (IRGP), DFAT's main public diplomacy grants program. The IRGP provides grants "to foster people-to-people and institutional links—bilaterally and regionally—in support of the Government's foreign and trade policy goals and to project a positive contemporary image of Australia" (Department of Foreign Affairs and Trade n.d.).

With the subsequent opening up of Asian markets and political channels, a plethora of non-state institutions—cultural, educational, business, sporting and other civil society bodies—manage their own links with Asian countries, largely independently of diplomatic channels. The FCIs have become less central in DFAT's public diplomacy, although they continue to foster many projects that promote people-to-people links. Some bilateral programs have generated wider impacts, such as the BRIDGE school

exchange program initiated by the Australia Indonesia Institute, which has been extended to China, Korea and Thailand (Australia-Indonesia Institute, DFAT n.d.).

The work of FCIs (including the AICC) could easily be dismissed as a labyrinth of fragmented programs with differing emphases, and impossible to evaluate. Critics have also pointed to the downward trend in funding which has negatively affected programs (Carroll & Gantner 2012). To develop a better understanding of their contribution, data on Asia-focused bilateral grants administered through the AICC and FCIs were examined to determine the broad types of programs funded, the fields of professional activity and exchange supported, and the style of engagement involved.

AICC and FCI grants

Grant programs of the FCIs and AICC funded 1371 projects over a five-year period (2009–2010 to 2013–2014). Based on available project information these are presented in ten activity categories (Mar 2014).

Figure 4.1: Asia-focused FCI grants by activity category, percentages
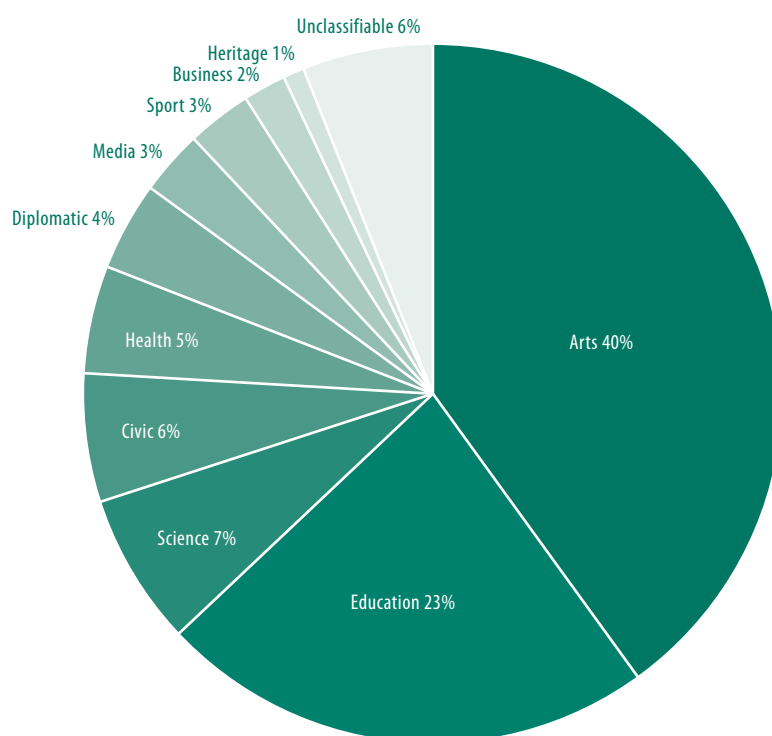
Note: These categories were constructed based on information on the DFAT grants spreadsheet and other on-line descriptions of projects. Science includes all engagements involving research activity. Business includes only projects that clearly involved business diplomacy and international promotions. Education includes international exchanges between educational institutions such as schools and universities, but excludes research collaborations.

Source: Mar 2014.

Arts was the largest category of AICC and FCI grants, with 40% of grants. Education (23%) grants included scholarship assistance for individual students to study at schools or universities, support for Australian Studies departments, Asian language programs, school exchanges, and cultural programs in schools and universities both in Australia and in Asian countries. Science and other research activity accounted for 7% of grants, although the relatively small grants could only support small components of a research program. Business diplomacy (2%) was not a substantial category.

Other categories point to the breadth of cultural diplomacy activities outside of the arts, science and education. Civic activities (6% of the total) encompass people-to-people exchanges such as youth engagements and inter-faith dialogues. Health and safety programs (5%) include lifesaving and swimming programs. Diplomacy (4%) includes activities directly connected to various diplomatic exchanges between Australia and other nations, or multilateral bodies. The Media category (3%) includes internships and exchanges for journalists, as well as media and journalism conferences and inter-country broadcasting initiatives. Sports programs (3%) were mostly small people-to-people projects, linking groups through a disparate range of sports-based exchanges. Eighty-seven projects, around 6% of the total, were not categorised. The Heritage category (1%) includes projects linking Asian countries with Australian heritage expertise, in areas such as technical conservation,

heritage management and museum partnerships.

The budget for these Asia-focused programs was $25,339,264 for the five years. Table 4.2 shows the distribution of dollar value of Asia-focused programs for the AICC and bilateral FCIs.

Differences in the priorities of FCIs are evident. For instance, more than half the grants for civic programs were allocated through the Australia-Indonesia Institute. These grants supported substantial AII programs, the Australia-Indonesia Youth Exchange Program, and the Muslim Exchange Program. The Australia-China Council supported over half of the total amount spent on business diplomacy grants, and allocated the largest amount to educational programs. The ACC and the Australia Japan Foundation were the two FCIs spending a relatively large amount on science.

While arts programs were the largest category in dollar terms (39% of total funding), arts grants by the seven Asian-focused bilateral FCIs (excluding the AICC) amounted to just over $6 million. The average value of FCI arts grants was around $13,600, a small amount for international projects. AICC programs accounted for 41% of Asian-focused arts spending: used largely to bankroll country-focus programs where concentrated funding is required to deliver large-scale showcasing of Australian culture (e.g. the Bangarra Dance Theatre in Vietnam and the Sydney Symphony Orchestra in China). Arts program grants made up virtually all of the AICC's grants in the five year period.

Table 4.2: Grant funding amount by agency by activity category (2009–2010 to 2013–2014)

Category	AICC $'000	Aust-Japan $'000	Aust-Malaysia $'000	Aust-Thailand $'000	Aust-China $'000	Aust-India $'000	Aust-Indonesia $'000	Aust-Korea $'000	Total $'000
Arts	4091	1421	393	377	992	969	825	1028	10,096
Business	0	158	0	79	408	18	0	56	719
Education	0	945	309	398	1024	568	725	873	4841
Civic	0	146	356	123	177	117	1540	331	2790
Diplomacy	0	353	56	31	167	332	31	117	1088
Health	0	207	183	104	246	280	28	42	1091
Heritage	22	16	24	0	52	54	15	0	184
Media	0	29	41	41	62	96	44	171	483
Sport	0	131	137	13	11	206	50	77	625
Science	0	445	203	98	459	285	46	277	1813
Unclassifiable	44	436	141	186	141	204	232	224	1609
Grand total	4157	4287	1845	1452	3741	3128	3536	3193	25,339

The Lowy Institute has criticised the fact that the AICC and FCI programs 'are skewed to cultural activities which may benefit Australian artists and performers but do not meet public diplomacy goals properly defined' (Oliver & Shearer 2011, p.17). However, it is important to recognise that arts projects can be very effective vehicles for fostering genuine people-to-people connections by virtue of their inherently non-instrumental nature.

Arts projects are a good means of assessing the evolution of styles of engagement in Australian cultural diplomacy. The AICC/FCI projects under investigation can be categorised in three types of arts diplomacy: cultural showcasing and presentation of Australian arts (broadcasting and information, touring and exhibitions etc.), exchange and dialogue, and open-ended collaborative projects grounded in intercultural engagement. Table 4.3 indicates the distribution of style of engagement of projects funded in 2009/2010 and 2013/2014.

These data suggest that in the five years there has been a shift away from showcasing towards projects involving greater intercultural dialogue and collaboration. The most common type of engagement was that of exchange and dialogue, rising from more than half (54%) to almost two-thirds (62%) of funded projects. Unilateral cultural projection (showcasing) declined from 33% to 8% of funded projects, while the percentage of collaborative projects rose from 8 to 27% in the five year period.

In short, the cultural diplomacy activities funded by AICC/FIC grants are increasingly embracing the principle of mutuality. This is a beneficial development, which shows that Australian cultural diplomacy practices are moving with the international trend toward a greater emphasis on cooperation and reciprocity.

Table 4.3: Typology of arts engagement

	2009–2010		2013–2014	
	n	%	N	%
Showcasing	28	33	7	8
Dialogue	45	54	52	62
Collaboration	7	8	23	27
Ungrouped	4	5	2	2
Total	84	100	84	100

Summary

The (former) AICC and bilateral foundations support a classical array of people-to-people cultural diplomacy projects in the areas of arts, education exchanges, and civic engagements, largely implemented by non-state, civil society organisations.

Australian activity has not kept up with the increased cultural diplomacy activity in Asian countries in the past decade. There are also geographical gaps in cultural diplomacy activity not covered by bilateral structures, for instance key strategic areas such as Pacific Island nations.

FCIs grant programs are small, fragmented and rarely able to support initiatives fully beyond a 'seeding' period. Programs can nevertheless achieve strong people to people outcomes in arts and education particularly. Areas of Australian cultural expertise and capability, for instance community arts techniques, health and safety, journalism and media exchanges, and heritage conservation expertise are important elements in FCI programs, and could be further consolidated and leveraged on a regional basis.

Moreover, it is important not to dismiss fragmentation simply as equal to lack of focus and effectiveness. Kiehl, an experienced US public diplomat, makes the case for a devolved approach to 'localised public diplomacy', arguing that centrally planned public diplomacy campaigns are much less effective than smaller projects which are sensitive to local context and build relationships in the field (Kiehl 2009). By themselves small projects do seem 'big enough' to make a difference: they do not all do the same thing and involve quite disparate actors and constituencies. But they can make a difference in a cumulative and iterative way. The heterogeneity and diversity of Australia's cultural diplomacy activities may in fact be one of its distinctive strengths, pointing to a vibrant and dynamic civil society. This does not mean that more cohesive interventions could not be triggered, e.g. by selecting leading themes of common interest (Isar 2014).

4.4.2 Promoting Australian culture abroad: government agencies

A wide range of other government-funded public agencies also contribute to Australia's cultural diplomacy effort. These agencies operate as conduits to advance Australian interests in the various sectors they are engaged in, often with a key focus on business and trade. However, the approaches adopted vary widely, from the unilateral promotion of Australia's brand image to the development of more collaborative approaches to cultural engagement.

Nation branding

The Building Brand Australia Program was a four-year government initiative that commenced in 2009 and was administered by the Australian Trade Commission, the agency responsible for promoting Australian trade, investment and education. Austrade contracted Taylor Nelson Sofres, (TNS), a leading multinational public relations company and global branding agency, to develop Brand Australia and its digital platform Australia Unlimited (Australia Unlimited n.d.). Extensive research was carried out in 2010 to measure ideas and stereotypes about Australia against that of other countries. Unsurprisingly, the research found that Australia's strong reputation is primarily based on lifestyle and physical beauty attributes, while it scores much more weakly on innovation, culture, creativity, technology and science. The new brand has been

designed to enhance these aspects. The brand identity is supported by 'images of individuals, set in a workplace environment, who convey a sense of achievement and confidence, and the photography uses a sense of light and space to convey Australia's positive and optimistic outlook' (Australian Trade Commission 2014b).

The research also showed that non-G8 countries (India, China, Korea, Indonesia and Brazil) consistently perceive Australia less favourably than G8 countries (Germany, Japan, UK, US). Nation branding increasingly provides a framework for a range of national promotional activities. Future Unlimited is the brand developed under Australia Unlimited for Australian educational institutions marketing internationally. Nation branding is a projective soft power strategy, and while it must be included in a consideration of public diplomacy strategies it is clearly limited in its potential for deeper people-to-people engagement.

Tourism promotion

Tourism Australia is the federal tourism organisation, charged with promoting the Australian tourism industry, and increasing international and domestic tourism. The sector's central policy, Tourism 2020, aims to maximise visitor expenditure to Australia from $70 billion to $140 billion by 2020. The first of six key objectives of the Tourism 2020 policy, endorsed by the present government, is to "grow visitor demand from Asia, particularly China and India" (Tourism Australia 2014b). Tourism Australia is now a key 'portfolio agency' of the government's economic diplomacy, along with Austrade and the Australian Centre for International Agricultural Research (ACIAR). As part of the economic diplomacy agenda, DFAT promotes bilateral tourism relationships as well as participating in multilateral tourism forums, such as those associated with APEC and the OECD (Australian Trade Commission 2014c). Tourism has been given an explicit role in the Public Diplomacy Strategy 2014–2016: a stated priority in 2014 and 2015 is to 'Deliver public diplomacy programs that promote Australia as an education, tourism and investment destination' (Department of Foreign Affairs and Trade 2014). Tourism does

create the potential for people-to-people and intercultural exchange but, in general, government tourism programs are 'export' marketing strategies, inherently one-directional and focused almost solely on attracting inbound tourism dollars to Australia.

Creative industry promotion

As in its Asian counterparts, government support for Australian creative industries is generally aimed at promoting Australian cultural products and services internationally. For example, Austrade has produced a Cultural Precincts Industry Capability Report (Australian Trade Commission 2014d) which addresses the capacities of Australian creative industries to exploit the opportunities presented by significant cultural hub developments in Hong Kong, South Korea and China. The report analyses Australian industry capabilities at many points of the supply chain. The following industry strengths of specific Australian companies are assessed: 1) Infrastructure, Sustainable Design and Engineering; 2) Programming, Curation and Research; 3) Venue, Facilities and Production Management; 4) Audience Engagement, Education and Public Relations; and 5) Technology and Communications. Austrade's approach of analysing whole industry processes in order to support international opportunities explicitly focuses on expertise, capability and proven achievements. This mode of cultural diplomacy is primarily instrumental: it aims to assist Australian firms to access international markets.

International broadcasting

The Australia Network was the ABC's international television service, broadcasting to some 45 countries in the Asia Pacific and India. The Australia Network aimed to provide a television and digital service to inform its audience with a uniquely Australian perspective. In the 2014 Federal budget the ABC's contract with DFAT to run the Australia Network was terminated one year into its ten-year term (Australian Broadcasting Corporation 2014). Differences in perceptions of the role of international broadcasting have been at the root of a conflict between the Federal

Government and the ABC. The question is: 'can an international broadcasting operation be funded by the Australian government but not necessarily support its aims?' (Tapsell 2014). The Lowy Institute's assessment of Australia's international broadcasting argues that a broadcaster's perceived independence provides 'the linchpin of its credibility, crucial to its functioning as a cultural diplomacy tool' (O'Keeffe & Oliver 2010, p.15).

Questions can be asked about the efficacy of international broadcasting as a cultural diplomacy tool in a crowded global media landscape and the era of social media. Nevertheless, critics have argued that the axing of the Australia Network will have serious effects on Radio Australia services because its resources were tied to those of the Australia Network (Callick & Bodey 2014). The Lowy Institute criticised the erosion of Radio Australia services, particularly because of its impact in the Pacific where it says Radio Australia has the greatest reach of any Australian activity. This is because radio is important, and there is a lack of news services in the region. Radio Australia provides the only source of news in many parts of the Pacific, 'not only international news, but of events in their own country' (Hayward-Jones 2014).

According to ABC Managing Director Mark Scott, the ABC still has obligations under its International Charter to produce programs that "encourage awareness of Australia and an international understanding of Australian attitudes on world affairs" (Bodey 2014). From October 2014, the Australia Network was replaced by the much more poorly resourced Australia Plus, a multi-platform online and mobile service covering screen blocks of ABC entertainment, news, sport, education and English learning (Australia Plus n.d.).

Screen co-production

Screen Australia is the national support agency for the Australian screen production sector. Engagement with screen industries in Asia is supported through Screen Australia programs such as Enterprise Asia, which promotes film business links by supporting delegations to key film markets (Screen Australia 2014), and a travel grant program that supports producers to attend festivals and film markets.

In 2013 Screen Australia released a report, Common Ground, mapping opportunities for Australian screen partnerships in Asia (Screen Australia 2013). The report found that China, South Korea, Malaysia and Singapore offer significant opportunity to Australian screen businesses, with other Asian countries holding great potential for the future. The Australian International Co-Production Program facilitates cultural exchange between filmmakers and strengthens diplomatic ties between Australia and other countries to encourage the co-production of films. Australia holds film production treaties with Singapore and China since 2008, with negotiations with other Asian countries under way.

An overwhelming theme emerging from the Common Ground report, however, was the

Box 4.3: The Asian Animation Summit

The Asian Animation Summit (AAS), an initiative of the Australian Broadcasting Corporation and Screen Australia, provides an example of the complicated market and government engagements required in a globalised cultural industry. The AAS is an annual market event that showcases top quality animation projects seeking investors and partners to stimulate opportunities for co-production and financing within the region. As observed by Kim Dalton (who formerly served as director of ABC Television and CEO of the Australian Film Commission, as well as a Board member of the Australia Korea Foundation), developing the AAS was a lengthy process of establishing networks and partnerships with industry and government bodies: 'the process is organic, requiring flexibility and responsiveness, and ongoing resources'.

The AAS resulted from a partnership with KOCCA (Korea), SIPA, DITP (Thailand) and MDA (Singapore), who all support producers to present their work at the event. In 2014, the ABC withdrew its funding for AAS and Screen Australia reduced its support, surprising Asian associates. While the Asian Animation Summit can be considered a successful Australian initiative, it raises questions about the continuity of strategic commitments for international cultural relations ventures.

importance of genuine collaboration. Successful collaborations with Asian partners require significant investment from both sides, both in time and money, to formalise co-production arrangements and develop effective ways of working together. Fostering and maintaining mutually beneficial relationships is also crucial. Co-creating stories for both markets from the early development stages or concentrating on content that is universal (such as science, technology or shared history) is key to success in Asian markets. Government's cultural diplomacy role here is in facilitating an environment of trust and fostering relationships.

Arts development

The Australia Council for the Arts is the Federal Government's arts funding and advisory body. The Council's Market Development section operates to 'take artists and their work to national and international markets; seed collaborations and relationships to drive national and international activity; and support artists and arts organisations to deliver on their market development goals' (Australia Council for the Arts 2014a). 'Market development' is distinguished from marketing: it is more focused on supporting the capabilities of artists and arts organisations to negotiate the increasingly global terrain of art's field of activity. This is a developmental approach to support the creative community to extend its professional capabilities to operate in an international context, including in Asia.

Market Development has an annual budget of some $13 million, running some 55 grants programs and 38 initiatives supporting international mobility and exchange. One example is Going Global, a quick response fund to support international touring of contemporary performing arts aimed to extend the life and scope of Australian work and to extend international appreciation (Australia Council for the Arts 2014b).

Australia Council programs are moving towards programs with greater reciprocity and mutual outcomes: its Strategic Plan ambitiously flags artistic reciprocity as a principle that will accompany the participation of Australian art in a global network of arts partnerships (Australia Council for the Arts 2014c). An example is the Asia in Australia grants program which aims "to enable Australian audiences and artists to access exciting work from our region; to support creative exchanges with Asian partners; and to increase programming options of work from our region for Australian presenters" (Australia Council for the Arts 2014d). As a champion for Australian arts, both in Australia and internationally, the Australia Council tends to prioritise mutual artistic development against the strategic interests of government-driven cultural diplomacy. Professional artistic activity itself is seen as the site of intercultural engagement.

Sports diplomacy

DFAT has recently sought to bring together the elements of Australia's international sporting activity and promotion under the rubric of sports diplomacy. The stated purpose is 'to promote Australia's sporting assets and expertise as a basis for building understanding of our culture and values, and strengthening links with institutions and communities in the region' (Department of Foreign Affairs and Trade 2014). Since January 2014 DFAT has been working with key agencies, including the Office of Sport, the Australian Sports Commission (Ausport), the Australian Institute of Sport, Austrade's Sport industry promotion program, the Australian Sports Outreach (ASO) programs of DFAT Posts, and peak sporting bodies registered with Ausport to develop a whole-of-government sports diplomacy strategy.

An example of an existing sports diplomacy program is the Pacific Sports Partnerships, which has been developed by the Australian Sports Commission in partnership with DFAT. The program supports the strengthening of sports activities at the grassroots level through collaboration between Australian national sports organisations and their Pacific counterparts. The objectives for the program (2013–2017) are to increase regular participation by Pacific Islanders in sports, to improve health-related behaviours, and to increase inclusion of people with a disability (Australian Sports Commission 2014).

Austrade's work promoting sport internationally centres on business development and economic

opportunity and focuses largely on major sporting events. Austrade's industry capability report, *Australia – Creating World Class Sporting Events* promotes Australian sports services and event specialists 'across the range of sectors in the lifecycle of a major sporting event', from event bidding, design and construction to cultural support and ceremonies (Australian Trade Commission 2014e). An international sports business program, Match Australia, has been established by Austrade around Australia's hosting of the AFC Asian Cup and the ICC Cricket World Cup in 2015 to "promote trade, investment, education and tourism activity around both tournaments through high-level business activities" (Australian Trade Commission 2014f).

DFAT's intention is to align programs more sharply to strategic public diplomacy aims, most particularly to those of economic diplomacy.

Yet these examples show that there are major differences between development-oriented projects seeking to alleviate social, health and economic problems, and business networking efforts around major sporting events that build on the prestige of these occasions. These divergent elements may be difficult to unify in a coherent sports diplomacy framework.

Summary: from promotion to collaboration

The overarching rationale for cultural diplomacy strategies developed by the agencies discussed is promoting Australian business, industry or sectoral capabilities and opportunities. However, there are considerable contrasts in the approaches and rationales of various agencies. Australia Unlimited's nation branding approach is informed by large scale perceptual research on 'how others see us'. Branding strategies are

Box 4.4: Cultural diplomacy at the Australian Embassy in Beijing

While Australia's public diplomacy strategy broadly stipulates the international promotion of Australian culture, on the ground practices must engage interactively with the realities of a dense and highly competitive cultural landscape.

Consultation with the cultural team at the Australian Embassy in Beijing in 2014 suggests that implementation of cultural diplomacy in overseas posts can incorporate multi-directional approaches to cultural exchange. Embassy staff in Beijing generally held a dynamic view of culture as volatile and changeable and subject to global influences.

The emphasis has moved beyond simply showcasing cultural material, to 'adding value' to engagements that extend cultural networks. Staff members facilitating cultural partnerships consider the ongoing impact of programs in Australia as well as in China, although this multi-directional aspect of the work is generally not written into project descriptions. The local criteria for the support of programs are 1) relevance for young people, 2) the ability to extend and convey programs to 'the regions' beyond Beijing and Shanghai, and 3) the sustainability of projects to further extend networks.

In its cultural diplomacy role, the Australian Embassy acts more as monitor and facilitator for Australian cultural producers, rather than as a presenter and coordinator of cultural material and images. Embassy programs promoting industry links include the Australia-China Publishing Forum, linked to the annual Australian Writers Week (Australian Embassy, Beijing 2014a) and the Australia China Film Industry Forum (Australian Embassy, Beijing 2014b).

Embassy staff supports Australian capabilities to engage with Chinese markets and to sustain these engagements. Australian cultural producers face complicated learning situations, the need to develop realistic expectations, and planning for long-term engagements with a wide range of contacts. For example, the Embassy has been monitoring the design scene in China—fashion, architectural and industrial design—and focusing on Beijing Design Week and China Fashion Week as a means to forge connections between buyers, peak bodies and audiences. In September 2014 the Embassy organised an inaugural Australian Design Industry Delegation to Beijing Design Week.

For Australian designers, as small design players, the challenge is to access a market dominated by big high-end players. Australian fashion designers have found it hard to compete with high status labels such as Armani, but small designers may find niche opportunities such as pop-up stores within multi-brand retail outlets. The Embassy and the Australia China Council have assisted the Australia-China Fashion Alliance (ACFC), a body which both helps Australian designers to negotiate the Chinese market and creates openings for Chinese fashion in Australia through fashion shows (Department of Foreign Affairs and Trade 2013). This is an example of a collaborative and mutually beneficial engagement extending to both Australian and Chinese collaborators, and also to audiences and industry bodies in China and Australia.

projective rather than interactive or directed to mutual outcomes. On the other hand, social development approaches found in the Pacific Sports Partnerships seek to ground social and economic changes in community strategies centred on grassroots sports activities. In-between are organisational endeavours that aim to support diverse sections of the Australian cultural sector, including the creative industries and the arts sector, to gain access to Asian markets and audiences. In these cases, it is clear that business or professional development requires intense people-to-people engagement with partners in the region to enhance mutual learning, knowledge and trust. In this regard cultural diplomacy is less a matter of projecting an image abroad and more one of networking and collaboration.

4.5 Independent cultural-relations initiatives

Holden observes that we are on the brink of a new era for international cultural relations, where the old model of cultural display—traditionally the cornerstone of governments' cultural diplomacy strategies—is giving way to a more nuanced understanding of culture as an arena of exchange and mutual learning. He expects that the number of non-governmental players (from business and the third sector to community groups to individuals) will increase, multiplying the range of initiatives and rationales. In this regard the role of government is not to control the cultural relations initiated within civil society but 'to create the conditions for cultural exchange to flourish' (Holden 2013, p.34).

There is a plethora of Australian players in the cultural sector and the wider society, who are seeking to extend engagement with Asia independently from Australian Government-driven cultural diplomacy. They range from project-focused initiatives carried out by individuals or small cultural organisations to broader, more ambitious initiatives aimed at establishing regional cultural institutions. The active role played by Asian and Pacific diaspora communities in nurturing cultural links with their

homelands should also be highlighted. These activities tend to remain invisible from more mainstream Australian cultural relations schemes.

4.5.1 'On the ground and in the know'

There is scant data on grassroots initiatives on cultural engagement with Asia. One of the very few data sources is a survey commissioned by Asialink and Arts Victoria on the engagement of Victorian arts organisations with Asian countries over a five year period (2008–2012) (Alway, O'Brien & Somsuphangsri 2013). The survey found that some 79% of these organisations had engaged in either 'inbound' or 'outbound' activities with Asia in that period. Fifty-four percent of organisations surveyed claimed they had a 'specific Asia strategy'. The most common target countries for engagement were India, Indonesia, China, Japan, Singapore and South Korea. The reasons given for this engagement were: cultural exchange (86%), creative development (72%), cultural diplomacy (39%), business development (33%), research (23%) and commerce (12%), with the survey allowing for multiple responses (Alway, O'Brien & Somsuphangsri 2013, pp.28–29). There is a strong impulse to engage with other cultural and national traditions. The largest source of funding was 'own cash' (75%). Grant funding was sometimes received from Arts Victoria (47%), the Australia Council (36%) and DFAT (36%) (Alway, O'Brien & Somsuphangsri 2013, p.32). (Note: Because these funding sources apply broadly to a five-year period and do not delineate specific funding projects, it is impossible to gain an accurate picture of the funding mix.)

Key activities were: touring, residencies, professional development, and exhibitions. Key outcomes were: knowledge, skills and networks, organisational profile and reputation, and audience development. Smaller organisations and individual artists are more active in cultural exchange initiatives and more willing to take risks than larger organisations that had to balance commercial returns and cultural exchange. Here again, the survey stressed that successful engagement requires long-term commitment and substantial investment to develop

enduring relationships based on trust. There is a recognition that one-off, ad hoc projects do not necessarily lead to sustainable relationships. The majority of respondents expressed concern that restrictive funding models do not support meaningful and long-term engagement.

These data indicate that engagement with Asia is a very strong priority for these organisations, and that the Victorian art sector's engagement with Asia is maturing. More comprehensive national research is not available, but there is no reason to expect very different attitudes in other States. However, there are important barriers and challenges. While lack of funding availability was the most important challenge, 51% of respondents mentioned difficulties in cultural understanding as a key challenge, as well as a lack of relevant experience and relationships in Asia.

4.5.2 Building regional cultural networks and institutions

A very innovative contribution of Australian cultural practitioners has been their leadership role in the creation of new region-wide cultural professional networks and institutions, extending beyond the project-based cultural diplomacy promoted by DFAT. We mention five examples:

Association of Asia Pacific Performing Arts Centres (AAPPAC)

The Association of Asia Pacific Performing Arts Centres (AAPPAC) is a network of major arts centres that works together to develop and exchange artistic programmes, share information, skills and expertise, and foster closer cultural ties and understanding in the region. AAPPAC has around fifty member centres, incorporating most of the major performing arts centres in the region. In addition there are some thirty business members, who regularly engage with the centres: these vary from performance companies, artists' management agencies, universities and institutions interested in joint arrangements for training and internships.

Founded in 1996, AAPPAC was originally an Australian initiative. Key drivers of the project were Sue Natrass of the Victorian Arts Centre and Michael Lynch of the Sydney Opera House. AAPPAC began as a relatively small group with members mainly in Australia, Japan and Korea. The network has grown considerably, with most of the recent growth in Asia, reflecting the strong upsurge of performing arts venues and institutions in countries such as China, Korea, Singapore, Taiwan and India.

Box 4.5: Asialink Arts

Asialink has been a leading advocate for developing Australia's Asia literacy and capabilities since its foundation in 1990. Asialink Arts, Asialink's art division, has a long history of supporting engagement with Asian cultures. For more than twenty years, Asialink Arts Touring Exhibition Programs have presented Australian contemporary art in Asian venues, raising the profile of Australian visual arts and facilitating regional partnerships between artists, curators and institutions. In 2013–2014, over 363,300 visitors attended Asialink exhibitions and other events in thirteen Asian countries and Australia (Asialink Arts n.d.). The pioneering Asialink Arts Residency Program, established in 1989 within the Australia Council and managed by Asialink since 1990, has supported over 600 Australian artists to work in twenty Asian countries. Asialink Arts maintains a network of partners in many Asian countries to host high quality residencies.

In recent years Asialink Arts has advocated for greater reciprocity in Australia's cultural diplomacy with Asian countries, arguing that '(w)hat Asia wants are partnerships, collaboration and reciprocity rather than "presentations" of Australian culture in Asia' (Asialink Arts 2012, p.6). Strengthening its residency program by introducing greater mutuality, Asialink Arts has established a number of reciprocal residencies through its partnerships with host organisations in Taiwan, Singapore and Korea (Asialink Arts 2014a), as well as India, Indonesia and Japan (Asialink Arts 2014b, p.10). Asialink Arts Touring Exhibition Programs increasingly aim to 'provide opportunities for artistic exchange and engagement based on principles of partnership, collaboration, exchange and understanding' (Asialink Arts n.d.). The Bookwallah is an example of a two-way cultural exchange in the literary field. Asialink supported a roving writers' festival with two Australian writers and three Indian writers journeying 2000 miles across India by train, taking part in 28 public events as part of DFAT's 2012 Oz Fest in India. A Bookwallah Australian tour in 2013 involved two Indian and two Australian writers in a parallel journey, including public events in Melbourne, Sydney and Brisbane (Asialink Literature Touring Program n.d.).

AAPPAC's annual conference is the network's major event that brings members together, gathers international expertise, and generates or propels new projects. The hosting of the conference is subject to a bidding process: there is now some kudos to hosting the AAPPAC conference as an opportunity for the host city to showcase the city and its cultural resources (Department of Planning, Transport and Infrastructure, Adelaide n.d.).

A key element of AAPPAC's mission is 'fostering development and growth of technical, administrative and management skills and expertise' in the region (Association of Asia Pacific Performing Arts Centres n.d.). There are many centre-to-centre exchanges and placements throughout the year in which experience and expertise is shared. Capacity building can take place in many areas: technical production skills, programming, marketing, ticketing, sales, logistical infrastructure, fund-raising, festival-making and organisation and digital technology are some of the areas of knowledge and skill sharing (Interview with Douglas Gautier, Chair of AAPPAC Executive Council, 28 November 2014).

Asia Pacific Screen Academy (APSA)

APSA was established in 2008 to foster cinematic excellence and cultural diversity in the vast Asia-Pacific region (defined as stretching from the Cook Islands to Egypt on the east-west axis and from Russia to New Zealand on the north-south axis). It is an industry member network bringing together more than 600 scriptwriters, directors, producers, cinematographers and actors for peer to peer cultural exchange.

The APSA awards, an annual film competition modelled after the glamorous Academy Awards (Oscars), are distinguished by the intention to promote the films and filmmakers of the Asia Pacific to global audiences, while magnifying the vital role of film in promoting mutual understanding. APSA also provides film development assistance through the MPA APSA Film Fund, established in partnership with the Singapore-based Motion Picture Association. The critically acclaimed Iranian film A Separation benefited from support from this fund. It won

the APSA award for best feature film in 2011 and eventually won an Oscar for Best Foreign Film in 2012.

APSA is an initiative of the City of Brisbane and is run as a small organisation (six or seven staff). It has secured UNESCO, the International Federation of Film Producers Associations (FIAPF) and the European Film Academy, presenter of the annual European Film Awards, as partners. Because of its strong organisational model, APSA has become an important regional cultural infrastructure for the filmmaking community.

Media Art Asia Pacific (MAAP)

Also based in Brisbane, Media Art Asia Pacific was founded in 1998 as a not-for-profit cultural organisation to map emergent activity in media art in Australia, Asia and the Pacific. MAAP has now become a key 'art connector' in the Asia-Pacific (Media Art Asia Pacific 2012). It has cultivated an international reputation for annual and biannual media art festivals, having produced seven international media art festivals across Brisbane, Beijing and Singapore, encompassing collaboration and representation from 14 countries. MAAP explores media art through critical exhibition and research initiatives that engage the region's major and emerging media art practitioners and producers. In Light from Light (2010–2013), twelve artists created site-specific artworks for public libraries in China and Australia, built around a core collaboration between the State Library of Queensland and Shanghai Library (Media Art Asia Pacific 2012).

While MAAP revolves around the prolific curatorial activity of its founding director, Kim Machan, MAAP's real strength is in its collaborative networks and partnerships: MAAP's website lists some 500 collaborating artists, 100 curators and 150 partnering organisations (Media Art Asia Pacific n.d.). The key to building MAAP's networks and maintaining strong relationships are, according to Machan: developing long-term relationships; patience and a disposition to 'enjoy good relationships'; building network depth; developing strong core material (artists and strong concepts); maintaining communication and trust ('doing what you say you will');

cultural sensibility and building cultural literacy; openness and flexibility (Interview with Kim Machan, 14 August 2014).

MAAP is an example of an Australian arts organisation that practises cultural diplomacy by developing deep and enduring links with regional partners and collaborators, anchored in strong curatorial practices and high artistic standards.

Asia Pacific Writers and Translators (APWT)

Asia Pacific Writers and Translators (APWT) describes itself as "a not-for-profit networking organisation" whose mission is "to support and further the careers of writers in the Asia Pacific region" (Asia Pacific Writers and Translators n.d.). APWT had its origins in the Asia-Pacific Writing Partnership, an initiative established in 2005 by Jane Camens at Griffith University that intended to bring together universities and other cultural organisations to support creative writing in Asia and the Pacific. APWT evolved into a writers' network rather than a broker of institutional partnerships. APWT has taken shape as a 'peripatetic organisation', its main interface being its annual conference. Conferences have taken place in New Delhi (2008), Hong Kong (2010), Perth (2011), Bangkok (2012, 2013), and Singapore (2014). The conferences are very much centred on writers, who take the initiative in presenting new work, launching new books, discussing issues of concern to writers in the region, and mentoring emerging writers.

The APWT is run on a voluntary basis with limited financial resources. It has no stable funding base to cover paid positions or administration. Income is derived from membership registrations, the annual conference and associated events (e.g. workshops), and donations. Some financial support has been received from the Prince Claus Fund (Netherlands), the Australia-Thailand Institute, the Copyright Agency Cultural Fund and the Australia Council.

APWT claims to be the largest network of writers in Asia, connecting writers from some thirty Asia-Pacific countries. It exists for its members, lacking the output focus and industry emphasis of the other two organisations discussed. In this, it is

closer to people-to-people cultural diplomacy models that emphasise the importance of enduring personal and professional links across national boundaries.

Asia Pacific Triennial (APT)

Launched in 1993, the Asia Pacific Triennial (APT) is a major cultural event that brings together the contemporary art of Asia and the Pacific. The APT represented a major change in direction for the Queensland Art Gallery (now Queensland Art Gallery and Gallery of Modern Art, QAGOMA) to become a regionally oriented institution. The period of the first three exhibitions (1993–2000) involved a crucial building of networks and consolidation of knowledge. Projects were co-curated with artists and curators, generating multiple perspectives on art in the region, and building networks and relationships. Gallery staff who had little background in non-European art were strongly committed to developing their knowledge of Asian and Pacific cultures, often learning languages of the region.

The APT is now established as one of Australia's premier cultural events: 565,000 people attended APT7 in 2012–2013 (Walker 2013). It now includes cinema, performing arts, and Kids' APT which is an extensive program actively involving children in exploring contemporary art and cultures of the region. The APT's exhibition programs rely on the specialised expertise of QAGOMA's curatorial staff, who work closely with artists to bring out the social contexts of art, their embedding in daily life. Since 2002, the Australian Centre of Asia Pacific Art (ACAPA) has guided QAGOMA's research, publication, acquisition, and exhibition of Asian and Pacific art. It supports professional development for artists, scholars, and museum professionals, and engages in partnerships to advance knowledge of art in the region (Queensland Art Gallery | Gallery of Modern Art n.d.).

Summary

The five examples illustrate how Australia's engagement with the Asia-Pacific is strengthened by the establishment of region-wide cultural networks and institutions, driven by independent, bottom-up initiatives from cultural professionals

themselves. All five cases operate strongly on a collaborative, peer to peer basis, generating familiarity and trust and supporting mutual cultural outcomes for Australia as well as a wide range of regional partners. In this way they contribute to 'reinforcing Australia as an engaged and active participant in the region', a key dimension of Australia's official public diplomacy goals (Department of Foreign Affairs and Trade 2014).

These initiatives rely strongly on the passion of individual visionaries and volunteers for their work. What is particularly significant about these initiatives is their focus on building long-term, region-wide cultural infrastructures, within which Australia plays a key coordinating and leadership role. Going beyond one-off projects, they institutionalise people-to-people connectivity in the region by creating dedicated structures for professional cultural exchange and collaboration. In this way they contribute fundamentally to Australian soft power and cultural diplomacy by promoting Australia as a proactive and engaged regional citizen.

4.6 The cultural role of diasporas

Governments are increasingly interested in engaging with diasporas, whose economic, political and social significance is increasingly acknowledged (Fullilove 2008). The DFAT Public Diplomacy Strategy 2014–2016 encompasses, for the first time, a special mention of the importance of diaspora diplomacy. This includes 'public diplomacy at home' through 'outreach to diasporic communities in Australia', with the aim 'to strengthen relationships with their descendent country and to amplify public diplomacy messaging'. Attention is also being paid to the potential role of Australian expatriates in Asia. This government-driven imperative notwithstanding, there is little data available on the ways in which Asian diaspora groups in Australia maintain cultural connections with their homelands, and on the experiences of Australians living and working in Asia, which might carry lessons for the conduct of smart engagement with the region. An indicative survey with Australian expatriates

and focus group research with a selection of Asian and Pacific diaspora groups have been commissioned in preparation for this report, but more systematic research would be required to gain a comprehensive picture of the contribution and role of diasporas in enhancing Australia's cultural relations with Asia.

4.6.1 The Australian diaspora in Asia

Of the approximately one million Australians living and working overseas, a large majority are located in Western Europe and North America. Asia is the destination of only about 10% to 17% of them, (precise data on the size of this population is difficult to come by) but their numbers appear to be increasing (Freeman & Rizvi 2014).

An indicative survey among Australians living and working in Asia conducted for this report (Freeman & Rizvi 2014) found that China (including Hong Kong and Macau), Singapore and Japan were the most frequented countries, followed by Thailand, Indonesia, Malaysia and Vietnam. Very few were located in South Asia, indicating that Australia's connection with East Asia is better developed than that with the subcontinent. Most of these Australian expatriates are globally mobile, highly educated professionals, representing an internationally experienced cohort of Australians. Fourteen percent (14%) were born in Asia or have an Asian family background, suggesting that circular migration between Australia and Asia is not uncommon.

In relocating to Asia, this group of Australian expatriates valued the opportunity to acquire and develop new skills (64%), work with people from diverse backgrounds (63%), and the experience of challenging work in unfamiliar cultural contexts (46%). However, only a small proportion (11%) enjoyed the Asian work ethic. They overwhelmingly reported needing to develop an understanding of different work cultures (79%) and intercultural communication skills (73%), including skills in cross-cultural teamwork (62%). About half (50%) mentioned language skills as an important need. These findings are in line with those of other surveys

(e.g. PricewaterhouseCoopers 2014), which highlighted the fact that cultural differences are a key factor in the experience of working in Asia. However, while the prospect of needing to navigate such differences seems unattractive for many Australians who have no engagement with Asia, a large proportion of this group of expatriates relishes the opportunity to experience a different culture while living and working in Asia (42%). A majority (63%) even enjoyed living and working in Asia more than they expected (Freeman & Rizvi 2014).

These highly Asia-engaged Australians display an intense recognition of the emerging importance of Asia as the centre of global processes and opportunities. Many respondents felt that it was inadequately recognised that Australia's future lies in the Asian region. As such, the survey suggests that Australians living and working in Asia are playing a major role in defining the place of Australia in the region. They can contribute to Australia's public diplomacy by forging greater understandings for their fellow Australians regarding the opportunities and imperatives for Australia in the Asian century (Freeman & Rizvi 2014, p.38).

4.6.2 Asian and Pacific diasporas in Australia

A study by Fitzgerald and Chau (2014), commissioned for this report, provides an initial exploration of the extent, diversity, nature, reach and resourcing of international cultural engagements by diaspora communities of Chinese, Pacific Island, Indian and Filipino backgrounds in Australia.

The findings, based on artist and community consultations, indicate that international cultural engagements by Asian and Pacific Island diasporas account for a significant proportion of Australia's people-to-people ties with countries in the region, matching 'mainstream' cultural diplomacy in volume and often drawing large audiences along with far-reaching media attention in diaspora homelands. The consultations suggest that diaspora groups in Australia construct and participate in parallel

cultural fields and markets connected in various ways to home nations and other diaspora locations. These activities receive little media coverage or public acknowledgement in Australia.

International cultural engagements of these diaspora groups were often self-initiated and privately funded. For instance, Filipino community groups and alumni associations support international visits by artists from the Philippines. There was also a diverse range of motivations for nurturing cultural relations with home countries: cultural activity is often linked to social needs such as cultural maintenance and community welfare. For example Sydney-based artists organise performances in Hong Kong and Guangzhou to raise money for care of the elderly. Singing competitions are organised in Mildura for Tongan seasonal workers during the fruit picking season (Fitzgerald & Chau 2014).

At the same time, diaspora cultural practitioners in Australia expressed a need for wider recognition of their cultural activities and networks. Consultations highlight systemic under-representation of Asian and Pacific Island artists in leadership positions among 'mainstream' arts and cultural networks and organisations. Australia may face challenges in implementing diaspora diplomacy 'at home' where incentives for minority inclusion in the media and on peak bodies are weak outside of the explicitly 'multicultural' sector. The consultations pointed out that failure to engage with Australians of Asian and Pacific Island descent carries with it a soft power credibility risk for Australia, particularly where Australia is still widely perceived throughout the region as a 'white' country.

There is considerable difference between the situation of large diasporas such as the Chinese and Indians, and those of small Pacific Island states where a lack of cultural institutions and resources is exacerbated by the exodus of middle classes to New Zealand, Australia or the US. Australian aid assistance to the Pacific Islands includes sport for development programs (see above). Further support for Pacific Islands' cultural infrastructure and cultural industries would be effective as international aid given high levels of participation in cultural industries (George & Mitchell 2012).

Diaspora cultural practitioners based in Australia demonstrate many of the key attributes of smart cultural diplomacy, including peer-to-peer trust, self-reliance, a focus on impact, a high degree of literacy in digital and traditional media, autonomous organisations, and a commitment to building long-term relationships (Holden 2013, p.3). They are generally less dependent on public funding, they frequently engage business and private donors, and they bring requisite capabilities, understandings and networks to their work. They are alert to emerging sensitivities among Asian and Pacific Island communities and quick to take advantage of emergent opportunities for transnational engagements crossing ethnic and national boundaries. They are contextually aware, generally well informed, and need little advocacy, training, or encouragement to engage internationally (Fitzgerald & Chau 2014).

Finally, it should be pointed out that Asian and Pacific Island governments operate substantial cultural diplomacy programs in Australia to engage with their Australia-based diasporas. International cultural engagements initiated by these diasporas are as likely to be supported by foreign governments as by Australian ones. However, while governments have important roles to play in promoting people-to-people relations in the region, any official approach towards Asian and Pacific Islands diasporas to serve as 'bridges' between nations needs to acknowledge their autonomy as independent actors with creative visions of their own. This aligns with what is recognised as best practice in cultural diplomacy: its independence from specific policy objectives and an arm's length relationship to governments (Schneider 2006; Holden 2013).

Box 4.6: Bollywood as cultural diplomacy

Indian cinema, especially as produced in Mumbai/Bombay, or 'Bollywood', has proved to be an important element in cultural relations between India and Australia. The participation of Indian-Australians in Australia as part of an increasingly globalised Bollywood industry has contributed to active intercultural exchange between the two countries.

Bollywood productions featuring Australian locations became prominent from the 1990s. *Dil Chahta Hai* (2001), *Salaam Namaste* (2005), *Heyy Babyy* (2007), *Chakde India* (2007), *Singh is Kinng* (2008) and *Bachna Ae Haseeno* (2008) were successes at the Bollywood box office. These films tended to 'showcase' Australia, featuring spectacular locations such as Sydney Opera House and Harbour, or the Gold Coast. Plots often centred on high-class hotels, shopping malls, and casinos as elements of jet-set lifestyles, with little engagement with everyday Australian life. Indeed, Tourism Australia and other state tourism bodies made use of successful Bollywood films to promote Australia to 'affluent and mobile' Indians (Hassam 2008).

Bollywood's interest in Australia has been facilitated by Indian film professionals working in Australia. Anupam Sharma, who heads the Sydney-based company Films and Casting Temple, has been involved in over 200 projects with clients and partners in India and Australia. *Salaam Namaste* was the first Indian film shot entirely in Australia. The line producer for *Salaam Namaste*, Mitu Bhowmick-Lange, directs Mind Blowing Films, a Melbourne-based company that facilitates production needs and logistics for Indian and Australian film ventures, as well as being a major distributor of South Asian films and television. Bhowmick-Lange also directs the Indian Film Festival of Melbourne, a festival of South Asian cinema that is supported by the Victorian government (Fitzgerald & Chau 2014).

The 'Indian student crisis' of 2009, triggered by attacks on Indian students in Melbourne and Sydney, led to perceptions of widespread racism against Indians in Australia and affected bilateral relations.. The crisis also illustrated the importance of cultural professionals in mediating intercultural relations. Indian film unions called for a boycott of productions in Australia. This was amplified with protests by Bollywood megastars Aamir Khan and Amitabh Bachchan (Babla 2011). On the other side, a well-publicised free concert given by renowned soundtrack composer A. R. Rahman to a large culturally diverse audience in Sydney in 2012 was characterised as 'Jai Ho diplomacy' (Nicholson & Baillie 2012). Rahman had declared his intention was to 'deepen connections between Australia and India'. None of these interventions by artists were 'official' cultural diplomacy activities directed by governments. They were made possible by the global reach of the Bollywood industry and the cultural networks generated by India's diaspora populations.

Meanwhile, in the incorporation of intercultural experience in their work, Indian-Australian filmmakers are moving beyond Bollywood formulas. Chayan Sarkar's *The Sleeping Warrior* (2012) connects Australian Aboriginal spirituality with Hindu themes (Groves 2012). Stanley Joseph's *My Cornerstone* (2014) is the first Australian-Indian 'crossover' film about clashes of values precipitated by migration (Chandel Singh 2014).

4.7 Key findings

4.1   Australia's cultural relations with the countries of the Asian region are characterised by a strong lack of mutual knowledge.

Despite a massive increase in trade and other transactional linkages, many Australians continue to feel a strong sense of cultural distance towards the countries of the Asian region. They tend to know little about their regional neighbours and their feelings towards Anglophone and Western European countries are persistently much warmer than towards any Asian country. Feelings towards Japan and Singapore, the most westernised countries in the region, are the warmest, while attitudes towards Indonesia are unrelentingly cool.

4.2   Australia suffers from a soft power deficit in the region.

Conversely, most people in Asian countries know little about Australia. An informal poll in China found that impressions of Australia were extremely sketchy and focused on koalas and kangaroos. While many people in the region consider Australia 'a good place to visit', significant minorities perceive the country as white and racist, suggesting the persistence of longstanding stereotypes. Thirty-eight percent (38%) of Indians still believed that race is an important factor in Australian immigration intake, even though this has not been Australian official policy since the early 1970s. The lack of common heritage and history is a barrier for close cultural relations, which can only be alleviated by long-term investment in proactive cultural engagement.

4.3   There has been a substantial increase in investment and interest in cultural and public diplomacy in all Asian countries since the beginning of the 21st century.

Asian governments invest in culture and cultural diplomacy to increase their international cultural standing and soft power, in line with their growing economic power. Overall, an emphasis on outward cultural projection and cultural export predominates, with much less attention being given to reciprocal cultural exchange. Paradoxically, this can limit the soft power effects of cultural diplomacy, as attitudes within the region remain tinged by mutual distrust between nations. More collaborative approaches to cultural diplomacy are required to counterbalance suspicions raised by narrow schemes of nation branding and soft power projection.

4.4   Australian cultural diplomacy practices— both those resourced by the Department of Foreign Affairs and Trade (DFAT) and by other government agencies—are very diverse and demonstrate a strong tendency towards embracing more collaborative approaches.

In line with international trends towards more cooperative and relational approaches to cultural diplomacy, DFAT-funded cultural diplomacy programs show a move away from projective 'showcasing' efforts to more emphasis on cultural exchange and collaboration for mutual benefit. As well, while support for Australian creative industries is focused on gaining access to Asian markets and audiences, experience on the ground points to the need for patient, intense people-to-people engagement to establish mutually beneficial and long-term, sustainable collaborations.

4.5   To pursue smart cultural engagement with Asia, Australian cultural diplomacy needs to support a broad spectrum of initiatives to enhance society-wide cultural relations and people-to-people connections on the ground.

Many cultural organisations, community groups and independent producers (including diaspora groups) are already committed to building strong connections with Asia through a plethora of disparate projects and initiatives, many of them small-scale and based on volunteers. For example, a survey showed that 79% of arts organisations in Victoria have engaged in cultural exchange activities with Asia

in the period of 2008–2012, mostly using their own cash. While such small projects don't seem 'big enough' to make a difference, their impact will be achieved in a cumulative and iterative way. It is important that such bottom-up initiatives are nurtured so that they can flourish. A devolved approach to cultural diplomacy, which supports projects that are sensitive to local contexts and builds relationships on the ground, is more effective than centrally planned public diplomacy campaigns.

4.6 **Australian cultural professionals have been at the forefront of the development of new region-wide, sector-specific cultural networks and organisations, which facilitate long-term connectivity and institutionalise a shared, regional sense of community.**

Organisations such as the Asia Pacific Film Academy bring together film professionals from across the region and establish the necessary cultural infrastructure to nurture peer to peer exchanges and multilateral cultural collaboration across the region. Australian cultural professionals have played a leadership role in initiating such networked organisations. As they nurture long-term relationships beyond short-term, one-off projects, they are important and innovative contributions to Australian cultural diplomacy, promoting Australia's role as an engaged regional citizen. Such initiatives require appropriate resourcing and deserve support.

4.7 **There is a great lack of recognition for the role of Asian and Pacific Islander diaspora groups in linking Australia with their various countries of origin through cultural engagement.**

Diaspora cultural practitioners based in Australia demonstrate many of the key attributes of smart cultural diplomacy, including peer-to-peer trust, self-reliance, a focus on impact, a high degree of literacy in digital and traditional media, autonomous organisations, and a commitment to building long-term relationships. They account for a significant proportion of Australia's people-to-people ties with countries in the region. Any official approach towards such diasporas to serve as 'bridges' between nations needs to acknowledge their autonomy as independent actors with creative visions of their own.

References

ACARA 2011, 'The Shape of the Australian Curriculum: Languages', *Australian Curriculum, Assessment and Reporting Authority*, accessed March 21, 2013, from <http://www.acara.edu.au/verve/_resources/Languages_-_Shape_of_the_Australian_Curriculum_new.pdf>.

ACARA 2014, 'Languages', *Australian Curriculum, Assessment and Reporting Authority*, accessed December 22, 2014, from <http://www.acara.edu.au/curriculum/learning_areas/languages.html>.

Adams, J, King, C & Singh, V 2009, *India: research and collaboration in the new geography of science*, Evidence – Thomson Reuters, Leeds.

Advisory Committee on Cultural Diplomacy 2005, *Cultural Diplomacy: The Linchpin of Public Diplomacy*, U.S. Department of State, Washington D.C., accessed December 5, 2014, from <https://iwp.uiowa.edu/sites/iwp.uiowa.edu/files/cultural%20diplomacy%20report.pdf>.

Alway, L, O'Brien, J & Somsuphangsri, W 2013, *On the Ground and in the Know: The Victoria–Asia Cultural Engagement Research Report*, Asialink Arts and Arts Victoria, Melbourne, accessed December 4, 2013, from <http://asialink.unimelb.edu.au/arts/artsresearchreport_vic>.

Anderson, K 2013, *Languages, the Asian Century White Paper and Three Myths Obstructing Our Success: LCNAU Conference Keynote*, Canberra.

Anderson, K & Lo Bianco, J 2009, 'The language education debate: Speak, and ye shall find knowledge', *East Asia Forum*, accessed January 30, 2015, from <http://www.eastasiaforum.org/2009/09/08/the-language-education-debate-speak-and-ye-shall-find-knowledge/>.

Anderson, K & Stafford, G 2014, *Research Diaspora and Research Collaboration*, University of Adelaide, Adelaide.

APEC 2014, 'APEC Connectivity Blueprint for 2015–2025', accessed December 12, 2014, from <http://www.apec.org/Meeting-Papers/Leaders-Declarations/2014/2014_aelm/2014_aelm_annexd.aspx>.

Arkoudis, S, Yu, X, Baik, C, Borland, H, Chang, S, Lang, I, Lang, J, Pearce, A & Watty, K 2010, *Finding common ground: enhancing interaction between domestic and international students*, Australian Learning & Teaching Council, Strawberry Hills, NSW.

ASEAN 2010, *Krabi Initiative 2010: Science, Technology and Innovation (STI) for a Competitive, Sustainable and Inclusive ASEAN*, ASEAN, Krabi, accessed December 19, 2014, from <http://www.asean.org/archive/documents/Krabi-101217.pdf>.

ASEAN 2011, *Master plan on ASEAN connectivity*, ASEAN Secretariat, Public Outreach and Civil Society Division, Jakarta, Indonesia.

ASEAN 'Association of Southeast Asian Nations ', accessed July 31, 2013, from <http://www.aseansec.org/>.

Asia Education Foundation 2012, *Building Demand for Asia Literacy: What Works*, Asia Education Foundation, Melbourne, accessed January 18, 2013, from <http://www.asiaeducation.edu.au/verve/_resources/Building_Demand_Report.pdf>.

Asia Education Foundation 2013, *What Works 3: Achieving intercultural understanding through the teaching of Asia perspectives in the Australian Curriculum: English and History*, Asia Education Foundation, Melbourne, accessed July 31, 2013, from <http://www.asiaeducation.edu.au/verve/_resources/WW3_June2013_260613_MAS.pdf>.

Asia Education Foundation 'Australia–Asia BRIDGE School Partnerships', accessed October 24, 2014, from <http://www.asiaeducation.edu.au/teachers/bridge_school_partnerships/bridge_school_partnerships_landing_page.html>.

Asia-Europe Foundation 'The Ministry of Culture and Tourism, Republic of Indonesia', *culture360.asef.org*, accessed December 8, 2014a, from <http://culture360.asef.org/organisation/the-ministry-of-culture-and-tourism-republic-of-indonesia/>.

Asia-Europe Foundation 'Vietnam Cultural Profile', *culture360.asef.org*, accessed December 8, 2014b, from <http://culture360.asef.org/organisation/vietnam-cultural-profile/>.

Asialink 2012, *Developing an Asia Capable Workforce: A National Strategy*, Asialink, Melbourne, accessed December 20, 2012, from <http://asialink.unimelb.edu.au/__data/assets/pdf_file/0008/619793/Developing_an_Asia_Capable_Workforce.pdf>.

Asialink 2013, 'National Centre for Asia Capability – Asialink', accessed July 8, 2013, from <http://asialink.unimelb.edu.au/media/media_releases/National_Centre_for_Asia_Capability>.

Asialink Arts 2012, *Asialink Arts submission to the Asia Century White Paper Task Force*, Asialink Arts, Melbourne, accessed January 13, 2015, from <http://asialink.unimelb.edu.au/__data/assets/pdf_file/0011/553997/SUBMISSION_TO_THE_ASIA_CENTURY_WHITE_PAPER_TASK.pdf>.

Asialink Arts 2014a, 'Reciprocal Residencies', accessed January 13, 2015, from <http://asialink.unimelb.edu.au/arts/residency_program/2015_asialink_arts_residency_program_application_information/reciprocal_residencies>.

Asialink Arts 2014b, *Asialink Arts 2013–14*, Asialink Arts, Melbourne, accessed January 13, 2015, from <http://asialink.unimelb.edu.au/__data/assets/pdf_file/0017/1236221/Aa_2013_14.pdf>.

Asialink Arts 'Asialink Arts Quick Facts', accessed January 13, 2015a, from <http://asialink.unimelb.edu.au/arts/arts>.

Asialink Arts 'Exhibitions', accessed January 13, 2015b, from <http://asialink.unimelb.edu.au/arts/Exhibitions_on_Tour>.

Asialink Business 2014, *Engaging Asia: Challenges for Australian Businesses*, Asialink, Melbourne, accessed August 5, 2014, from <http://cms.unimelb.edu.au/__data/assets/pdf_file/0008/1154186/Engaging_Asia.pdf>.

Asialink Literature Touring Program 'The Bookwallah', accessed January 13, 2015, from <http://asialink.unimelb.edu.au/arts/writing/The_Bookwallah>.

Asia Pacific Writers and Translators 'Mission and What We Do', accessed December 9, 2014, from <http://apwriters.org/mission-what-we-do/>.

Aspden, P 2004, *Selling Democracy? The Past and Future of Western Cultural Relations and Public Diplomacy*, British Council.

Association of Asia Pacific Performing Arts Centres 'Mission', accessed December 9, 2014, from <https://www.aappac.net/aappac/about_aappac/mission_logo.html?language=0>.

A*STAR 2011, *STEP 2015: Science, Technology and Enterprise Plan 2015*, Agency for Science, Technology and Research (A*STAR), Singapore, accessed October 29, 2014, from <http://www.a-star.edu.sg/portals/0/media/otherpubs/step2015_1jun.pdf>.

Australia Council for the Arts 2014a, 'Market Development', accessed December 10, 2014, from <http://2014.australiacouncil.gov.au/about/structure/market_development>.

Australia Council for the Arts 2014b, 'Going Global', accessed December 9, 2014, from <http://2014.australiacouncil.gov.au/grants/2014/going-global>.

Australia Council for the Arts 2014c, 'Strategic Plan 2014–2019', accessed December 9, 2014, from <http://australiacouncil.gov.au/strategic-plan/>.

Australia Council for the Arts 2014d, 'Asia in Australia', accessed December 9, 2014, from <http://2014.australiacouncil.gov.au/grants/2014/asia-in-australia>.

Australia India Institute 2013, *Australia India Institute Task Force Report Science Technology Innovation: Australia and India*, Australia India Institute, accessed May 6, 2013, from <http://www.aii.unimelb.edu.au/news/science-and-technology-task-force>.

Australia-Indonesia Institute, DFAT 'Australia-Indonesia BRIDGE Project', accessed December 8, 2014, from <http://www.dfat.gov.au/aii/programs/bridge_program.html>.

Australian Academy of Science 2010, *Internationalisation of Australian Science*, Australian Academy of Science, Canberra, accessed January 14, 2013, from <http://www.science.org.au/publications/documents/Internationalisation-of-Australian-Science.pdf>.

Australian Academy of Science 2011, *Australian science in a changing world: innovation requires global engagement*, Australian Academy of Science, Canberra, accessed May 13, 2013, from <http://www.science.org.au/reports/documents/Innovationrequiresglobalengagement.pdf>.

Australian Academy of Science 2012, *Australian Academy of Science Country Strategy Submission to the Asian Century Implementation Unit*, accessed August 14, 2013, from <http://www.dfat.gov.au/issues/asian-century/submissions/243%20-%20Japan%20China%20indonesia%20India%20ROK%20-%20Australian%20Academy%20of%20Science.pdf>.

Australian Broadcasting Corporation 2014, 'Australia Network goes off the air', *ABC News*, accessed December 8, 2014, from <http://www.abc.net.au/news/2014-09-28/australia-network-goes-off-the-air/5774808>.

Australian Bureau of Statistics 2012, 'Cultural Diversity in Australia', *ABS: Reflecting a Nation*, accessed March 7, 2013, from <http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/2071.0main+features902012-2013>.

Australian Bureau of Statistics 'Language Spoken at Home (LANP)', accessed July 17, 2013, from <http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/2901.0Chapter39002011#>.

Australian Education International *Enhancing the International Student Experience: A report on seven demonstration projects funded by Australian Education International and conducted in collaboration with Universities Australia*, Australian Government, accessed December 12, 2014, from <https://aei.gov.au/research/Publications/Documents/Enhancing%20the%20International%20Student%20Experience.pdf>.

Australian Embassy, Beijing 2014a, '2014 Australian Writers' Week in China', accessed December 9, 2014, from <http://www.china.embassy.gov.au/bjng/140227AWWMR.html>.

Australian Embassy, Beijing 2014b, 'Australian Screen Industry Shines with Record Presence at the 17th Shanghai International Film Festival', accessed December 9, 2014, from <http://www.china.embassy.gov.au/bjng/140613MRACFIF.html>.

Australian Government 2012a, *Australia in the Asian Century: White Paper, October 2012*, Commonwealth of Australia, Canberra, accessed September 11, 2013, from <http://asiancentury.dpmc.gov.au/sites/default/files/white-paper/australia-in-the-asian-century-white-paper.pdf>.

Australian Government 2012b, *Australia in the Asian Century: White Paper October 2012*, Commonwealth of Australia, Canberra.

Australian Minister for Foreign Affairs 2013, 'Indonesia to participate in New Colombo Plan pilot', *Australian Minister for Foreign Affairs, The Hon Julie Bishop MP*, accessed November 14, 2014, from <http://foreignminister.gov.au/releases/Pages/2013/jb_mr_131002.aspx?ministerid=4>.

Australian Sports Commission 2014, 'Pacific Sports Partnerships', accessed December 9, 2014, from <http://www.ausport.gov.au/supporting/international/programs/pacific_sports_partnerships>.

Australian Trade Commission 2014a, *Asia-Pacific integration drives Australia's two-way trade to A$648 billion*, Australian Government, Canberra, accessed November 17, 2014, from <http://www.austrade.gov.au/ArticleDocuments/3814/Data-Alert-140603-Australia-Two-way-trade-2013.pdf.aspx>.

Australian Trade Commission 2014b, 'How the brand was developed', accessed December 8, 2014, from <http://www.austrade.gov.au/Education/Future-Unlimited/How-the-brand-was-developed/How-the-brand-was-developed#.VIVR_cmA7p1>.

Australian Trade Commission 2014c, 'International Engagement', accessed December 8, 2014, from <http://www.austrade.gov.au/Tourism/Policies/International-engagement>.

Australian Trade Commission 2014d, 'The rise of Cultural Precincts across Asia', accessed December 8, 2014, from <http://www.austrade.gov.au/Export/Export-Markets/Industries/Cultural-Precincts>.

Australian Trade Commission 2014e, 'Major sporting events', *Australian Government*, accessed December 9, 2014, from <http://www.austrade.gov.au/Buy/Australian-Industry-Capability/Major-sporting-events/Overview>.

Australian Trade Commission 2014f, 'New business program to promote Australia at global sporting events', accessed September 3, 2014, from <http://www.austrade.gov.au/about-austrade/news/latest-from-austrade/2014/new-business-program-to-promote-australia-at-global-sporting-events>.

Australia Plus 'About us', *ABC Australia Plus*, accessed December 8, 2014, from <http://www.australiaplus.com/international/about-us>.

Australia Unlimited 'About Us', accessed December 8, 2014, from <http://www.australiaunlimited.com/about-us>.

Babla, M 2011, 'Historical case study: Bollywood Diplomacy and Australia-India Relations', *India: Inside Out*, accessed January 19, 2015, from <https://indiapublicdiplomacy.wordpress.com/2011/10/20/historical-case-study-bollywood-diplomacy-and-australia-india-relations/>.

Barlow, T 2014, *Australian Research Collaboration in Asia. A Report for the Australian Council of Learned Academies (ACOLA) 2014*, ACOLA, Melbourne, accessed from <http://acola.org.au/index.php/saf03-contributing-reports>.

Blakkarly, J 2014, 'Australia's Foreign Language Deficit', *The Diplomat*, accessed February 22, 2015, from <http://thediplomat.com/2014/07/australias-foreign-language-deficit/>.

Blue Ribbon Panel 2009, *Australia's Diplomatic Deficit: Reinvesting in our instruments of international policy*, Lowy Institute, Sydney, accessed September 8, 2014, from <http://www.lowyinstitute.org/publications/australias-diplomatic-deficit>.

Bodey, M 2014, 'ABC News to feel effect of Australia Network axe', *The Australian*, accessed December 8, 2014, from <http://www.theaustralian.com.au/media/abc-news-to-feel-effect-of-australia-network-axe/story-e6frg996-1226917173980>.

Bound, K, Saunders, T, Wilsdon, J & Adams, J 2013, *China's Absorptive State: Research, innovation and the prospects for China-UK collaboration*, Nesta London, London, accessed October 29, 2014, from <http://www.nesta.org.uk/sites/default/files/chinas_absorptive_state_0.pdf>.

Bound, K & Thornton, I 2012, *Our frugal future: Lessons from India's innovation system*, Nesta London, London, accessed October 29, 2014, from <http://www.nesta.org.uk/sites/default/files/our_frugal_future.pdf>.

British Academy 2014, *Born Global: Rethinking Language Policy for 21st Century Britain – Summary of interim findings*, British Academy for the Humanities and Social Sciences, London, accessed November 10, 2014, from <http://www.britac.ac.uk/templates/asset-relay.cfm?frmAssetFileID=14225>.

British Council 2012, *Trust Pays. How international cultural relationships build trust in the UK and underpin the success of the UK economy*, British Council, London, accessed December 5, 2014, from <http://www.britishcouncil.org/sites/britishcouncil.uk2/files/trust-pays-report.pdf>.

British Council 2014, 'Supplementary written evidence', in *Soft Power and the UK's Influence Committee: Oral and Written Evidence Vol 1 (A-G)*, British Government, London, accessed from <http://www.parliament.uk/soft-power-and-uks-influence>.

Bryant, N 2014, *The Rise and Fall of Australia*, Random House Australia.

Bui, HS 2013, 'Vietnam : 1. Historical perspective: cultural policies and instruments ':, *IFACCCA*, accessed December 8, 2014, from <http://www.worldcp.org/vietnam.php>.

Burns, W 2013, 'The Potential of Science Diasporas', *Science & Diplomacy*, accessed December 18, 2013, from <http://www.sciencediplomacy.org/perspective/2013/potential-science-diasporas>.

Byrne, C 2009, 'Public diplomacy in an Australian context: A policy-based framework to enhance understanding and practice',.

Byrne, C & Hall, R 2013, 'Realising Australia's international education as public diplomacy', *Australian Journal of International Affairs*, vol. 67, no. 4, pp. 419–438.

Callick, R & Bodey, M 2014, 'Radio Australia — and the Pacific — suffering thanks to ABC's network merger', *The Australian*, accessed December 8, 2014, from <http://www.theaustralian.com.au/media/broadcast/radio-australia-and-the-pacific-suffering-thanks-to-abcs-network-merger/story-fna045gd-1227012147144>.

Cao, C 2008, 'China's Brain Drain at the High End: Why government policies have failed to attract first-rate academics to return', *Asian Population Studies*, vol. 4, no. 3, pp. 331–345.

Carroll, A & Gantner, C 2012, *Finding a Place on the Asian Stage*, Currency Press, Strawberry Hills.

Chacko, E 2007, 'From brain drain to brain gain: reverse migration to Bangalore and Hyderabad, India's globalizing high tech cities', *GeoJournal*, vol. 68, no. 2–3, pp. 131–140.

Chandel Singh, S 2014, 'My Cornerstone all set to be released in Australia on October 9', *Public Telegraph*, accessed January 19, 2015, from <http://publictelegraph.com/my-cornerstone-all-set-to-be-released-in-australia-on-october-9/>.

Chan, J 2011, 'Asia: The Growing Hub Of Scientific Research', *Asian Scientist Magazine | Science, Technology and Medicine News Updates From Asia*, accessed July 4, 2013, from <http://www.asianscientist.com/features/asia-future-hub-scientific-research/>.

Chan, S-J 2012, 'Shifting Patterns of Student Mobility in Asia', *Higher Education Policy*, vol. 25, no. 2, pp. 207–224.

Chen, S & Breivik, A 2013, *Lost for Words: The need for languages in UK diplomacy and security*, British Academy for the Humanities and Social Sciences, London, accessed October 1, 2014, from <http://www.britac.ac.uk/templates/asset-relay.cfm?frmAssetFileID=13209>.

Chey, J 2010, *Cultural Diplomacy and Australia-China Cultural Relations*, AIIA NSW Branch Charteris Lecture, Sydney, accessed July 11, 2013, from <http://www.aiia.asn.au/wa-papers/doc_download/449-australias-cultural-diplomacy-and-cultural-exchanges-with-china>.

Chief Scientist, Australian Government 2014, *Strategic Science and Research Priorities*, Office of the Chief Scientist, Canberra, accessed January 9, 2015, from <http://www.chiefscientist.gov.au/wp-content/uploads/STRATEGIC-SCIENCE-AND-RESEARCH-PRIORITIES_181214web.pdf>.

Chubb, I 2012, 'The value of science diplomacy', accessed February 24, 2013, from <http://www.chiefscientist.gov.au/2012/05/the-value-of-science-diplomacy/>.

Chubb, I 2014, 'No Free Rides to the Future: Shoring Up the Science to Sustain Us', accessed October 30, 2014, from <http://www.chiefscientist.gov.au/wp-content/uploads/Jack-Beale-Lecture_130814.pdf>.

College of Foreign Languages and Literatures, Fudan University '复旦大学外国语言文学学院', accessed November 11, 2014, from <http://dfll.fudan.edu.cn/#>.

Coyle, D, Hood, P & Marsh, D 2010, *CLIL: Content and Language Integrated Learning* 1 edition., Cambridge University Press, Cambridge, UK ; New York.

Cross, R & Gearon, M 2013, *Research and Evaluation of the Content and Language Integrated Learning (CLIL) Approach to Teaching and Learning Languages in Victorian Schools*, Melbourne Graduate School of Education, Melbourne, accessed February 17, 2015, from <http://www.education.vic.gov.au/Documents/school/teachers/teachingresources/discipline/languages/CLILtrialresearchrpt.pdf>.

Culligan, K 2013, *Culture means business. How international cultural relationships contribute to increased trade and competitiveness for the UK*, British Council, London, accessed December 5, 2014, from <http://www.britishcouncil.org/sites/britishcouncil.uk2/files/culture-means-business-report.pdf>.

Cummings, M 2003, *Cultural Diplomacy and the United States Government: a survey*, Center for Arts and Culture, Washington D.C.

Davis, B 2014, 'Is Indonesia losing the race?', *The Jakarta Post*, accessed December 8, 2014, from <http://www.thejakartapost.com/news/2014/09/25/is-indonesia-losing-race.html>.

de Jong, EJ 2013, 'Policy Discourses and U.S. Language in Education Policies', *Peabody Journal of Education*, vol. 88, no. 1, pp. 98–111.

de Kretser, A & Spence-Brown, R 2010, *The Current State of Japanese Language Education in Australian Schools*, Commonwealth of Australia; Asia Education Foundation, Carlton South, VIC, accessed from <http://www.asiaeducation.edu.au/verve/_resources/JapanReport.pdf>.

Department of Education 2014a, *International Student Numbers 2013*, Australian Government, Canberra, accessed December 3, 2014, from <https://www.aei.gov.au/research/Research-Snapshots/Documents/International%20Student%20Numbers%202013%20v2.pdf>.

Department of Education 2014b, *Export income to Australia from international education activity in 2013–14*, Australian Government, Canberra, accessed December 8, 2014, from <https://internationaleducation.gov.au/research/Research-Snapshots/Documents/Export%20Income%20FY2013-14.pdf>.

Department of Education 2014c, *Research Snapshot: International students studying science, technology, engineering and mathematics (STEM) in Australian higher education institutions*, Department of Education, Australian Government, Canberra, accessed November 4, 2014, from <https://www.aei.gov.au/research/Research-Snapshots/Documents/STEM_2013.pdf>.

Department of Education and Training 'Languages Education', accessed January 28, 2015, from <https://education.gov.au/languages-education>.

Department of Foreign Affairs and Trade 2012, 'Oz Fest: Australia's cultural festival in India', *Department of Foreign Affairs and Trade, Australian Government*, accessed January 7, 2014, from <http://www.dfat.gov.au/public-diplomacy/oz-fest.html>.

Department of Foreign Affairs and Trade 2013, 'Catwalk diplomacy – Australia-China Council', accessed August 29, 2014, from <http://www.dfat.gov.au/acc/our-relations/society-and-culture/catwalk.html>.

Department of Foreign Affairs and Trade 2014, 'Public Diplomacy Strategy 2014–16', accessed December 5, 2014, from <https://www.dfat.gov.au/public-diplomacy/public-diplomacy-strategy.html>.

Department of Foreign Affairs and Trade 'The East Asia Summit – Association of Southeast Asian Nations (ASEAN)', *Department of Foreign Affairs and Trade, Australian Government*, accessed June 21, 2013a, from <http://www.dfat.gov.au/asean/eas/>.

Department of Foreign Affairs and Trade 'New Colombo Plan Fact Sheet', *Australian Government*, accessed November 14, 2014b, from <https://www.dfat.gov.au/new-colombo-plan/ncp-fact-sheet.html>.

Department of Foreign Affairs and Trade 'About the New Colombo Plan', *Department of Foreign Affairs and Trade, Australian Government*, accessed November 14, 2014c, from <https://www.dfat.gov.au/new-colombo-plan/about.html>.

Department of Foreign Affairs and Trade 'Mobility Program – New Colombo Plan', *Department of Foreign Affairs and Trade, Australian Government*, accessed November 14, 2014d, from <http://www.dfat.gov.au/new-colombo-plan/mobility-program-guidelines-2015.html>.

Department of Foreign Affairs and Trade 'Indigenous', *Department of Foreign Affairs and Trade, Australian Government*, accessed January 13, 2015e, from <http://www.dfat.gov.au/jobs/indigenous/>.

Department of Foreign Affairs and Trade 'Programs – Australia International Cultural Council', accessed December 8, 2014f, from <https://www.dfat.gov.au/aicc/programs.html>.

Department of Foreign Affairs and Trade 'International Relations Grants Program', accessed December 8, 2014g, from <https://www.dfat.gov.au/councils/>.

Department of Industry, Innovation, Science, Research and Tertiary Education 2012a, *2012 National Research Investment Plan*, Department of Industry, Innovation, Science, Research and Tertiary Education, Australian Government, Canberra.

Department of Industry, Innovation, Science, Research and Tertiary Education 2012b, *Science and Research Collaboration between Australia and Japan*, Department of Industry, Innovation, Science, Research and Tertiary Education, Australian Government, Canberra, accessed October 29, 2014, from <https://crawford.anu.edu.au/research_units/ajrc/pdf/science-and-research-collaboration-btw-australia-japan-report.pdf>.

Department of Planning, Transport and Infrastructure, Adelaide 'Adelaide to host int'l performing arts event', *Government of South Australia*, accessed December 9, 2014, from <http://dpti.sa.gov.au/vibrant/article?item=373>.

de Swaan, A 2001, *Words of the World: The Global Language System*, Polity, Cambridge.

Deterding, D & Kirkpatrick, A 2006, 'Emerging South-East Asian Englishes and intelligibility', *World Englishes*, vol. 25, no. 3–4, pp. 391–409.

d'Hooghe, I. 2008, Into High Gear: China's Public Diplomacy, *The Hague Journal of Diplomacy* 3: 37–61.

Dinnie, K 2008, *Nation Branding: Concepts, Issues, Practice*, Routledge.

Diversity Council of Australia 2014, 'Cracking the Cultural Ceiling', accessed September 17, 2014, from <http://www.dca.org.au/dca-research/cracking-the-cultural-ceiling.html>.

Drubin, DG & Kellogg, DR 2012, 'English as the universal language of science: opportunities and challenges', *Molecular Biology of the Cell*, vol. 23, no. 8, pp. 1399–1399.

Durongkaveroj, P 2014, *Thailand's Science, Technology and Innovation Policy and Institutional Framework*, National Science Technology and Innovation Policy Office, Bangkok, accessed October 29, 2014, from <http://unctad.org/meetings/en/Presentation/MYEM2_2014_Durongkaveroj_Pichet.pdf>.

EABER 2014, *East Asian Bureau of Economic Research: Annual Report 2013–14*, Australian National University, Canberra, accessed February 19, 2015, from <http://www.eaber.org/>.

Economist Intelligence Unit 2014, *Country Report: China*, London.

Edwards, P & Goldsworthy, D (eds) 2003, *Facing North. A Century of Australian Engagement with Asia. Volume 2 1970s to 2000*, Melbourne University Press/Department of Foreign Affairs and Trade, Carlton, VIC.

EF Education First 2013, *EF English Proficiency Index 2013*, accessed September 15, 2014, from <http://www.ef.com/sitecore/__~/media/efcom/epi/2014/full-reports/ef-epi-2013-report-master.pdf>.

Embassy of India, Yangon 2014, 'Training Institutions: Myanmar-India Centre for English Language Training (MICELT)', accessed January 14, 2015, from <http://www.indiaembassyyangon.net/index.php?option=com_content&view=article&id=66:training-institutions&catid=22&Itemid=137&lang=en>.

European Research Area 'ERA Communication', accessed October 30, 2014, from <http://ec.europa.eu/research/era/era_communication_en.htm>.

Feng, A 2012, 'Spread of English across Greater China', *Journal of Multilingual and Multicultural Development*, vol. 33, no. 4, pp. 363–377.

Fernandez, A, Schillinger, D, Warton, EM, Adler, N, Moffet, HH, Schenker, Y, Salgado, MV, Ahmed, A & Karter, AJ 2011, 'Language barriers, physician-patient language concordance, and glycemic control among insured Latinos with diabetes: the Diabetes Study of Northern California (DISTANCE)', *Journal of general internal medicine*, vol. 26, no. 2, pp. 170–176.

Fisher, R 2014a, *Japan Country Report*, European Union: Preparatory Action 'Culture in the EU's External Relations', Brussels, accessed December 8, 2014, from <http://cultureinexternalrelations.eu/wp-content/uploads/2014/03/Japan-country-report-.pdf>.

Fisher, R 2014b, *South Korea Country Report*, European Union: Preparatory Action 'Culture in the EU's External Relations', Brussels, accessed March 11, 2014, from <http://cultureinexternalrelations.eu/wp-content/uploads/2014/03/South-Korea-country-report-05.03.20141.pdf>.

Fitzgerald, J & Chau, W 2014, *International Cultural Engagements among Australians of Pacific Islands and Asian Descent: A Preliminary Research Report*, ACOLA, Melbourne, accessed from <http://acola.org.au/index.php/saf03-contributing-reports>.

Fitzpatrick, KR 2011, *US Public Diplomacy in a Post-9/11 World: From Messaging to Mutuality*, USC Center on Public Diplomacy, Los Angeles, accessed August 27, 2013, from <http://uscpublicdiplomacy.org/publications/perspectives/CPDPerspectives_Mutuality.pdf>.

Flink, T & Schreiterer, U 2010, 'Science diplomacy at the intersection of S&T policies and foreign affairs: toward a typology of national approaches', *Science and Public Policy*, vol. 37, no. 9, pp. 665–677.

Ford, M 2012, *Mechanisms for building research capacity in Indonesia's knowledge sector through Australian universities*, AusAID, Canberra, accessed January 14, 2015, from <http://aid.dfat.gov.au/business/Documents/building-indonesian-research-capacity-aust-universities.pdf>.

Franzoni, C, Scellato, G & Stephan, P 2012, *The Mover's Advantage: Scientific Performance of Mobile Academics*, National Bureau of Economic Research, Cambridge MA, accessed July 4, 2014, from <http://www.nber.org/papers/w18577>.

Freeman, B 2014, *Chinese and Indian diasporic scholars in Australia: Report for the Securing Australia's Future, Asia Literacy: Language and Beyond project.*, ACOLA, Melbourne, accessed from <http://acola.org.au/index.php/saf03-contributing-reports>.

Freeman, B & Rizvi, F 2014, *Australians living and working in Asia: Report for the Securing Australia's Future, Asia Literacy: Language and Beyond project*, ACOLA, Melbourne, accessed from <http://acola.org.au/index.php/saf03-contributing-reports>.

Fritzsche, K, Scheib, P, Ko, N, Wirsching, M, Kuhnert, A, Hick, J, Schüßler, G, Wu, W, Yuan, S, Cat, NH, Vongphrachanh, S, Linh, NT, Viet, NK & ASIA-LINK Workgroup 2012, 'Results of a psychosomatic training program in China, Vietnam and Laos: successful cross-cultural transfer of a postgraduate training program for medical doctors', *BioPsychoSocial medicine*, vol. 6, no. 1, p. 17.

Fullilove, M 2008, *World wide webs: diasporas and the international system*, Lowy Institute, Sydney.

Garnaut, J & Wen, P 2013, 'Hands up for a better Asian language plan', *The Sydney Morning Herald*, accessed December 19, 2014, from <http://www.smh.com.au/federal-politics/political-news/hands-up-for-a-better-asian-language-plan-20130331-2h1hb.html>.

Garnaut, R 1989, *Australia and the Northeast Asian ascendancy : report to the Prime Minister and the Minister for Foreign Affairs and Trade*, Australian Govt. Pub. Service, Canberra.

Genesee, F & Lindholm-Leary, K 2013, 'Two case studies of content-based language education', *Journal of Immersion and Content-Based Language Education*, vol. 1, no. 1, pp. 3–33.

George, H & Mitchell, L 2012, *Situational analysis of cultural industries in the Pacific*, Secretariat of the Pacific Community, Noumea, New Caledonia.

Ghosh, P 2012, 'The Rise Of "Hinglish": Modern Necessity Or Dire Threat To India's Culture And Languages?', *International Business Times*, accessed December 10, 2012, from <http://www.ibtimes.com/rise-hinglish-modern-necessity-or-dire-threat-indias-culture-and-languages-hold-wed-fp-6-am-844335>.

Giordano, A & Terranova, G 2012, 'The Indian Policy of Skilled Migration: Brain Return Versus Diaspora Benefits', *Journal of Global Policy and Governance*, vol. 1, no. 1, pp. 17–28.

Giraldo Aristizabal, F 2014, 'Interlingualism: Beyond bilingualism and onto the knowledge and use of languages', *Medium*, accessed October 23, 2014, from <https://medium.com/@postscriptutp/interlingualism-beyond-bilingualism-and-onto-the-knowledge-and-use-of-languages-2f9f09afde96>.

Government of India 'Constitution of India (Full Text) | National Portal of India', accessed October 17, 2014, from <http://india.gov.in/my-government/constitution-india/constitution-india-full-text>.

Government of India – Census 2001 'Census of India: Abstract of speakers' strength of languages and mother tongues –2001', accessed July 18, 2013, from <http://www.censusindia.gov.in/Census_Data_2001/Census_Data_Online/Language/Statement1.aspx>.

Government of the Socialist Republic of Viet Nam 2011, 'Strategy on cultural diplomacy through 2020', accessed December 8, 2014, from <http://www.moj.gov.vn/vbpq/en/Lists/Vn%20bn%20php%20lut/View_Detail.aspx?ItemID=10740>.

Graddol, D 2007, *English Next*, British Council, Plymouth, UK, accessed February 18, 2013, from <http://www.britishcouncil.org/learning-research-english-next.pdf>.

Gribble, C & Li, M 2013, 'Work experience vital for Chinese graduates as foreign credentials lose their lustre', *TheAustralian*, accessed July 4, 2013, from <http://www.theaustralian.com.au/higher-education/opinion/work-experience-vital-for-chinese-graduates-as-foreign-credentials-lose-their-lustre/story-e6frgcko-1226673357769>.

Groves, D 2012, 'Chayan Sarkar unveils The Sleeping Warrior', *SBS Movies*, accessed January 19, 2015, from <http://www.sbs.com.au/movies/blog/2012/12/10/chayan-sarkar-unveils-sleeping-warrior>.

Gupta, BM & Gupta, P 2011, *Analysis of India's S&T research capabilities and international collaborative strength, particularly in context of Indo-German collaboration, 2004–09. DFG India*, DFG India: German Research Foundation, New Delhi, accessed October 29, 2014, from <http://83.143.5.70/download/pdf/dfg_im_profil/geschaeftsstelle/dfg_praesenz_ausland/indien/2011/111103_dfg_nistads_report.pdf>.

Gwee, J 2009, 'Innovation and the creative industries cluster: A case study of Singapore's creative industries', *Innovation: management, policy & practice*, vol. 11, no. 2, pp. 240–252.

Hall, I 2012, 'India's New Public Diplomacy: Soft Power and the Limits of Government Action', *Asian Survey*, vol. 52, no. 6, pp. 1089–1110.

Hall, I & Smith, F 2013, 'The Struggle for Soft Power in Asia: Public Diplomacy and Regional Competition', *Asian Security*, vol. 5, no. 1, pp. 1–19.

Hanban 'Hanban_Confucius Institute', accessed January 12, 2015, from <http://english.hanban.org/>.

Hanson, F 2012, *Indonesia Poll 2012 – Shattering Stereotypes: Public Opinion and Foreign Policy*, Lowy Institute, Sydney, accessed September 25, 2014, from <http://kms1.isn.ethz.ch/serviceengine/Files/ISN/144084/ipublicationdocument_singledocument/d09c7cd9-6247-4c66-b4b8-1467a856ffd5/en/lowy_indonesia_poll_2012.pdf>.

Hanson, F & Shearer, A 2009, *The Lowy Institute China Poll 2009: China and the World, Public Opinion and Foreign Policy*, Lowy Institute, Sydney, accessed December 5, 2014, from <http://www.defensestudies.org/wp-content/uploads/2009/12/lowy-report.pdf>.

Harrison, D 2014, '"Bamboo ceiling" blocking Asian Australians, says commissioner', *The Sydney Morning Herald*, accessed July 14, 2014, from <http://www.smh.com.au/federal-politics/political-news/bamboo-ceiling-blocking-asian-australians-says-commissioner-20140710-3bq45.html>.

Hart-Rawung, P & Li, L 2008, 'Globalization and Business Communication: English Communication Skills for Thai Automotive Engineers', *World Academy of Science, Engineering and Technology*, vol. 24, pp. 320–330.

Hassam, A 2008, 'Australia, Bollywood and Cosmopolitanism: Showcasing Australia Internationally', *International Journal of Diversity in Organisations, Communities and Nations*, vol. 8, no. 3, pp. 139–146.

Hayward-Jones, J 2014, 'Radio Australia cuts hurt the Pacific and Australia', *The Interpreter | Lowy Institute for International Policy*, accessed December 8, 2014, from <http://www.lowyinterpreter.org/post/2014/07/25/Radio-Australia-cuts-hurt-Pacific-Australia.aspx>.

Henderson, D 2008, 'Politics and Policy-making for Asia Literacy: The Rudd Report and a National Strategy in Australian Education', *Asian Studies Review*, vol. 32, no. 2, pp. 171–195.

Herscovitch, B 2012, 'Australia's Asia Literacy Non-Problem', *The Centre for Independent Studies Issue Analysis*, no. 133, accessed December 6, 2012, from <http://www.cis.org.au/images/stories/issue-analysis/ia133.pdf>.

Hino, N 2009, 'The teaching of English as an international language in Japan : an answer to the dilemma of indigenous values and global needs in the expanding circle', in *Multilingual, Globalizing Asia : Implications for policy and education*, AILA Review Vol. 22, John Benjamins Publishing, Amsterdam; Philadelphia, pp. 103–119.

Holden, J 2013, *Influence and Attraction: Culture and the Race for Soft Power in the 21st Century*, British Council/Demos, London, accessed June 24, 2013, from <http://www.britishcouncil.org/press/changing-soft-power-report>.

Honna, N 2005, 'English as a multicultural language in Asia and intercultural literacy', *Intercultural Communication Studies*, vol. XIV, no. 2, pp. 73–89.

Hornberger, N & Vaish, V 2009, 'Multilingual language policy and school linguistic practice: globalization and English language teaching in India, Singapore and South Africa', *Compare: A Journal of Comparative and International Education*, vol. 39, no. 3, pp. 305–320.

House of Representatives Joint Standing Committee on Migration 2013, *Inquiry into migration and multiculturalism in Australia*, Commonwealth of Australia, Canberra.

Howson, P 2013, *The English Effect: The impact of English, what it's worth to the UK and why it matters to the world*, British Council, accessed September 2, 2014, from <http://www.britishcouncil.org/sites/britishcouncil.uk2/files/english-effect-report.pdf>.

HSBC 2014, *The Value of Education: Springboard for Success. Global Report*, HSBC Holdings, London, accessed September 11, 2014, from <https://www.hsbc.com/news-and-insight/2014/international-education?WT.ac=HGHQ_Hn3.2_On>.

Hu, Z. and Ji, D. 2012. Ambiguities in communicating with the world: the "Going-out" policy of China's media and its multilayered contexts, *Chinese Journal of Communication*, 5 (1): 32–37.

Hugo, G 2014, 'The Role of International Migration in Australia's Research Workforce', *Asian and Pacific Migration Journal*, vol. 23, no. 1, pp. 27–54.

IIE Center for Academic Mobility Research 2013, *Project Atlas: Trends and Global Data 2013*, Institute of International Education, New York, accessed November 4, 2014, from <http://www.iie.org/~/media/Files/Services/ProjectAtlas/Project-Atlas-Trends-and-Global-Data-2013.ashx>.

Imagine Australia 'Trepang: China & the Story of Macassan–Aboriginal Trade', *Imagine Australia*, accessed January 13, 2015, from <https://imagineaustralia.net/en/events/year-of-culture-archive/indigenous-arts/trepang-china-the-story-of-macassan-aboriginal-trade/>.

Indian Council for Cultural Relations 'ICCR India', accessed December 8, 2014a, from <http://www.iccrindia.net/>.

Indian Council for Cultural Relations 'ICCR's Global Presence: Indian Cultural Centres Abroad', accessed December 8, 2014b, from <http://www.iccrindia.net/culturalcentres.html>.

International Baccalaureate 'Language policy', *International Baccalaureate®*, accessed February 17, 2015, from <http://www.ibo.org/en/language-policy/>.

International Science Linkages Evaluation Team 2011, *Evaluation of the International Science Linkages Program*, Department of Innovation, Industry, Science and Research, Australian Government, Canberra, accessed January 14, 2013, from <http://www.innovation.gov.au/Science/IPS/Documents/Evaluation_of_the_International_Science_Linkages_Program.pdf>.

Ipsos Public Affairs 2014, *Mobilising the Humanities: The development perspective*, British Council, Washington D.C., accessed October 30, 2014, from <http://www.britishcouncil.org/education/ihe/knowledge-centre/challenging-systems/mobilising-humanities-development-perspective>.

Isar, YR 2012, *Shifting Economic Power: New Horizons for Cultural Exchange in our Multi-Polar World*, Salzburg Global Seminar, Salzburg, accessed December 8, 2014, from <http://www.salzburgglobal.org/fileadmin/user_upload/Documents/2010-2019/2012/490/whitepaper3_490.pdf>.

Isar, YR 2014, *Engaging Culturally with Many Asias: A Report for the Australian Council of Learned Academies (ACOLA) Project on Asia Literacy: Language and Beyond*, ACOLA, Melbourne.

ISSC & UNESCO 2013, *World Social Science Report 2013*, Organisation for Economic Co-operation and Development, Paris, accessed October 30, 2014, from <http://www.oecd-ilibrary.org/content/book/9789264203419-en>.

Jayasuriya, K 2014, 'Building an Asian Research Area', *Global Asia*, accessed June 5, 2014, from <http://www.globalasia.org/Forum/Detail/45/building-an-asian-research-area.html>.

Jeon, M 2012, 'English immersion and educational inequality in South Korea', *Journal of Multilingual and Multicultural Development*, vol. 33, no. 4, pp. 395–408.

Jia, H 2014, 'China's science academy launches new reform drive', *Chemistry World*, accessed February 23, 2015, from <http://www.rsc.org/chemistryworld/2014/10/chinese-academy-cas-launches-new-reform-drive>.

Jonkers, K & Tijssen, R 2008, 'Chinese researchers returning home: Impacts of international mobility on research collaboration and scientific productivity', *Scientometrics*, vol. 77, no. 2, pp. 309–333.

Kachru, B 1998, 'English as an Asian Language', *Links & Letters*, no. 5, pp. 89–108.

Kang, S 2008, 'Universities to Attract 100,000 Foreign Students', *Korea Times*, accessed July 23, 2013, from <http://www.koreatimes.co.kr/www/news/nation/2008/08/117_28752.html>.

Kapur, K 2011, 'Language Education in India: Dialoging English and Vernacular Languages and Literatures', *Sino-US English Teaching*, vol. 8, no. 5, pp. 307–321.

Kickbusch, I, Silberschmidt, G & Buss, P 2007, 'Global health diplomacy: the need for new perspectives, strategic approaches and skills in global health', *Bulletin of the World Health Organization*, vol. 85, no. 3, pp. 230–232.

Kiehl, W 2009, 'The Case for Localized Public Diplomacy', in *The Routledge Handbook of Public Diplomacy*, Routledge, New York, pp. 212–224.

Kirkpatrick, A 2008, 'English as the official working language of the Association of Southeast Asian Nations (ASEAN): Features and strategies', *English Today*, vol. 24, no. 2, pp. 27–34.

Kirkpatrick, A 2012, 'English in ASEAN: implications for regional multilingualism', *Journal of Multilingual and Multicultural Development*, vol. 33, no. 4, pp. 331–344.

Kohler, M & Mahnken, P 2010, *The Current State of Indonesian Language Education in Australian Schools*, Commonwealth of Australia; Asia Education Foundation, accessed January 16, 2013, from <http://www.asiaeducation.edu.au/verve/_resources/IndonesiaReport.pdf>.

Kookana, J, Tien, DP & Quinn, T 2014, *Tourism's contribution to the Australian economy 1997–98 to 2012–13*, Tourism Research Australia, Australian Trade Commission, Canberra, accessed February 18, 2015, from <https://www.google.com.au/search?q=Tourism%E2%80%99s+Contribution+to+the+Australian+Economy+1997-98-2012-13&ie=utf-8&oe=utf-8&gws_rd=cr&ei=cjHkVL2TDcPj8AXw_oDgDA>.

Korean Creative Content Agency 'Introduction – KOCCA', accessed December 8, 2014, from <http://eng.kocca.kr/en/contents.do?menuNo=201433>.

Korean Government 'Study in Korea', accessed October 22, 2014, from <http://www.studyinkorea.go.kr/en/sub/overseas_info/korea_edu/edu_student.do>.

Ko, Y 2013, 'Rep. of Korea - ERAWATCH - Platform on Research and Innovation policies and systems', accessed June 25, 2014, from <erawatch.jrc.ec.europa.eu>.

Krishna, VV 2006, *The Science and Technology System of Malaysia*, UNESCO, accessed October 29, 2014, from <http://portal.unesco.org/education/en/files/55597/11999609765MALAYSIA.pdf/MALAYSIA.pdf>.

Kuo, L 2014, 'Indonesia tells the United States how to defeat jihadists with soft power', *Quartz*, accessed December 8, 2014, from <http://qz.com/270295/indonesia-tells-the-united-states-how-to-defeat-jihadists-with-soft-power/>.

Lane, B 2013a, 'Coalition's schools target on foreign languages questioned', *TheAustralian*, accessed October 13, 2014, from <http://www.theaustralian.com.au/national-affairs/election-2013/coalitions-schools-target-on-foreign-languages-questioned/story-fn9qr68y-1226706990995>.

Lane, B 2013b, 'Labor's Asian language vision a delusion, says Stephen FitzGerald', *TheAustralian*, accessed July 12, 2013, from <http://www.theaustralian.com.au/higher-education/labors-asian-language-vision-a-delusion-says-stephen-fitzgerald/story-e6frgcjx-1226581519177>.

Larson, C 2014, 'Overhaul of Chinese science spending looms', accessed February 23, 2015, from <http://news.sciencemag.org/asiapacific/2014/10/overhaul-chinese-science-spending-looms>.

Lauder, A 2008, 'The Status and Function of English in Indonesia: A Review of Key Factors', *Makara, Sosial Humaniora*, vol. 12, no. 1, pp. 9–20.

Lawrence, CB 2012, 'The Korean English linguistic landscape', *World Englishes*, vol. 31, no. 1, pp. 70–92.

Levin, H 2014, 'Cultural Diplomacy in Emerging Markets: China, UAE, Indonesia, and Russia', *USC Center on Public Diplomacy*, accessed December 8, 2014, from <http://uscpublicdiplomacy.org/blog/cultural-diplomacy-emerging-markets-china-uae-indonesia-and-russia>.

Lewis, J 2013, *Academic Governance: Disciplines and Policy*, Routledge, New York and London.

Lewis, JM, Ross, S & Holden, T 2012, 'The how and why of academic collaboration: disciplinary differences and policy implications', *Higher Education*, vol. 64, no. 5, pp. 693–708.

Li, H 2012, 'The Chinese Diaspora and China's Public Diplomacy: Contentious Politics for the Beijing Olympic Float', *International Journal of Communication*, vol. 6, pp. 2245–2279.

Li, J, Xiong, H, Zhang, S & Sorensen, OJ 2012, 'Co-authorship patterns in East Asia in the light of regional scientific collaboration', *Journal of Science and Technology Policy in China*, vol. 3, no. 2, pp. 145–163.

Lim, A 2014, 'ASEAN Cooperation in Science and Technology: towards building the ASEAN Community', accessed October 30, 2014, from <http://gist.grips.ac.jp/events/2014/03/document/20140305/05_lim.pdf>.

Li, Y & Li, W (eds) 2013, *The Language Situation in China*, Gruyter, Walter de GmbH, Berlin.

Lo Bianco, J & Aliani, R 2013, *Language planning and student experiences : intention, rhetoric and implementation*, Multilingual Matters, Bristol, UK.

Lo Bianco, J & Slaughter, Y 2009, *Australian Education Review No. 54: Second Languages and Australian Schooling*, Australian Council for Educational Research, Camberwell, VIC, accessed March 11, 2013, from <https://shop.acer.edu.au/acer-shop/product/A4064BK;jsessionid=D55837AC7E7439F78C901FBB8C143132>.

Lowe, D 2010, *The Colombo Plan and 'soft' regionalism in the Asia-Pacific: Australian and New Zealand cultural diplomacy in the 1950s and 1960s*, Alfred Deakin Research Institute, Geelong, Vic.

Lowe, D 2014, 'New Colombo Plan can change how we see Asia – if done right', *The Conversation*, accessed July 29, 2014, from <https://theconversation.com/new-colombo-plan-can-change-how-we-see-asia-if-done-right-28301>.

Lowe, P 2014, *Building on strong foundations*, Australian Business Economists (ABE) Annual Dinner, Sydney, accessed December 12, 2014, from <http://www.bis.org/review/r141125d.pdf>.

Mark, S 2009, *A Greater Role for Cultural Diplomacy*, Netherlands Institute of International Relations: Clingendael, accessed January 30, 2013, from <http://www.clingendael.nl/publications/2009/20090616_cdsp_discussion_paper_114_mark.pdf>.

Mar, P 2014, *Australia's Approaches to Cultural Diplomacy With/in Asia: An Overview. A Report for the Australian Council of Learned Academies (ACOLA) Project on Asia Literacy: Language and Beyond*, ACOLA, Melbourne, accessed from <http://acola.org.au/index.php/saf03-contributing-reports>.

Martel, E 2014, 'TGI partners with Qualcomm to launch new mHealth centre in China', *The George Institute for Global Health*, accessed December 17, 2014, from <http://www.georgeinstitute.org.au/media-releases/tgi-partners-with-qualcomm-to-launch-new-mhealth-centre-in-china>.

Masani, Z 2012, 'English or Hinglish? India's choice', *BBC*, accessed December 10, 2012, from <http://www.bbc.co.uk/news/magazine-20500312>.

Mattarima, K & Hamdan, AR 2011, 'The Teaching Constraints of English as Foreign Language in Indonesia: The Context of School Based Curriculum', *Sosiohumanika*, vol. 4, no. 2, pp. 287–300.

Matthews, M & Cheng, J 2015, *A strategy for Australia's international engagement in science and research based on positioning in key transnational research value chains. A Report for the Australian Council of Learned Academies (ACOLA) Project on Asia Literacy: Language and Beyond*, ACOLA, Melbourne, accessed from <http://acola.org.au/index.php/saf03-contributing-reports>.

McDonald, H 2013, *India, Australia and the Asian Century*, accessed September 17, 2014, from <http://www.aii.unimelb.edu.au/sites/default/files/Fearless%20Nadia%20Hamish%20McDonald%20for%20web_0.pdf>.

McDonald, J 2008, 'Emily Kame Kngwarreye in Osaka', *Aboriginal Art Directory*, accessed January 13, 2015, from <http://www.aboriginalartdirectory.com/news/feature/emily-kame-kngwarreye-in-osaka.php>.

Medcalf, R 2013, *India-Australia Poll 2013*, Lowy Institute, Sydney, accessed April 22, 2013, from <http://www.lowyinstitute.org/publications/india-australia-poll-2013>.

Media Art Asia Pacific 2012, 'Light from Light', accessed December 9, 2014, from <http://www.maap.org.au/publications/#lfl>.

Media Art Asia Pacific 'Collaborators', accessed December 9, 2014, from <http://www.maap.org.au/collaborators/>.

Melissen, J 2011, *Beyond the New Public Diplomacy*, Clingendael, The Hague, Netherlands, accessed January 14, 2013, from <http://www.clingendael.nl/publications/2011/20111014_cdsp_paper_jmelissen.pdf>.

Meyer, J-B 2001, 'Network Approach versus Brain Drain: Lessons from the Diaspora', *International Migration*, vol. 39, no. 5, pp. 91–110.

Meyer, J-B & Wattiaux, J-P 2008, 'Diaspora Knowledge Networks: Vanishing Doubts and Increasing Evidence', *International Journal on Multicultural Societies*, vol. 8, no. 1, pp. 4–24.

Milner, A & Percival Wood, S 2012, *Our Place in the Asian Century: Southeast Asia as 'The Third Way'*, Asialink, Melbourne, accessed January 17, 2013, from <http://www.asialink.unimelb.edu.au/__data/assets/pdf_file/0004/662107/TheThirdWay_ASIALINK-11-2012_Small.pdf>.

Ministry of Information, Communication and the Arts 2008, *Renaissance City Plan 3*, Ministry of Information, Communication and the Arts, Singapore Government, Singapore, accessed October 26, 2014, from <https://www.nac.gov.sg/docs/resources/renaissance-city-report-3-(rcp3).pdf>.

Ministry of Science and Technology 2012, 'The Strategy for Science and Technology Development for the 2011–2020 period', *Government of Vietnam*, accessed October 29, 2014, from <http://www.most.gov.vn/Desktop.aspx/Details-Article/ST-stratergy/The_translation_is_for_reference/>.

Ministry of Science and Technology 2013, *Science, Technology and Innovation Policy 2013*, Ministry of Science and Technology, Government of India, New Delhi, accessed October 29, 2014, from <http://dst.gov.in/sti-policy-eng.pdf>.

MLA Ad Hoc Committee on Foreign Languages 2007, *Foreign Languages and Higher Education: New Structures for a Changed World*, Modern Languages Association of America, New York, accessed September 22, 2014, from <http://www.mla.org/pdf/forlang_news_pdf.pdf>.

Montgomery, S 2013, *Does science need a global language? English and the future of research*, University of Chicago, Chicago IL.

Moreno, G, Walker, KO, Morales, LS & Grumbach, K 2011, 'Do physicians with self-reported non-English fluency practice in linguistically disadvantaged communities?', *Journal of general internal medicine*, vol. 26, no. 5, pp. 512–517.

Mouton, J 2007, *Study on National Research Systems A Meta-Review: Regional Report on Asian Countries*, UNESCO Forum on Higher Education, Research and Knowledge, accessed October 29, 2014, from <http://unesdoc.unesco.org/images/0015/001577/157794e.pdf>.

Murphy, C 2013, 'English May Be Losing Its Luster in China', *WSJ Blogs-China Real Time Report*, accessed September 15, 2014, from <http://blogs.wsj.com/chinarealtime/2013/11/07/learning-english-may-be-losing-its-luster-in-china/>.

Murray, N & Scarino, A 2014, 'Introduction: A relational view of language learning', in *Dynamic Ecologies – A Relational Perspective on Languages Education in the Asia-Pacific Region*, Multilingual Education, Vol. 9, Springer, pp. 4–10, accessed October 7, 2014, from <http://www.springer.com/education+%26+language/book/978-94-007-7971-6>.

Nakamura, T 2013, *Japan's New Public Diplomacy: Coolness in Foreign Policy Objectives*, Nagoya University, Nagoya, Japan, accessed December 8, 2014, from <http://ir.nul.nagoya-u.ac.jp/jspui/handle/2237/17875>.

National Council of Educational Research and Training 2005, *National curriculum framework 2005*, National Council of Educational Research and Training, New Delhi.

National Research Council of the National Academies 2010, *S&T Strategies of Six Countries: Implications for the United States*, The National Academies Press, Washington D.C.

National Science Board 2014, *Science and Engineering Indicators 2014*, National Science Foundation, Arlington VA, accessed October 30, 2014, from <http://www.nsf.gov/statistics/seind14/content/etc/nsb1401.pdf>.

Nelson, D 2012, 'British diplomats in India to learn "Hinglish"', *Telegraph.co.uk*, accessed December 10, 2012, from <http://www.telegraph.co.uk/news/worldnews/asia/india/9598949/British-diplomats-in-India-to-learn-Hinglish.html>.

New Colombo Plan Steering Committee 2013, *New Colombo Plan: A report of the Steering Group to the Hon. Julie Bishop MP*, Menzies Research Centre, Canberra, accessed August 30, 2013, from <http://menziesrc.org/images/Publications/Downloads/New_Colombo_Plan_Report_of_the_Steering_Group_FINAL.pdf>.

Newspoll 2013, *Australian attitudes towards Indonesia*, Department of Foreign Affairs and Trade, Canberra, accessed August 28, 2013, from <http://www.dfat.gov.au/publications/australian-attitudes-towards-indonesia/>.

Nicholson, AM & Baillie, R 2012, '"Jai Ho!" diplomacy', *ABC Radio Australia*, accessed January 19, 2015, from <http://www.radioaustralia.net.au/international/2010-01-14/jai-ho-diplomacy/232428>.

Nikolic, S, Mraovic, B & Cosic, E 2010, *The Scientific Diaspora as the Brain Gain Option: Exploring the Case of Bosnia and Herzegovina*, Association Alumni of the Centre for Interdisciplinary Postgraduate Studies, accessed November 6, 2014, from <http://www.mhrr.gov.ba/iseljenistvo/Istrazivanja/default.aspx?id=1812&langTag=bs-BA>.

Nye, J 2004, *Soft Power: The Means To Success In World Politics*, PublicAffairs, New York.

Nye, J 2008, 'Public Diplomacy and Soft Power', *The ANNALS of the American Academy of Political and Social Science*, vol. 616, no. 1, pp. 94–109.

Nye, J 2012, 'Why China Is Weak on Soft Power', *The New York Times*, accessed December 8, 2014, from <http://www.nytimes.com/2012/01/18/opinion/why-china-is-weak-on-soft-power.html>.

Nye, J & Kim, Y 2013, 'Soft Power and the Korean Wave', in *The Korean Wave: Korean Media Go Global*, Routledge, Abingdon, Oxon. and New York, pp. 31–42.

OECD 2010, *OECD Science, Technology and Industry Outlook 2010*, OECD Publishing, accessed October 29, 2014, from <http://www.keepeek.com/Digital-Asset-Management/oecd/science-and-technology/oecd-science-technology-and-industry-outlook-2010_sti_outlook-2010-en#page1>.

OECD 2012a, *Meeting Global Challenges through better Governance: International Co-operation in Science, Technology and Innovation.*, OECD Publishing, Paris, accessed December 12, 2014, from <http://public.eblib.com/choice/publicfullrecord.aspx?p=989794>.

OECD 2012b, *Education at a Glance: OECD Indicators 2012, Country Note Japan*, OECD, accessed July 21, 2013, from <http://www.oecd.org/education/EAG2012%20-%20Country%20note%20-%20Japan.pdf>.

OECD 2012c, *OECD Science, Technology and Industry Outlook 2012*, OECD Publishing, accessed October 29, 2014, from <http://www.keepeek.com/Digital-Asset-Management/oecd/science-and-technology/oecd-science-technology-and-industry-outlook-2012_sti_outlook-2012-en#page334>.

OECD 2012d, 'Science and Innovation: India', in *OECD Science, Technology and Industry Outlook 2012*, pp. 312–315.

OECD 2013, *OECD Science, Technology and Industry Scoreboard 2013: Japan Highlights*, Paris.

Office for National Statistics 2013, 'Language in England and Wales, 2011', accessed July 17, 2013, from <http://www.ons.gov.uk/ons/rel/census/2011-census-analysis/language-in-england-and-wales-2011/rpt---language-in-england-and-wales--2011.html>.

Office of Science and Technology Policy 2010, *Fact Sheet: U.S. Government Science and Technology Engagement With the Muslim World – Progress in Realizing the President's Vision of Enhanced Science and Technology (S&T) Partnership in the Muslim World*, Executive Office of the President of the United States, Washington D.C., accessed November 5, 2014, from <http://www.whitehouse.gov/sites/default/files/microsites/ostp/cairo-fact-sheet.pdf>.

Office of the Chief Scientist 2012, *Health of Australian Science*, Australian Government, Canberra, accessed May 16, 2013, from <http://www.chiefscientist.gov.au/wp-content/uploads/HASReport_Web-Update_200912.pdf>.

Office of the Chief Scientist 2013, *The Case for An Australian Science & Technology Strategy*, Office of the Chief Scientist, Canberra, accessed October 30, 2014, from <http://www.chiefscientist.gov.au/wp-content/uploads/PMSEIC-April-2013.pdf>.

Office of the Chief Scientist 2014a, *Benchmarking Australian Science, Technology, Engineering and Mathematics.*, Australian Government, Canberra, accessed December 1, 2014, from <http://www.chiefscientist.gov.au/wp-content/uploads/BenchmarkingAustralianSTEM_Print_Nov2014.pdf>.

Office of the Chief Scientist 2014b, *Science, technology, engineering and mathematics: Australia's future*, Australian Government, Canberra.

O'Keeffe, A & Oliver, A 2010, *International Broadcasting and its Contribution to Public Diplomacy*, Lowy Institute, Sydney, accessed May 6, 2013, from <http://www.lowyinstitute.com/files/pubfiles/O%27Keeffe_and_Oliver_International_broadcasting_WP_full.pdf>.

Oliver, A & Shearer, A 2011, *Diplomatic Disrepair: Rebuilding Australia's International Policy Infrastructure*, Lowy Institute, Sydney, accessed December 8, 2014, from <http://www.lowyinstitute.org/files/pubfiles/Oliver_and_Shearer%2C_Diplomatic_disrepair_Web.pdf>.

Olsen, A 2013, '2013 Research Agenda: Australian Universities International Directors' Forum', accessed November 4, 2014, from <http://www.spre.com.au/download/AIEC2013AUIDFResearchPaper.pdf>.

ORC International & Tourism Research Australia 2014, *Chinese Satisfaction Survey*, Tourism Research Australia, Australian Government, Canberra, accessed February 18, 2015, from <http://www.tra.gov.au/documents/Chinese_Satisfaction_Survey_FULL_REPORT_FINAL_24JAN2014.pdf>.

Orton, J 2008, *The Current State of Chinese Language Education in Australian Schools*, University of Melbourne, Melbourne, accessed January 16, 2013, from <http://www.asiaeducation.edu.au/verve/_resources/ChinaReport.pdf>.

Osman, S 2012, 'Keeping English in Indonesian Schools – The Jakarta Globe', *The Jakarta Globe*, accessed July 22, 2013, from <http://www.thejakartaglobe.com/archive/keeping-english-in-indonesian-schools/>.

Oz Fest 'Oz Fest – Australia Unlimited', accessed December 17, 2014, from <http://www.ozfestindia.com/site/>.

Paauw, S 2009, *One land, one nation, one language: Indonesia's national language policy*, accessed May 21, 2013, from <http://www.bcs.rochester.edu/cls/s2009v5n1/Paauw.pdf>.

Patman, R & Davis, L 2014, 'Science diplomacy has mixed success', *Otago Daily Times*, accessed January 13, 2015, from <http://www.odt.co.nz/opinion/opinion/314577/science-diplomacy-has-mixed-success>.

Peking University 'Humanities & Social Sciences', accessed October 30, 2014, from <http://english.pku.edu.cn/Academics_Research/Humanities_Social_Sciences/>.

Percival Wood, S 2014, 'The Australia-ASEAN partnership at 40: past dilemmas and future prospects', *The Conversation*, accessed October 30, 2014, from <http://theconversation.com/the-australia-asean-partnership-at-40-past-dilemmas-and-future-prospects-31279>.

Picard, M 1996, 'Bali: the development of international tourism and the fostering of the national culture.', *EspacesTemps.net*, accessed August 24, 2014, from <http://www.espacestemps.net/en/articles/bali-the-development-of-international-tourism-and-the-fostering-of-the-national-culture-en/>.

Planning and Evaluation Service, Dept. of Science and Technology 2002, *National science and technology plan 2002–2020*, Department of Science and Technology, Manila, Philippines.

PricewaterhouseCoopers 2014, *Passing us by: Why Australian businesses are missing the Asian opportunity. And what they can do about it*, PricewaterhouseCoopers, Sydney, accessed December 12, 2014, from <http://www.pwc.com.au/asia-practice/assets/Passing-us-by.pdf>.

PricewaterhouseCoopers, Melbourne Institute & Asialink 2012, *PwC Melbourne Institute Asialink Index: ANZ Services Report*, Asialink, Melbourne, accessed June 4, 2013, from <http://www.asialink.unimelb.edu.au/__data/assets/pdf_file/0006/650661/PwC_Asialink_ANZ_Service_Report_2012.pdf>.

PRIU, Presidential Secretariat Sri Lanka 2010, 'SL- India Centre for English Language Training to be opened', *PRIU Presidential Secretariat of Sri Lanka*, accessed July 12, 2013, from <http://www.priu.gov.lk/news_update/Current_Affairs/ca201003/20100305sl_india_centre_eng_language_training_to-be_opened.htm>.

'Project Atlas – Australia', accessed November 4, 2014, from <http://www.iie.org/Services/Project-Atlas/Australia>.

Queensland Art Gallery | Gallery of Modern Art 'Australian Centre of Asia Pacific Art', accessed January 19, 2015, from <http://www.qagoma.qld.gov.au/research/acapa>.

Queensland Tourism Industry Council 2013a, *Chinese Language and Cultural Awareness in the Current Queensland Tourism Industry*, Queensland Tourism Industry Council, Brisbane, accessed February 18, 2015, from <https://www.qtic.com.au/sites/default/files/qtic_draft_environmental_scan_for_consulation_-_china_project.pdf>.

Queensland Tourism Industry Council 2013b, *Queensland Tourism Industry Council: Annual Review 2012–13*, Queensland Tourism Industry Council, Brisbane, accessed February 18, 2015, from <https://www.qtic.com.au/sites/default/files/qtic_annual_review_2012-13_web.pdf>.

Rahman, M 2012, 'Language exodus reshapes India's schools', *The Guardian*, accessed July 18, 2013, from <http://www.guardian.co.uk/education/2012/may/15/india-schools-english>.

Raven, P 2013, 'Engaging North Korea through Biodiversity Protection', *Science & Diplomacy*, accessed October 29, 2014, from <http://www.sciencediplomacy.org/perspective/2013/engaging-north-korea-through-biodiversity-protection>.

Ricento, T 2005, 'Problems with the "language-as-resource" discourse in the promotion of heritage languages in the U.S.A', *Journal of Sociolinguistics*, vol. 9, no. 3, pp. 348–368.

Riemer, MJ 2007, 'Communication Skills for the 21st century Engineer', *Global J. of Engng. Educ*, vol. 11, no. 1, pp. 89–100.

Rizvi, F & Gorur, R 2011, *Challenges Facing Indian Higher Education*, Australia India Institute, Melbourne, accessed July 19, 2013, from <http://www.aii.unimelb.edu.au/sites/default/files/Fearless%20nadia%20image%202.pdf>.

R.L.G. 2012, 'English where she is spoke', *The Economist*, accessed October 23, 2014, from <http://www.economist.com/blogs/johnson/2012/10/language-skills>.

Rowbotham, J 2013, 'Languages should be linked to results', *The Australian*, accessed January 10, 2013, from <http://www.theaustralian.com.au/higher-education/languages-should-be-linked-to-results/story-e6frgcjx-1226550527205>.

Rudd, KM 1994, *Asian languages and Australia's economic future: a report prepared for the Council of Australian Governments on a proposed national Asian languages/studies strategy for Australian schools*, Queensland Govt. Printer, Brisbane.

SAARC 'South Asian Association For Regional Cooperation', accessed July 31, 2013, from <http://www.saarc-sec.org/#>.

Sakamoto, M 2012, 'Moving towards effective English language teaching in Japan: issues and challenges', *Journal of Multilingual and Multicultural Development*, vol. 33, no. 4, pp. 409–420.

SATAC 2014, *Fact Sheet: SACE/NTCET for tertiary entry. SA Universities Bonus Schemes*, SATAC, Adelaide, accessed January 23, 2015, from <http://www.satac.edu.au/media/W1siZiIsIjlwMTQvMDcvMjgvMDNfNDNfMzZfODc1X0ZhY3RTaGVldF9TQUNFTlRDRVRfU0FVbmlzQm9udXNQb2ludHMucGRmIl0sWyJlIiwic GRmIl1d/FactSheet_SACENTCET_SAUnisBonusPoints.pdf>.

Saxenian, A 2002, 'Brain Circulation: How High-Skill Immigration Makes Everyone Better Off', *The Brookings Institution*, accessed November 4, 2014, from <http://www.brookings.edu/research/articles/2002/12/winter-immigration-saxenian>.

Saxenian, A 2005, 'From Brain Drain to Brain Circulation: Transnational Communities and Regional Upgrading in India and China', *Studies in Comparative International Development*, vol. 40, no. 2, accessed November 4, 2014, from <http://connection.ebscohost.com/c/articles/19183065/from-brain-drain-brain-circulation-transnational-communities-regional-upgrading-india-china>.

Scellato, G, Franzoni, C & Stephan, P 2012, *Mobile Scientists and International Networks*, National Bureau of Economic Research, Cambridge MA, accessed July 4, 2014, from <http://www.nber.org/papers/w18613>.

Schneider, C. (2006) Cultural Diplomacy: Hard to Define, but You'd Know it If You Saw It', *Brown Journal of World Affairs*, 13 (1): 191–203.

School of Foreign Languages, Peking University '北京大学外国语学院_', accessed November 11, 2014, from <http://sfl.pku.edu.cn/en/index.php>.

Schüller, M, Gruber, F, Trienes, R & Shim, D 2008, *International science and technology cooperation policies of South East Asian countries*, SEA-EU-NET: First Bi-Regional Science & Technology Policy Dialogue, EU-ASEAN, Paris, accessed October 29, 2014, from <https://zsi.at/de/attach/ConsultationPaper.pdf>.

Schuller, M, Gruber, F, Trienes, R & Shim, D 2008, *International Science and Technology Cooperation Policies of South East Asian Countries*, Paris.

Science Europe 2013, *Humanities in the Societal Challenges: 12 Compelling Cases for Policy Makers*, Science Europe, Brussels, accessed October 30, 2014, from <http://www.scienceeurope.org/uploads/Public%20documents%20and%20speeches/SCs%20public%20docs/SE_broch_HUM_fin_web_LR.pdf>.

Screen Australia 2013, 'Common Ground: Opportunities for Australian Screen Partnerships in Asia', accessed February 22, 2014, from <http://www.screenaustralia.gov.au/about_us/pub_commonground.aspx>.

Screen Australia 2014, 'Enterprise Asia 2014: Factual focus for Australian screen delegation headed to China', accessed December 9, 2014, from <http://www.screenaustralia.gov.au/news_and_events/2014/mr_140214_asia.aspx>.

Select Committee on Soft Power and the UK's Influence 2014, *Persuasion and Power in the Modern World*, UK Parliament, House of Lords, London, accessed April 14, 2014, from <http://www.publications.parliament.uk/pa/ld201314/ldselect/ldsoftpower/150/150.pdf>.

Select Committee on Soft Power and the UK's Influence, House of Lords 2014, *Persuasion and Power in the Modern World*, British Goverment, London, accessed October 3, 2014, from <http://www.publications.parliament.uk/pa/ld201314/ldselect/ldsoftpower/150/15002.htm>.

Senate Standing Committee on Foreign Affairs, Defence and Trade 2007, *Australia's Public Diplomacy: Building Our Image*, Commonwealth of Australia, Canberra.

'Servicing Chinese Visitors', accessed August 13, 2014, from <http://servicingchinesevisitors.com/>.

Shin, S-C 2010, *The Current State of Korean Language Education in Australian Schools*, Commonwealth of Australia; Asia Education Foundation, accessed January 16, 2013, from <http://www.asiaeducation.edu.au/verve/_resources/KoreaReport.pdf>.

Shi, T & Tweed, D 2014, 'Xi Jinping outlines "big country diplomacy" for China', *The Sydney Morning Herald*, accessed December 17, 2014, from <http://www.smh.com.au/world/xi-jinping-outlines-big-country-diplomacy-for-china-20141202-11yaj5.html>.

Shukla, S 2012, '"Hinglish Vinglish" lessons for British diplomats', *India Today*, accessed December 11, 2012, from <http://indiatoday.intoday.in/story/hinglish-vinglish-lessons-for-british-diplomats/1/224611.html>.

Smith, S 2012, 'Asia Unbound » Hiroshi Mikitani: The Answer Is in English', *Council on Foreign Relations – Asia Unbound*, accessed August 20, 2014, from <http://blogs.cfr.org/asia/2012/12/11/hiroshi-mikitani-the-answer-is-in-english/>.

'Square Kilometre Array SKA' *SKA Telescope*, accessed January 5, 2015, from <https://www.skatelescope.org/>.

Statistics Canada 'Linguistic Characteristics of Canadians', accessed July 17, 2013, from <http://www12.statcan.gc.ca/census-recensement/2011/as-sa/98-314-x/98-314-x2011001-eng.cfm#a3>.

Stokes, P 2013, 'Detailed Characteristics for England and Wales, March 2011', *Office for National Statistics*, accessed July 17, 2013, from <http://www.ons.gov.uk/ons/rel/census/2011-census/detailed-characteristics-for-local-authorities-in-england-and-wales/stb---detailed-characteristics-for-england-and-wales--march-2011.html#tab-Main-language->.

Subhash 2013, 'Three Language Education Formula in Multilingual India: Problems and Prospects', *International Journal of Educational Research*, vol. 1, no. 4, p. 9.

Sunami, A, Hamachi, T & Kitaba, S 2013, 'The Rise of Science and Technology Diplomacy in Japan', *Science & Diplomacy*, accessed August 22, 2013, from <http://www.sciencediplomacy.org/article/2013/rise-science-and-technology-diplomacy-in-japan>.

Tan, C-B (ed.) 2013, *Routledge Handbook of the Chinese Diaspora* 1 edition., Routledge, London ; New York.

Tapsell, R 2014, 'Cutting off Australia's international television arm', *East Asia Forum*, accessed December 8, 2014, from <http://www.eastasiaforum.org/2014/09/30/cutting-off-australias-international-television-arm/>.

The 4th Science and Technology Basic Plan of Japan 2011, Tokyo, accessed October 29, 2014, from <http://www.mext.go.jp/component/english/__icsFiles/afieldfile/2012/02/22/1316511_01.pdf>.

The George Institute 2013, 'Systematic Medical Appraisal, Referral and Treatment (SMART) Health', The George Institute for Global Health, accessed December 17, 2014, from <http://www.georgeinstitute.org/units/systematic-medical-appraisal-referral-and-treatment-smart-health>.

'The Japan Foundation', accessed September 9, 2013, from <http://www.jpf.go.jp/e/index.html>.

'The Korea Foundation 한국국제교류재단', accessed September 9, 2013, from <http://www.kf.or.kr/eng/main/index.asp>.

The Liberal Party of Australia 2013, *Our Plan: Real Solutions for all Australians*, Liberal Party of Australia, Canberra, accessed September 11, 2013, from <http://lpa.webcontent.s3.amazonaws.com/realsolutions/LPA%20Policy%20Booklet%20210x210_pages.pdf>.

The Lowy Institute 'Lowy 2014 Interactive Poll', accessed December 10, 2014, from <http://www.lowyinstitute.org/lowyinstitutepollinteractive/feelingsthermometer.php>.

The Royal Society 2010, *New frontiers in science diplomacy: Navigating the changing balance of power*, The Royal Society, London.

The Royal Society 2011, *Knowledge, networks and nations: Global scientific collaboration in the 21st century*, The Royal Society, London.

The State Council 2006, *The National Medium- and Long-Term Program for Science and Technology Development (2006–2020)*, Beijing.

The University of Western Australia 'Bonus for languages other than English', accessed January 23, 2015, from <http://www.studyat.uwa.edu.au/undergraduate/requirements/wace/lote>.

Thomson Reuters 'Chinese Science Citation Database', accessed September 18, 2014, from <http://thomsonreuters.com/chinese-science-citation-database/>.

Tinsley, T 2013, *Languages: The State of the Nation – Demand and Supply of Language Skills in the UK*, British Academy for the Humanities and Social Sciences, London, accessed March 26, 2013, from <http://www.britac.ac.uk/policy/State_of_the_Nation_2013.cfm>.

Tourism Australia 2014a, *Visitors by country of residence*, Tourism Australia, Canberra, accessed February 18, 2015, from <http://www.tourism.australia.com/documents/Statistics/ABS_arrivals_Sep_2014.pdf>.

Tourism Australia 2014b, *Tourism Australia Corporate Plan 2014 – 17*, Tourism Australia, Canberra, accessed December 8, 2014, from <http://www.tourism.australia.com/documents/corporate/Performance-reporting-Corporate-Plan-2014.pdf>.

Tovey, J & McNeilage, A 2013, 'Number of HSC language students falls to record low', *The Sydney Morning Herald*, accessed February 20, 2015, from <http://www.smh.com.au/national/education/number-of-hsc-language-students-falls-to-record-low-20131002-2usv2.html>.

Trounson, A 2014, 'Lack of Asian "no bar to joining New Colombo Plan"', *TheAustralian*, accessed April 2, 2014, from <http://www.theaustralian.com.au/higher-education/lack-of-asian-no-bar-to-joining-new-colombo-plan/story-e6frgcjx-1226871272846>.

Turner, G & Brass, K 2014, *Mapping the Humanities, Arts and Social Sciences in Australia*, Australian Academy of the Humanities, Canberra, accessed December 17, 2014, from <http://www.humanities.org.au/Portals/0/documents/Policy/Research/MappingProject/txt/Mapping_HASS_Aust_FinalReport_All_Oct2014.pdf>.

Turpin, T, Woolley, R, Marceau, J & Hill, S 2008, 'Conduits of Knowledge in the Asia Pacific: Research training, networks and country of work', *Asian Population Studies*, vol. 4, no. 3, pp. 247–265.

Tzeng, R 2006, 'Reverse Brain Drain: Government policy and corporate strategies for global talent searches in Taiwan', *Asian Population Studies*, vol. 2, no. 3, pp. 239–256.

UNESCO 2010, *UNESCO Science Report 2010*, UNESCO, Paris, accessed June 19, 2013, from <http://www.unesco.org/new/en/natural-sciences/science-technology/prospective-studies/unesco-science-report/unesco-science-report-2010/>.

UNESCO 2013, *The International Mobility of Students in Asia and the Pacific*, UNESCO, Paris and Bangkok, accessed September 3, 2014, from <http://www.uis.unesco.org/Library/Documents/international-student-mobility-asia-pacific-education-2013-en.pdf>.

UNESCO Institute for Statistics 2014, *Higher education in Asia: expanding out, expanding up – the rise of graduate education and university research*, UNESCO, Montreal, accessed from <http://www.uis.unesco.org/Library/Documents/higher-education-asia-graduate-university-research-2014-en.pdf>.

Universities Australia 2014, *International Links of Australian Universities: Formal agreements between Australian universities and overseas higher education institutions*, Universities Australia, Canberra, accessed February 19, 2015, from <https://www.universitiesaustralia.edu.au/ArticleDocuments/188/International%20Links%20of%20Australian%20Universities%20-%20October%202014.pdf.aspx>.

University of Queensland 'Bonus Rank Scheme FAQs – The University of Queensland, Australia', accessed January 23, 2015, from <http://uq.edu.au/study/index.html?page=89468>.

U.S. Census Bureau 2010, *Language Use in the United States: 2007*, US Census Bureau, accessed July 17, 2013, from <http://www.census.gov/hhes/socdemo/language/data/acs/ACS-12.pdf>.

U.S.-China Bi-National Commission & on Trust-Building and Enhancing Relations 2014, *Building U.S.-China Trust Through Next Generation People, Platforms & Programs*, USC Annenberg and Peking University, Los Angeles, accessed December 5, 2014, from <http://uschinaexchange.usc.edu/sites/default/files/us-china-trust-2014.pdf>.

US Department of State, Office of the Science and Technology Adviser 2012, 'Networks of Diasporas in Engineering and Science (NODES) Fact Sheet', accessed November 5, 2014, from <http://www.state.gov/e/stas/2012/195496.htm>.

Van Noorden, R 2012, 'Science on the move', *Nature*, vol. 490, no. 7420, pp. 326–329.

Varghese, P 2013, *Bruce Allen Memorial Lecture 'Building Australia's Soft Power'*, Soft Power Advocacy and Research Centre, Macquarie University, Sydney.

Veugelers, R 2013, 'The implications of Asia's scientific rise', *Bruegel*, accessed November 4, 2014, from <http://www.bruegel.org/nc/blog/detail/article/1026-the-implications-of-asias-scientific-rise/>.

Walker, I 2013, 'APT7 exhibition boosts Qld economy by over $26m. The Queensland Cabinet and Ministerial Directory. Minister for Science, Information Technology, Innovation and the Arts.', accessed January 19, 2015, from <http://statements.qld.gov.au/Statement/2013/8/27/apt7-exhibition-boosts-qld-economy-by-over-26m>.

Wang, X, Xu, S, Liu, D & Liang, Y 2012, 'The Role of Chinese—American Scientists in China—US Scientific Collaboration: A Study in Nanotechnology', *Scientometrics*, vol. 91, no. 3, pp. 737–749.

Wang, X, Xu, S, Wang, Z, Peng, L & Wang, C 2013, 'International scientific collaboration of China: collaborating countries, institutions and individuals', *Scientometrics*, vol. 95, no. 3, pp. 885–894.

Wang, Y 2008, 'Public Diplomacy and the Rise of Chinese Soft Power', *The ANNALS of the American Academy of Political and Social Science*, vol. 616, no. 1, pp. 257–273.

Wassener, B 2013, 'For Westerners in Asia, the Job Market Grows Tougher', *The New York Times*, accessed August 1, 2013, from <http://www.nytimes.com/2013/05/23/business/global/for-westerners-in-asia-the-job-market-grows-tougher.html>.

Wei, R 2013, 'Chinese-English Bilingual Education in China: Model, momentum, and driving forces', *Asian EFL Journal*, vol. 15, no. 4.

Wesley, M 2009, *Australia's Poisoned Alumni: International Education and the Costs to Australia*, Lowy Institute, Sydney, accessed December 12, 2014, from <http://www.lowyinstitute.org/files/pubfiles/Wesley%2C_Australia%27s_poisoned_alumni_web2.pdf>.

Wesley, M 2011, *There Goes the Neighbourhood: Australia and the Rise of Asia*, UNSW Press, Sydney.

Whiteley, P & Xiao, X 2011, 'Lingua franca', *China Daily*, accessed July 18, 2013, from <http://europe.chinadaily.com.cn/epaper/2011-02-25/content_12077532.htm>.

White, M 2014, 'How Immigrants Make American Science Great', *Pacific Standard*, accessed November 4, 2014, from <http://www.psmag.com/navigation/nature-and-technology/immigrants-make-american-science-great-75166/>.

'Why Study in Japan?', accessed August 7, 2013, from <http://www.studyjapan.go.jp/en/toj/toj01e.html>.

Wong, L 2014, 'MCCY – Promoting Singapore's cultural assets as part of cultural diplomacy, and providing our talents the exposure to grow and scale new heights', *Ministry of Culture, Community and Youth, Singapore*, accessed December 8, 2014, from <http://www.mccy.gov.sg/news/Parliamentary/2014/Feb/Cultural_diplomacy.aspx>.

Xie, Y 2013, 'Is U.S. Science in Decline?', *Issues in Science and Technology*, accessed October 27, 2014, from <http://issues.org/30-3/yu_xie/>.

Xie, Y & Killewald, A 2012, *Is American Science in Decline?*, Harvard University Press, Cambridge MA, accessed November 6, 2014, from <http://www.hup.harvard.edu/catalog.php?isbn=9780674052420>.

Yoon, BL 1992, 'Reverse brain drain in South Korea: state-led model', *Studies in Comparative International Development*, vol. 27, no. 1, pp. 4–26.

Yue, A 2006, 'Cultural governance and creative industries in Singapore', *International Journal of Cultural Policy*, vol. 12, no. 1, pp. 17–33.

Zaharna, RS 2012, *The Cultural Awakening in Public Diplomacy*, University of Southern California, Center on Public Diplomacy at the Annenberg School, Los Angeles.

Zaharna, RS 2014, *Confucius Institutes and the Globalization of China's Soft Power*, USC Center on Public Diplomacy, Los Angeles, accessed September 19, 2014, from <http://uscpublicdiplomacy.org/sites/uscpublicdiplomacy.org/files/useruploads/u25044/Confucius%20Institutes%20v2%20%281%29.pdf>.

Zaharna, RS, Arsenault, A & Fisher, A 2013, *Relational, Networking and Collaborative Approaches to Public Diplomacy: The Connective Mindshift*, Routledge, New York.

Zhang, X 2010, 'Chinese state media going global', *East Asian Policy*, vol. 2, no. 1, pp. 42–50.

Zhou, P & Glänzel, W 2010, 'In-depth analysis on China's international cooperation in science', *Scientometrics*, vol. 82, no. 3, pp. 597–612.

Zweig, D 2006, 'Learning to compete: China's efforts to encourage a "reverse brain drain"', *International Labour Review*, vol. 145, no. 1/2, pp. 65–90.

Zweig, D, Fung, CS & Han, D 2008, 'Redefining the Brain Drain: China's "Diaspora Option"', *Science Technology & Society*, vol. 13, no. 1, pp. 1–33.

Zykas, A 2013, 'The Transforming Aims of Japan's Post-Cold War Cultural Diplomacy', *Regioninės Studijos*, no. 7, pp. 123–144.

Expert working group

Professor Ien Ang FAHA (Chair)

Professor Ang is Distinguished Professor of Cultural Studies at the University of Western Sydney, where she was the founding Director of the Institute for Culture and Society. She is the author of several influential books, including Desperately Seeking the Audience (1991) and On Not Speaking Chinese (2001), and has been the recipient of nine Australian Research Council Discovery or Linkage grants, including an Australian Professorial Fellowship awarded in 2005. She has served on the ARC College of Experts and has been a member of the Australian Academy of the Humanities Council. She has held visiting professorial positions in Singapore, Hong Kong, the Netherlands, Sweden, Britain and the United States.

Professor Chennupati Jagadish FAA, FTSE (Deputy)

Professor Jagadish is an Australian Laureate Fellow, Distinguished Professor and Head of Semiconductor Optoelectronics and Nanotechnology Group in the Research School of Physics and Engineering, Australian National University. He is also serving as Vice-President and Secretary Physical Sciences of the Australian Academy of Science. Prof. Jagadish is an Editor/Associate editor of six journals, three book series and serves on editorial boards of 17 other journals. He has published more than 800 research papers (530 journal papers), holds five US patents, co-authored a book, co-edited five books and edited 12 conference proceedings and 14 special issues of Journals. He received the Peter Baume Award from the ANU, Quantum Device Award from ISCS, IEEE Photonics Society Distinguished Service Award, IEEE Nanotechnology Council Distinguished Service Award, Electronics and Photonics Division Award of the Electrochemical Society and Boas Medal from the Australian Institute of Physics.

Professor Kent Anderson

Professor Kent Anderson is a comparative lawyer specialising in Asia. He is Deputy Vice Chancellor (Community & Engagement) at University of Western Australia where he is responsible for the university's external relations including the Perth Festival and Cultural Precinct. He has an eclectic background doing his tertiary studies in Japan, US, and UK in Law, Politics, Economics, and Asian Studies. Prior to UWA, Kent was Pro Vice Chancellor (International) at University of Adelaide and a law and Asian Studies professor at ANU. Before academia, Kent was a marketing manager for a US airline based in Alaska and a commercial lawyer based in Hawai'i.

Professor John Fitzgerald FAHA

John Fitzgerald is President of the Australian Academy of the Humanities and Director of the Asia Pacific Centre for Social Investment and Philanthropy at Swinburne University of Technology. Previously he directed Ford Foundation operations in Beijing and held positions including Head of the School of Social Sciences at La Trobe University and Director of the International Centre of Excellence in Asia-Pacific Studies at the ANU. He has served as Chair of the Education Committee of DFAT's Australia-China Council and Chair of the ARC Committee for National and International Cooperation. His publications have been widely recognised, including the Ernest Scott Prize of the Australian Historical Association and the Joseph Levenson prize of the American Association for Asian Studies. John has a Ph.D. from ANU and held a Fulbright postdoctoral fellowship at the University of Wisconsin-Madison.

Professor Fazal Rizvi FASSA

Born in India, Professor Fazal Rizvi was educated in India, Australia and the UK, and is currently a professor in Global Studies in Education at the University of Melbourne and an emeritus professor at the University of Illinois at Urbana-Champaign in the United States. He is also a fellow of the Academy of the Social Sciences in Australia and a board member of the Asia Education Foundation. He has published extensively on issues of identity and culture in transnational contexts, theories of globalization and education policy and more recently Indian higher education. His latest books are: Globalizing Education Policy (Routledge 2010) and Encountering Education in the Global (Routledge 2014).

Professor Krishna Sen FAHA

Professor Krishna Sen, an internationally recognised scholar of contemporary Indonesian and media studies, commenced her appointment as Dean of the Faculty of Arts at the University of Western Australia in January 2009. She has held teaching and research positions at Murdoch and Curtin Universities, and was the Executive Director for Humanities and Creative Arts at the Australian Research Council in Canberra, just prior to taking up her position at UWA. Krishna is a Fellow of the Australian Academy of Humanities (FAHA) and founding member of the Australian Research Council's Asia Pacific Futures and Cultural Research Network. She serves on the editorial boards of several national and international journals.

Professor Mark Wainwright AM, FTSE

Emeritus Professor Mark Wainwright AM FTSE retired from the Office of Vice-Chancellor and President of UNSW Australia in July 2006. In that year he was appointed Chairman of the Australia-China Council by DFAT, a position he held until 2011 when he became the inaugural Chairman of the Foundation for Australian Studies in China, a position he currently holds. He continues to have very strong links with the Asian region and is a member of the Hong Kong University Grants Commission, the International Advisory Board of Hong Kong Polytechnic University, the International Academic Review Panel of Singapore Management University and is a Development Advisor of the Jiaxing P/V Hi-Tech Park Administrative Committee in China.

Project Managers

Dr Yasmin Tambiah
Senior Research Project Manager
Australian Academy of the Humanities/
Institute for Culture and Society

Dr Kylie Brass
Policy and Projects Manager
Australian Academy of the Humanities

Acknowledgements

Evidence gathering

1. Roundtables and consultations

Roundtables

The Expert Working Group held two roundtables during the project to obtain input from experts regarding research collaboration with the Asia-Pacific region, and cultural and public diplomacy in the region. These roundtables were held in Canberra over 4–5 November 2013. The contribution of these experts is gratefully acknowledged.

Lesley Alway
Asialink Arts

Professor Edward Aspinall
Australian National University

Assoc. Professor Simon Avenell
Australian National University

Dr John Bell FTSE
Allen Consulting Group

Juliet Bell
CSIRO

Dr Kylie Brass
Australian Academy of the Humanities

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Professor David Carter FAHA
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Assoc. Professor Min Chen
University of Sydney

Dr Nha Chu
Embassy of Viet Nam

Assoc. Professor Helen Creese FAHA
University of Queensland

Professor Phil Cummins
Australian National University

Kim Dalton OAM
formerly Australian Film Commission and ABC Television

Professor Anthony D'Costa
University of Melbourne

Dr Assa Doron
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Professor Mark Finnane FAHA FASSA
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Dr Caroline Turner
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Professor John Webb OAM
University of Melbourne

Ross Westcott
DFAT

Regine Wong
DFAT

Professor Aibing Yu FAA FTSE
University of New South Wales

Consultations

A series of consultations were held with community artists and cultural activists from the Chinese, Indian, Filipino and Pacific Islands diasporic communities to generate evidence for the sub-report, 'International cultural engagements among Australians of Pacific Islands and Asian descent: A preliminary research report' by Professor John Fitzgerald and Wesa Chau, 2014. Their contribution is gratefully acknowledged.

2. Interviews

The following organisations, government departments and individuals were either interviewed, or sent in written responses, as part of the evidence gathering process. Their assistance is gratefully acknowledged.

The Australian Consulate-General, Shanghai

The Australian Embassy, Beijing

Public Diplomacy Branch
The Department of Foreign Affairs and Trade

Collette Brennan
Australia Council for the Arts

Michael Bryson
Department of Industry and Science

Jane Camens
Asia Pacific Writers and Translators

Freya Campbell
Austrade

Professor David Carter FAHA
University of Queensland

Kim Dalton OAM
formerly Australian Film Commission
and ABC Television

Professor Kate Darian-Smith FASSA
University of Melbourne

Andrew Donovan
Australia Council for the Arts

Mary Fleming
AARNet

Douglas Gautier
Asia Pacific Performing Arts Centres
and Adelaide Festival Centre

Professor Joseph Lo Bianco AM FAHA
University of Melbourne

Kim Machan
Media Arts Asia Pacific

Jill Morgan AM
Multicultural Arts Victoria

Lung Ong
formerly Asia Pacific Screen Awards

Professor Anushka Patel
The George Institute for Global Health

Des Power AM
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Craig Proctor
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Assoc. Professor Judith Snodgrass
University of Western Sydney

Professor Chung-Sok Suh
University of New South Wales

Sophie Travers
Australia Council for the Arts

Professor Adrian Vickers
University of Sydney

Dr Wendy Were
Australia Council for the Arts

3. Surveys

As part of the evidence gathering process pertaining to diasporas, two surveys were conducted:

1. 'Australians living and working in Asia' which surveyed Australians who currently live and work in Asia, or who had very recently returned to Australia after being based in Asia. The report of this survey was written by Brigid Freeman and Professor Fazal Rizvi.

    The Australian Academy of the Humanities, the Academy of Social Sciences in Australia, the Australian Academy of Science, and the Australian Academy of Technological Sciences and Engineering assisted with identifying possible respondents to this survey. The project secretariat also contacted 80 organisations directly, while 21 were contacted via Linked-In. There were 333 respondents.

2. 'Chinese and Indian diasporic scholars in Australia' which surveyed scholars of Chinese and Indian descent currently based in Australia. The report of this survey was written by consultant Brigid Freeman.

    The four Learned Academies of Australia, the Federation of Chinese Scholars in Australia (FOCSA), the Gyan Network of the High Commission of India <http://www.hcindia-au.org/gyan-network.htm>, the Australia India Institute, the Asian Studies Association of Australia (ASAA), and CSIRO assisted with disseminating this survey. The project secretariat also disseminated the survey to Chinese and Indian diasporic scholars at a number of Australian universities. There were 244 respondents.

Both survey reports are available online at <http://acola.org.au/index.php/saf03-contributing-reports>.

The contribution of all survey respondents, and all who disseminated the surveys, is gratefully acknowledged.

4. Reports

The following consultancy reports were commissioned by the ACOLA Secretariat for this project.

Title: Australian research collaboration in Asia
Prepared by: Dr Thomas Barlow
Date: 2014

Title: A strategy for Australia's international engagement in science and research based on positioning in key transnational research value chains
Prepared by: Dr Mark Matthews and Jonathan Cheng
Date: 2015

Title: Engaging culturally with many Asias
Prepared by: Professor Yudhishthir Raj Isar
Date: 2014

The following sub-reports were also prepared for this project.

Title: International cultural engagements among Australians of Pacific Islands and Asian descent: A preliminary research report
Prepared by: Professor John Fitzgerald and Wesa Chau
Date: 2014

Title: Australia's approaches to cultural diplomacy with/in Asia: An overview
Prepared by: Dr Phillip Mar
Date: 2014

All reports are available online at <http://acola.org.au/index.php/saf03-contributing-reports>.

Review Panel

This report has been reviewed by an independent panel of experts. Members of this Review Panel were not asked to endorse the Report's conclusions and findings. The Review Panel members acted in a personal, not organisational, capacity and were asked to declare any conflicts of interest. ACOLA gratefully acknowledges their contribution.

Professor Kam Louie

Kam Louie (FAHA, FHKAH). Before serving as Dean of Arts at HKU (2005–2013), Louie was Professor of Chinese at UQ and ANU. Currently, he is Adjunct Professor, School of Humanities and Languages at UNSW and Honorary Professor, School of Chinese at HKU. He has published seventeen books on various aspects of Chinese culture, including *Chinese Masculinities in a Globalising World* (Routledge, 2015); *Diasporic Chineseness after the Rise of China* (co-ed) (British Columbia UP, 2013); *Hong Kong Culture: Word and Image* (ed) (Hong Kong UP, 2010) and *The Cambridge Companion to Modern Chinese Culture* (ed) (Cambridge UP, 2008).

Professor Max Lu

Max Lu is Provost and Senior Vice-President at the University of Queensland. Previously he served as Deputy Vice-Chancellor (Research) and Pro-Vice-Chancellor (Research Linkages). He founded the ARC Centre of Excellence for Functional Nanomaterials. He won a Federation Fellowship twice (2003/2008).

A Thomson Reuters Highly Cited in both Chemistry and Materials Science, he is an elected Fellow of the Australian Academy of Science, Australian Academy of Technological Sciences and Engineering, Institution of Chemical Engineers, Engineers Australia, and Royal Society of Chemistry. His numerous awards include the Chemeca Medal, China International Science and Technology Award, Queensland Greats, and Australia-China Achievements Award.

Professor Andrew McIntyre

Andrew MacIntyre is the Deputy Vice-Chancellor International and Vice-President of RMIT University. Previously he served in several roles at the Australian National University including as Professor of Political Science, Dean of the College and Director of the Research School of Asia & the Pacific and was the founding Director of the Crawford School of Public Policy (2002–2009).

Professor MacIntyre is a Fellow of the Academy of Social Sciences in Australia and has published widely on Southeast Asian politics, international relations in the Asia-Pacific region and enhancing universities. He was the founder of the Australia-Indonesia Governance Research Partnership, and serves on the editorial board of the Bulletin of Indonesian Economic Studies. He is the recipient of the Japanese Foreign Minister's Commendation for contributions to the promotion of relations between Japan and Australia (2006) and also a recipient of the Presidential Friends of Indonesia award (2010).

Dr Vaughan Turekian

Vaughan Turekian is the Chief International Officer for the American Association for the Advancement of Science (AAAS) where he leads, develops and coordinates the broad range of AAAS's international activities. He is also the founding Director of AAAS's Center for Science Diplomacy and the Editor-in-Chief of the Journal Science & Diplomacy.

Dr Turekian served as Special Assistant to the Under Secretary of State for Global Affairs, where and was the lead advisor on international science, technology, environment and health issues. He is the two time recipient of the Department's Superior Honor Award for his work on climate change and avian influenza.

He has published numerous articles on the linkages between science and international policy, is an adjunct Professor at Georgetown and a visiting distinguished lecturer at the University College of London.

Dr Turekian received his masters and doctorate in atmospheric geochemistry from the University of Virginia. He is a graduate of Yale University with degrees in Geology and Geophysics and International Studies.

About Securing Australia's Future

In June 2012 the Australian Government announced *Securing Australia's Future*, a $10 million investment funded by the Australian Research Council in a series of strategic research projects. Projects are delivered to the Commonwealth Science Council by the Australian Council of Learned Academies (ACOLA) via the Office of the Chief Scientist and the Australian Chief Scientist.

Securing Australia's Future is a response to global and national changes and the opportunities and challenges of an economy in transition. Productivity and economic growth will result from: an increased understanding in how to best stimulate and support creativity, innovation and adaptability; an education system that values the pursuit of knowledge across all domains, including science, technology, engineering and mathematics; and an increased willingness to support change through effective risk management.

Six initial research topics were identified:

i. Australia's comparative advantage

ii. STEM: Country comparisons

iii. Asia literacy – language and beyond

iv. The role of science, research and technology in lifting Australian productivity

v. New technologies and their role in our security, cultural, democratic, social and economic systems

vi. Engineering energy: unconventional gas production

Two further research topics have been identified:

vii. Australia's agricultural future

viii. Sustainable urban mobility

The Program Steering Committee responsible for the overall quality of the program, including selection of the Expert Working Groups and the peer review process, is comprised of three Fellows from each of the four Learned Academies:

Professor Michael Barber FAA FTSE (Chair)

Mr Dennis Trewin AO FASSA (Deputy Chair – Research)

Professor James Angus AO FAA

Dr John Burgess FTSE

Professor Bruce Chapman AO FASSA

Professor Ruth Fincher FASSA

Professor Paul Greenfield AO FTSE

Professor Lesley Head FAHA

Professor Peter McPhee AM FAHA FASSA

Professor Stephen Powles FAA FTSE

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Professor Graeme Turner FAHA

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